Kincho H. Law

Professor of Civil and Environmental Engineering
Structural Engineering and Engineering Informatics
Stanford University
Stanford, CA 94305-4020
Phone: (650)725-3154
E-mail: law@stanford.edu

Research Interests

Prof. Law's professional and research interests focus on the application of computational and information science in engineering. His work has dealt with various aspects of computational mechanics and structural dynamics, AI and machine learning, large scale database management, Internet and cloud computing, numerical methods and high performance computing. His research application areas include computer aided engineering, legal and engineering informatics, engineering enterprise integration, web services and supply chain management, monitoring and control of engineering systems, smart infrastructures, and smart manufacturing.

Education

Doctor of Philosophy, Civil Engineering, Carnegie-Mellon University, Pittsburgh, PA, 1981
Master of Science, Civil Engineering, Carnegie-Mellon University, Pittsburgh, PA, 1979
Bachelor of Science, Civil Engineering (with High Honors), University of Hawaii, Honolulu, HI, 1976
Bachelor of Arts, Mathematics (with Distinction), University of Hawaii, Honolulu, HI, 1976

Academic Appointments

1997-Present	Professor, Department of Civil and Environmental Engineering, Stanford University, Stanford, California.
1991-1997	Associate Professor, Department of Civil Engineering, Stanford University, Stanford, California.
1988-1991	Assistant Professor, Department of Civil Engineering, Stanford University, Stanford, California.
1982-1988	Assistant Professor, Department of Civil Engineering, Rensselaer Polytechnic Institute, Troy, New York.

Faculty Affiliation (Stanford University)

Center for Integrated Facility Engineering (CIFE), Stanford University
John A. Blume Earthquake Engineering Center, Stanford University
Stanford Center at the Icheon Global Campus
SystemX, Stanford University
Urban Studies Program, Stanford University
Center for Computational Social Science, Stanford University

Faculty Affiliation (External)

Distinguished Visiting Professor, Tsinghua University, Beijing, China, 2019-2022
Visiting (Research) Professor, Dept. of Real Estate and Construction, Faculty of Architecture, University of Hong Kong, Hong Kong, 2018-2021

External Examiner, Department of Civil Engineering, University of Hong Kong, Hong Kong, September, 2016 – August, 2020
Invited (Visiting) Professor, Beijing Jiaotong University, Beijing, China 2013-2017
Chair Visiting Professor, Tsinghua University, Beijing, China, 2013-2018
Invited Guest Faculty, Ecole Polytechnique Federale De Lausanne (EPFL), July, 2003

Academic/Industrial Advisory Board

Member, International Scientific Committee, TUM Georg Nemetschek Institute (GNI) Artificial Intelligence for the Built World, Technical University of Munich, March, 2023 – February, 2026.
Member of Advisory Committee, GREAT Smart Cities Institute (GSCI), Hong Kong University of Science and Technology, Hong Kong, April, 2022 – March, 2024
Panel Member, Synergy Program, European Research Council, 2022-2023
Member of Academic Advisory Committee, School of Engineering, Hong Kong University of Science and Technology, Hong Kong, July, 2017 – June, 2020
Strategic Advisor, Civionics Inc., Ann Arbor, Michigan -- Sensor-Driven Predictive Analytics for Engineered Systems (2011-2018)
Advisor, Locus Energy Inc. (A Genscape Company), New Jersey -- Monitoring and Analytics for Solar Industry (2012-2018)
Advisor, Infinite Uptime Inc., Berkeley, California -- Industrial Internet Platform for Predictive Analytics (2016-2022)
External Senior Advisor, Guangxi Bridge Monitoring & Reinforcement Engineering Technical Research Center, Guangxi Transportation Research Institute, Nanning, Guangxi (2016-2019)
Advisor, PlusAI, Cupertino, California – Autonomous Vehicles (2016-Present)

Selected Professional Affiliations

American Society of Civil Engineers
American Society of Mechanical Engineers
Institute of Electrical and Electronic Engineers
California Universities for Research in Earthquake Engineering
Digital Government Society of North America

Editorial Board

Journal of Computing in Civil Engineering, ASCE, Specialty Editor, Structural and Infrastructure Informatics
ASTM Journal on Smart and Sustainable Manufacturing Systems, Member of the Editorial Board
Journal on Advances in Engineering Software, Member of the Editorial Advisory Board
ACM Journal on Digital Government: Research and Practice, Member of the Review Board (former)
IT Professional, IEEE Computer Society, Regular Papers Editor, Member of the Editorial Board (former)
Journal of Engineering with Computers, Member of the Editorial Board (former)
International e-Journal on IT in Construction (ITCON), Member of Editorial Board (former)
Journal of Computing in Civil Engineering, ASCE, Associate Editor (former)
Journal of Computing Information and Science in Engineering, ASME, Associate Editor (former)

Selected Awards and Honors

Invited International Scholar, Korea Advanced Institute of Science and Technology (KAIST), March 16-24, 2024
Excellence in Research Award, Division of Computers and Information in Engineering, American Society of Mechanical Engineers, 2023
Senior Member, Institute of Electrical and Electronics Engineers, elected 2019

Distinguished (Visiting) Professor, Tsinghua University, Beijing, China, 2019-2022
Life Member, American Society of Civil Engineers, elected 2018
Visiting (Research) Professor, Dept. of Real Estate and Construction, Faculty of Architecture, University of Hong Kong, Hong Kong, 2018-2021
John L. Tishman Lecture, Construction Engineering and Management, Department of Civil and Environmental Engineering, University of Michigan, April, 2018
Distinguished Member, American Society of Civil Engineers, elected 2017
Fellow, American Society of Mechanical Engineers, elected 2017
Best Paper Award, IEEE Big Data 2016, Symposium on Data Analytics for Advanced Manufacturing, Washington, D.C., December 7, 2016.
Best Paper award, 2015 Manufacturing Science and Engineering Conference (MSEC 2015), ASME Manufacturing Engineering Division, Charlotte, NC, June 8-12, 2015.
Chair (Visiting) Professor, Tsinghua University, Beijing, China, 2015-2018
Invited (Visiting) Professor, Beijing Jiaotong University, Beijing, China 2013-2017
Chair (Visiting) Professor, Tsinghua University, Beijing, China, 2013-2015
Best Paper Award, ASCE Journal of Computing in Civil Engineering, 2014
Best Research Paper award in the Area of Resilience and Smart Structures, 2013 ASCE International Workshop on Computing in Civil Engineering, June 2013.
Best Research and Practice Paper Award, 6th International Conference on Electronic Governance (ICEGOV), Albany, New York, October, 2012.
Computing in Civil Engineering Award, American Society of Civil Engineers, 2011
Meritorious Paper Award on the Foundations of Electronic Governance, 4th International Conference on Electronic Governance (ICEGOV), Beijing, China, October, 2010.
Distinguished Lecturer, Department of Civil and Environmental Engineering, University of Michigan, Engineering the Impossible Distinguished Lecture Series, November 2009.
Best Research Paper Award, 9th Annual International Conference on Digital Government Research (dg.o2008), May 2008
Distinguished Lecturer, Department of Civil, Architecture and Environmental Engineering, University of Texas at Austin, March 2008
Best Paper Award, Journal of Computing in Civil Engineering, ASCE, 1999
Faculty Member of the Year Award, Society of Chicano/Latino Engineers and Scientists, Stanford University, 1996
Outstanding Research Advisor, Society of Chicano/Latino Engineers and Scientists, Stanford University, 1993
Sigma Xi, The Scientific Research Society of North America
The Honor Society of Phi Kappa Phi
Chi Epsilon, a National Honorary Civil Engineering Society
Harold Thomas Scholarship Award, Civil Engineering Department, Carnegie-Mellon University, 1978
Dai Ho Chun Scholarship Award, University of Hawaii, 1976

Selected Synergistic Activities

Participated in workshops sponsored by government agencies and research organizations including NSF, NEES, PEER, EPA, Access Board, NIST, FIATECH, Kennedy School of Government, Science and Technology Policy Institute/IDA and others.
Invited speaker at various organizations and universities including Computers and Structures, Inc., Sun Hung Kai Properties Ltd., Glodon, ANSYS, Inc., Strathclyde University, EPFL, Loughborough University, Kansai University, University of Tokyo, Osaka University, Kyoto University, University of Hong Kong, Hong Kong University of Science and Technology, Hong Kong Polytechnic University, Savantas Policy Institute (Hong Kong), Korea Advanced Institute of Science and Technology, Seoul National University, Xiamen University, Shanghai Jiaotong University, Tongji

University, Tsinghua University, Beijing Jiaotong University, Harbin Institute of Technology, Guangxi Academy of Transportation science, Carnegie Mellon University, University of Michigan, UC San Diego, University of Texas at Austin, Georgia Institute of Technology and others

Active participant and member of professional organizations, including American Society of Civil Engineers (Member, Past Chair and Control Group Member on AI, Database, Education Committees in the Technical Council on Computer Practices/Technical Council on Information and Computing Technology; Member and Past Chair of Committees in the Structural Engineering Institute; Host and Organizer for many ASCE Conferences and Technical Sessions), American Society of Mechanical Engineers (Member, Past Chair of Engineering Data Management Symposium), Activities with IAI (Code and Standards Committee), Society of Industrial and Applied Mathematics, Association of Computing Machinery, Digital Government Society

Selected Invited Lectures/Presentations

2024

Cyber Physical System for Civil Infrastructures
Invited International Scholar Seminar, Department of Civil and Environmental Engineering
Korea Advanced Institute of Science and Technology, March 21, 2024

Cyber Physical System for Civil Infrastructures
Invited Seminar, GS Construction, Seoul, Republic of Korea, March 20, 2024

2022

Information Science and Computing Technologies for Civil Infrastructural Engineering
(Remote) Invited Plenary Presentation, 3rd International Conference on Civil Engineering Fundamentals and Applications (ICCEFA'22), October 26, 2022

2021

Data Science for Civil Infrastructure Monitoring
(Remote) Invited Seminar, Data Science Institute, University of Hawai`i, Mānoa, April 16, 2021

From Digital Technologies to Smart Infrastructures and Resilient Cities
(Remote) 1st International Symposium: Envisioning Smart Cities and Beyond, Stanford Center at Incheon Global Campus (SCIGC), Songdo, Korea of Republic, June 4, 2021.

Smart Urban Infrastructures and Smart Cities – A Research Perspective
(Virtual Presentation) Keynote Presentation, 26th International Symposium on Advancement of Construction Management and Real Estate (CRIOCM 2021), Tsinghua University, Beijing, China, November 20, 2021

2020

Information Science and Computing Technologies in Civil and Building Engineering
(Remote) Keynote Presentation, 25th International Symposium on Advancement of Construction Management and Real Estate (CRIOCM 2020), November 28, 2020.

Opportunities and Applications of Information and Communication Technologies (ICT) in Civil and Building Engineering
(Remote) Keynote Presentation, 8th International Conference on Innovative Production and Construction (IPC 2020), Hong Kong, December 7, 2020

2019

Computing and AI (Machine Learning) in Civil and Construction Engineering
Public Lecture, Department of Civil Engineering, University of Hong Kong, May 30, 2019.

ICT in Design, Construction and Management in Architecture, Engineering, Construction and Operations (AECO)
Conference Keynote Presentation, 36th CIB W78 Conference, Northumbria University at Newcastle, United Kingdom, September 20, 2019

A Software Platform for Civil Infrastructure Health Monitoring
Keynote Presentation, 2nd International Conference on Sustainable Buildings and Structures (ICSBS), Xi'an Jiaotong-Liverpool University, Suzhou, China, October 26, 2019

Information Infrastructure for Civil Infrastructure Monitoring
Invited Lecture, Department of Civil Engineering, Tsinghua University, Beijing, China, October 28, 2019

Information and Communication Technologies (ICT) in Civil and Building Engineering
Conference Keynote Presentation, 4th International Conference on Civil and Building Engineering Informatics (ICCBEI), Sendai, Miyagi, Japan, November 7, 2019

A Scalable and Interoperable CyberInfrastructure Platform for Civil Infrastructure Monitoring
Invited Seminar, OKI Electric Industry Co., Ltd., Tokyo, Japan, November 11, 2019

2018

A Machine Learning Approach to System Characterization and Control Optimization – with Application to Wind Farm Power Production
Public Lecture, Faculty of Construction and Environment, Hong Kong Polytechnic University, January 22, 2018.

Computing in Civil and Construction Engineering
John L. Tishman Distinguished Lecture in Construction Engineering and Management, Department of Civil and Environmental Engineering, University of Michigan, Ann Arbor, Michigan, April 11, 2018.

Data Driven (Machine Learning) Approach to System Characterization, Diagnostics and Control Optimization
Keynote Presentation, 25th Workshop for Intelligent Computing in Engineering, Lausanne, Switzerland, June 10th-13th, 2018

Applications of AI in Engineering
Invited Lecture, Kobori Research Complex, Kajima Corporation, Tokyo, Japan, July 26th, 2018

Applications of AI and Machine Learning in Engineering
Invited Lecture, Department of Real Estates and Construction, Faculty of Architecture. University of Hong Kong, September 19, 2018

Applications of AI and Machine Learning in Engineering
Blume/SURI Affiliate/Alumni Meeting, Stanford University, October 5, 2018

Optimization of Wind Farm Layout for Maximizing Wind Farm Power Production
Workshop on High Performance Wind Energy System and Effective Operations of Wind Farms (HPWES), Chongqing, China, October 18-19, 2018

When Infrastructure Becomes Sensitive
Hemi Annual Summit: 2019 Top 10 Emerging Technologies & Wine Pairing, Palace Hotel, San Francisco, December 7 2018

2017

Applications of Data Driven (Machine Learning) Approach to System Characterization, Diagnostics and Control Optimization
Invited Seminar, Department of Civil and Environmental Engineering, Georgia Institute of Technology, March 27, 2017.

Smart Cities
Seminar Discussion, ATLAS (Argentina) Smart Cities Delegation, Office of International Affairs, Stanford University, May 3, 2017.

Smart Cities
Invited Presentation, Smart City Symposium 2017, Hong Kong, June 8, 2017.

Information Modeling and Computational Infrastructure for Civil Infrastructure Monitoring
Keynote Presentation, Symposium on BIM and GIS: New Opportunities and Challenges for Civil Engineers, ASCE (HK) and Construction Industry Council, Hong Kong, June 9, 2017.

Applications of Data Driven (Machine Learning) Approach to System Diagnostics and Control Optimization
Invited Seminar, Department of Civil and Environmental Engineering, Hong Kong University of Science and Technology, August 29, 2017.

Information Management and Data-Driven Analytics for Structural Monitoring
Invited Seminar, Gaungxi Transportation Research and Consulting Co., Ltd., Gaungxi, China, September 7, 2017.

Applications of Data Driven (Machine Learning) Approach to System Diagnostics and Control Optimization
Invited Seminar, College of Civil Engineering and Architecture, Guangxi University, September 8, 2017.

Cyberinfrastructure Framework for Smart Civil Infrastructure Monitoring
Invited Seminar, Korea ICT Bridge Seminar, Korea Infrastructure Safety & Technology Corporation (KISTEC), Seoul, Korea, September 1, 2017.

Data Driven (Machine Learning) Approach for Wind Farm Power Maximization
Invited Presentation, International High-End Forum on Structural Engineering and Wind Engineering, Chongqing, China, October 14, 2017.

Smart Manufacturing and Related Technologies
Workshop on Innovation Driven Sustainable Enterprise Development, CSGDC, Stanford University, October 11, 2017.

ICT in Civil and Construction Engineering
Invited Presentation, China Communications Construction Group, Stanford University, December 5, 2017.

2016

An Ontology-Based Approach for Facilitating Information Retrieval from Disparate Sources: Patent System as an Exemplar
Invited Presentation, Ontology Summit (Webinar), March 10, 2016.

ICT for Civil Infrastructures
Invited Seminar, Hazard Analytics Meeting, International Computer Science Institute (ICSI), Berkeley, CA, June 1, 2016.

Data Driven Control Optimization with Machine Learning – Wind Farm Power Maximization as an Exemplar
Invited Seminar, Seoul National University, Korea, June 28, 2016.

Smart Cities or Smart Communities
Invited Presentation, Urban Resilience Workshop, Tsinghua Institute for Future Cities and Infrastructures (IFCI), Tsinghua University, Beijing, China, July 2, 2016.

Using Ontologies for Information Retrieval and Interoperability
Invited Seminar, Tsinghua University, Beijing, China, July 5, 2016.

Smart Manufacturing and Related Technologies
Invited Seminar, Workshop on Innovation Driven Sustainable Enterprise Development, Center for Sustainable Development and Global Competitiveness, Stanford University, Stanford, CA, September 19, 2016.

Data Driven Predictive Analytics for Manufacturing Machine Tools
Invited Seminar, National Institute of Standards and Technology, October 31, 2016.

A Data-Driven Control Optimization Approach for Wind Farm Power Maximization using Machine Learning
Invited Seminar, Beijing Jiaotong University, December 21, 2016.

Applications of Computing and AI in Engineering
Invited Conference Keynote Presentation, International Conference on Construction Applications of Virtual Reality**,** Hong Kong, December 12, 2016.

A Cyber Infrastructure Framework for Bridge Monitoring
Invited Seminar, Gaungxi Transportation Research Institute, Gaungxi, China, December 19, 2016.

2015

Computational Service Infrastructure for Structural Health Monitoring
Invited Keynote, Conference on Sensors and Smart Structures Technologies for Civil, Mechanical, and Aerospace Systems, SPIE Smart Structures NDE, March 9, 2015.

Computational Service Infrastructure for Structural Health Monitoring
Invited Seminar, Korea Advanced Institute of Science and Technology (KAIST), Korea, March 25, 2015.

Wireless Sensing, Monitoring and Control of Civil Structures
Invited Seminar, Chonbuk University, Korea, March 26, 2015.

Smart Cities,
Seminar Series on Sustainable Urbanization, Department of Civil and Environmental Engineering, Stanford University, May 29, 2015.

Data Driven Control Optimization with Machine Learning – Wind Farm Power Maximization as an Exemplar
Invited Seminar, Tsinghua University, Beijing, China, September 14, 2015.

Sensing Technologies and Information Infrastructure for Bridge Monitoring
Invited Seminar, Gaungxi Transportation Research Institute, Gaungxi, China, September 16, 2015.

Data Analytics for Smart Manufacturing Systems
Keynote Presentation, IEEE International Conference on Big Data, Santa Clara, CA, October 29, 2015.

A Data-Driven Control Optimization Approach Using Machine Learning – with Applications to Wind Farm Power Maximization
Invited Public Lecture, Faculty of Construction and Environment, Hong Kong Polytechnic University, Hong Kong, China, December 11, 2015.

Smart Cities or Smart Communities
Invited Seminar, Savantas Policy Institute, Hong Kong, China, December 11, 2015.

A Data-Driven Control Optimization Approach Using Machine Learning – with Applications to Wind Farm Power Maximization
Invited Lecture, International Symposium on Data-Driven Structural Control and Management, Disaster Prevention Research Institute (DPRI), Kyoto University, Kyoto, Japan, December 17, 2015.

2014

Engineering and Social Science (Research and Opportunities)
Invited Presentation, Global Innovation Leadership Program, MediaX, Stanford University, February 19, 2014.

Overview of Machine Learning (with Applications to Engineering)
Symposium for Smart Manufacturing System Design and Analysis, National Institute of Standards and Technology, March 17-19, 2014.

A Patent System Ontology for Facilitating Retrieval of Patent-Related Information
Invited Presentation, Workshop on Computation, Mathematics and the Law, School of Law, University of San Diego, March 21-22, 2014.

REGNET: Regulation Information Management, Compliance and Analysis
Invited Presentation, Workshop on Computation, Mathematics and the Law, School of Law, University of San Diego, March 21-22, 2014.

A Patent System Ontology for Facilitating Retrieval of Patent-Related Information
Invited Presentation, Patent Information Users Group (PIUG) Annual Conference, Los Angeles, CA, April 28-30, 2014.

Smart Manufacturing – Needs for Standards and Support Mechanisms
National Institute of Standards and Technology, June 17, 2014.

Internet-Enabled Model-Based CAD
Invited Presentation, Glodon Company, Beijing, China, July 22, 2014.

Internet Computing in Civil and Building Engineering
Invited Presentation, Tsinghua University, Beijing, China, July 18, 2014.

Power Maximization of Wind Farm – A Machine Learning Approach
2nd Workshop for Innovation on Mitigating Wind-Induced Disaster of Infrastructures Sensitive to Wind, Beijing Jiaotong University, September 13, 2014.

Information and Computing Technologies in Civil Engineering
Beijing Jiaotong University, September 17, 2014.

Power Maximization of Wind Farm – A Machine Learning Approach
Hong Kong University of Science and Technology, December 9, 2014.

2013

An Overview on Practice and Research in Bridge Monitoring Technologies
Invited Seminar Presentation, Guangxi Academy of Transportation Science, Guangxi, China, March 29, 2013.

Wireless Sensing, Monitoring and Control of Civil Structures
Invited Lecture, Beijing Jiaotong University, Beijing, China, April 26, 2013.

Wind-Induced Vibration Energy Harvester
Invited Presentation, Workshop on Innovation and Intelligence to Wind Engineering, Beijing Jiaotong University, Beijing, China, April 28, 2013.

Applications of Computing and Communication Technologies in Civil and Building Engineering
Invited Lecture, Department of Civil Engineering, Harbin Institute of Technology, Harbin, China, July 5, 2013.

A Machine Learning Approach for Wind Turbine Monitoring – Wind Field Characterization and Load Predictive Analysis
Invited Presentation, International Symposium on Innovation and Sustainability of Structures in Civil Engineering, Harbin, China, July 6, 2013.

Computing and Communication Technologies in Civil and Building Engineering
Invited Lecture, Department of Civil Engineering, Tsinghua University, Beijing, China, July 9, 2013.

Computing and Communication Technologies in Civil and Building Engineering
Invited Seminar, Department of Civil and Environmental Engineering, Hong Kong Polytechnic University, Hong Kong, December 6, 2013.

A Bayesian Optimization Approach for Wind Farm Monitoring and Power Maximization
Invited Presentation, 6th International conference on Structural Health Monitoring of Intelligent Structures, Hong Kong, December 9, 2013

2012

Application of Computing and Communication Technologies in Civil and Building Engineering
Invited Seminar Presentation, Department of Civil and Environmental Engineering, Hong Kong University of Science and Technology, Hong Kong, December 10, 2012.

Towards Life-Cycle Management of Wind Turbines based on Structural Health Monitoring
Invited Speaker, First International Conference on Performance-based and Life-cycle Structural Engineering, Hong Kong, December 6, 2012.

Characterization of Sustainable Product Assembly and Manufacturing
Invited Presentation, Engineering Laboratory, National Institute of Standards and Technology, Gaithersburg, MD,, November 13, 2012.

2011

Using Ontologies for Information Retrieval and Interoperability
Invited Seminar Presentation, Information Technology Laboratory, National Institute of Standards and Technology, Gaithersburg, MD,, May 27, 2011

Monitoring and Control of Civil Structures
Invited Seminar Presentation, Guangxi Academy of Transportation Science, Guangxi, China, July 22, 2011

Computing and Communication Technologies in Civil and Building Engineering
Invited Seminar Presentation, School of Economics and Management, Tongji University, Shanghai, China, July 28, 2011

REGNET: Regulation Information Management, Compliance and Analysis
Invited Presentation, IEEE International Symposium on Technology and Society, Xavier University, Chicago, IL, May 22, 2011

Web Services in Civil and Structural Engineering Simulations
Invited Keynote Presentation, International Symposium on Innovation & Sustainability of Structures in Civil Engineering, Xiamen University, Xiamen, China, October 29, 2011

2010

Information and Communication Technologies in Civil Engineering
Invited Seminar, Department of Civil Engineering, The University of Hong Kong, March 19, 2010.

Emerging Applications of Computing, Information and Communication Technologies in Architectural and Civil Engineering
Invited Keynote Presentation, 10th International Conference on Construction Applications of Virtual Reality, Sendai, Miyagi, Japan, November 4-5, 2010.

3D Model-Based Civil and Architectural Engineering Design Using Cloud Computing
Invited Presentation, JACIC-JSCE Seminar on State of the Art Virtual Reality Application in Europe and the United States – Application of 3D Data, Building Information Modeling (BIM), and Cloud Computing, Tokyo, Japan, November 8, 2010.

Wireless Sensing, Monitoring and Control of Civil Structures

Invited Seminar, Department of Civil Engineering, School of Naval Architecture, Ocean, and Civil Engineering, Shanghai Jiao Tong University, December 9, 2010, Shanghai, China.

Emerging Applications of Information and Communication Technologies in Engineering
Invited Keynote Speaker, 2010 International Conference on Progress in Informatics and Computing (PIC 2010), December 10-12, 2010, Shanghai, China.

2009

REGNET: Regulation Management and Compliance Assistance
Invited Presentation, Global Electronic Government Research and Practice, Hawaii International Conference on System Sciences, Hawaii, January 5, 2009.

From 3D CAD to Enterprise Computing
Invited Presentation, Kansai University Tokyo Center, Tokyo, Japan, February 12, 2009.

Network Computing in Civil and Building Engineering
Invited Seminar, Computer Aided Engineering Program, National Taiwan University, Taipei, Taiwan, February 17, 2009.

Adapting Open Standards for Engineering Supply Chain
Invited Panel Presentation, CIE 5-2 Open Standards for Model-Based Enterprise and Engineering Integration, ASME Computer and Information Engineering Conference, San Diego, CA, August 31, 2009

Adapting Open Standards for Sustainable Engineering Supply Chain
Invited Presentation, Workshop on Sustainable Manufacturing Metrics, Standards and Infrastructure, National Institute of Standards and Technology, Gaithersburg, MD, October 14, 2009

Computing and Communication Technologies in Civil and Building Engineering
Engineering the Impossible Distinguished Lecture Series, Department of Civil and Environmental Engineering, University of Michigan, November 9, 2009.

2008

Conference Summary and Future Directions
Special Guest Lecture, 12th International Conference on Computing in Civil and Building Engineering (ICCCBE XI) and 2008 International Conference on Information Technology in Construction (INCITE 2008), Beijing, China, October 15-17, 2008.

Applications of Computing, Information and Communication Technologies in Civil and Building Engineering
Invited Seminar, Department of Building and Real Estate, Hong Kong Polytechnic University, Hong Kong, China, October 14, 2008.

Applications of Computing, Information and Communication Technologies in Civil and Building Engineering
Invited Seminar, Division of Sustainable Energy and Environmental Engineering, Graduate School of Engineering, Osaka University, Japan, June 27, 2008.

Applications of ICT to Civil Engineering Informatics
Invited Seminar, Kansai University, Osaka, Japan, June 26, 2008.

Wireless Sensing for Structural Monitoring and Control
Invited Seminar, Structural Engineering Seminar Series, Department of Civil, Architecture and Environmental Engineering, The University of Texas at Austin, March 5, 2008.

Emerging Applications of Computing, Information and Communication Technologies in AEC
Distinguished Lecture Series, Department of Civil, Architecture and Environmental Engineering, The University of Texas at Austin, March 4, 2008.

2007

Applications of Information and Communication Technologies in AEC– (Web Services and Human Centered Computing)
Invited Seminar, Korea Advanced Institute of Science and Technology, Dajeon, Korea, September 17, 2007

Wireless Sensing Technologies for Civil Infrastructure Monitoring and Management
Invited Keynote Speaker, 5th International Symposium for Safety of Infrastructure, U-Safety for Infrastructure, Seoul, Korea, sponsored by Korea Infrastructure Safety and Technology Corporation, September 14, 2007

Wireless Sensing and Control – with Applications to Civil Structures
Invited Seminar, University of Tokyo, Tokyo, Japan, August 31, 2007

Engineering Applications of Information and Communication Technologies – (Web Services, Wireless Sensing and Human Centered Computing)
Invited Keynote Speaker, Symposium on CALS-EC - 3DCAD and GIS 2007, Kansai University Tokyo Center, Tokyo, Japan, August 30, 2007

A Reference Data Model and Data Retrieval Tools for NEES Experimentations
Invited Keynote Speaker, KOCED International Symposium on Data Modeling, Korea Construction Engineering Development Collaboratory Program Management Center, Seoul National University, Seoul, Korea , August 23, 2007

Wireless Sensing Technologies for Structural Monitoring and Control
Invited Lecture, Sun Hung Kai Properties, Ltd., Hong Kong, China, July 6, 2007

Wireless Sensing, Monitoring and Control -- with Applications to Civil Structures
Nanqian Lecture, Xiamen University, Xiamen, China, July 4, 2007

Ontology Mapping by Corpus-Based Semantic Similarity
Invited Presentation, Workshop on E2ESU (End-to-End Service Utilities), National Institute of Standards and Technology, March 22-23, 2007

2006

Wireless Sensing, Actuation and Control – With Applications to Civil Structures
Invited Seminar, Hong Kong University of Science and Technology, Hong Kong, China, November 20, 2006

Conference Summary and Future Directions
Special Guest Lecture, World Conference on IT in Design and Construction, ITCITE/ITCSED, New Delhi, India, November 15-17, 2006

Wireless Sensing, Actuation and Control – With Applications to Civil Structures
Invited Seminar, Nanyang Technological University, Singapore, November 14, 2006

Distributed Engineering Web Services
Invited Seminar, National University of Singapore, Singapore, November 13, 2006

Wireless Sensing, Actuation and Control – With Applications to Civil Structures
Invited Keynote Presentation, 13th European Group – Intelligent Computing in Engineering Workshop, Monte Verita, Ascona, Switzerland, June 25-30, 2006

An Internet-Enabled Software Framework for Finite Element Structural Analysis
Invited Seminar, University of Michigan, Ann Arbor, Michigan, March 30, 2006

Applications of ICT Standards in Engineering
Invited Keynote Presentation, Open ICT Ecosystems, National Institute of Standards and Technology, Gaithersburg, MD, March 13-14, 2006

2005

Distributed Engineering Services
Invited Keynote Presentation, ASCE Conference on Computing in Civil Engineering, Cancun, Mexico, July 14, 2005

NEESgrid – A CyberInfrastructure for Earthquake Engineering Simulation (NEESgrid Data/MetaData Efforts and Issues)
Invited Seminar, National Center for Research on Earthquake Engineering, National Taiwan University, Taipei, Taiwan, June 16, 2005

NEESgrid – A CyberInfrastructure for Earthquake Engineering Simulation (NEESgrid Data/MetaData Efforts and Issues)
Invited Seminar, Hyogo Earthquake Engineering Research Center, Miki City, Japan, May 20, 2005

Distributed Engineering (Web) Services – with Applications to Civil and Construction Engineering
Invited Keynote Presentation, 2nd International Symposium on Life-Cycle Science and Engineering, Kansai University, Osaka, Japan, May 19, 2005

NEESgrid – A CyberInfrastructure for Earthquake Engineering Simulation (NEESgrid Data/MetaData Efforts and Issues)
Invited Presentation, NSF Exchanging CyberInfrastructure Themes in Engineering Design (EXCITE) Workshop, Washington, DC, February 28, 2005

2004

Internet-Enabled Distributed Engineering (Web) Services
Invited Keynote Presentation, International Workshop on Integrated Life-Cycle Management of Infrastructures, Hong Kong University of Science and Technology, Hong Kong, December 10, 2004

An Internet-Enabled Software Framework for Finite Element Structural Analysis
Invited Seminar, Department of Civil Engineering, Korea Advanced Institute of Science and Technology (KAIST), Korea, December 7, 2004

Wireless Sensing and Monitoring of Civil Infrastructures
Invited Seminar, Department of Civil Engineering, Hong Kong University of Science and Technology, Hong Kong, August 26, 2004

Software Composition and Engineering Web Services
Invited Seminar, Department of Computer Science, Shanghai Jiaotong University, Shanghai, China, August 23, 2004

Data Issues for NEESgrid – A Virtual Collaborative CyberInfrastructure
Invited Presentation, NSF Collaborative Large-scale Engineering Analysis Network for Environmental Research (CLEANER) Workshop, Albany, New York, June 15, 2004

Data Issues for (Engineering) CyberInfrastructure
Invited Presentation, NSF ITR/ENG/CI Meeting, Arlington, VA, June 11, 2004

A Sparse Direct Solver
Invited Seminar, Computers and Structures, Inc., Berkeley, CA, June 7, 2004

2003
Compliance Analysis and Simulation of Wheelchair Accessibility
Invited Presentation, Workshop on Space Requirements for Wheeled Mobility, State University of New York (SUNY), Buffalo, New York, October 10, 2003

Gaussian Elimination – Numerical Method is not only Numeric
Invited Lecture, Applied Computing and Mechanics Laboratory (IMAC). Ecole Polytechnique Federale De Lausanne (EPFL), Lausanne, Switzerland, July 25, 2003

Integration and Coordination of Distributed Engineering Services
Invited Seminar, Applied Computing and Mechanics Laboratory (IMAC). Ecole Polytechnique Federale De Lausanne (EPFL), Lausanne, Switzerland, July 23, 2003

Application of Data Structures and Algorithms
Invited Lecture, Applied Computing and Mechanics Laboratory (IMAC). Ecole Polytechnique Federale De Lausanne (EPFL), Lausanne, Switzerland, July 18, 2003

Vibration Based Monitoring and Damage Assessment of Civil Structures
Invited Seminar, Applied Computing and Mechanics Laboratory (IMAC). Ecole Polytechnique Federale De Lausanne (EPFL), Lausanne, Switzerland, July 16, 2003

Distributed Computing and Communication Technologies for AEC
Invited Keynote Presentation, 2nd International Conference on Innovation in Architecture, Engineering and Construction (AEC), Loughborough University, United Kingdom, June 26, 2003

Compliance Assistance Tools and E-Rulemaking
Invited Panel Presentation, New Directions for Information Technology and Government Regulation, Digital Government Conference, Boston, MA, May 20, 2003

An Internet-Enabled Software Framework for Finite Element Structural Analysis
Invited Seminar, Department of Structural Engineering, University of California, San Diego, February 19, 2003

IT Support for E-Rulemaking
Invited Presentation, NSF Workshop on E-Rulemaking,. organized by the Regulatory Policy Program, Kennedy School of Government, Harvard University, January 18, 2003

2002
REGNET: An Infrastructure for Regulatory Information Management and Compliance
Invited Presentation, National Compliance Assistance Providers Forum, Environmental Protection Agency, San Antonio, TX, December 6, 2002.

Computational Infrastructure for Composing Distributed Engineering Services
Invited Seminar, Manufacturing Systems Integration Division, National Institute of Standards and Technology (NIST), November 4, 2002

Vibration Based Structural Monitoring and Damage Assessment
Invited Seminar, Department of Civil Engineering, Seoul National University, August 26, 2002

Performance-Based Engineering (vs. Standards Based Design)
Invited Presentation, Workshop on Performance-Based Regulation. Organized by the Regulatory Policy Program, Kennedy School of Government, Harvard University, Washington, D.C., May 13, 2002

Vibration-Based Structural Monitoring and Damage Assessment
Civil Infrastructures Systems Seminar, Department of Civil and Environmental Engineering, Carnegie Mellon University, March 28, 2002

Performance-Based Disabled Access Analysis
Invited Seminar, Access Board, Washington, D.C., March 27, 2002

REGNET: Information Infrastructure for Regulation Management and Compliance Assistance
Invited Presentation, National Science Foundation, March 26, 2002

Publications

2024

M.M. Sato, V.W.H. Wong, H. Yeung, P. Witherell and K.H. Law, "Identification and Interpretation of Melt Pool Shapes in Laser Powder Bed Fusion with Machine Learning," Smart and Sustainable Manufacturing Systems, ASTM, 8(1): 1-23, 2024.

V.W.H. Wong, S.H. Kim, J. Park, J. Park and K.H. Law, "Generating Dispatching Rules for the Interrupting Swap-Allowed Blocking Job Shop Problem Using Graph Neural Network and Reinforcement Learning," ASME Journal of Manufacturing Science and Engineering, 146(1): 011009 (13 pages), 2024. https://doi.org/10.1115/1.4063652

2023

V.W.H. Wong and K.H. Law, "Fusion of CCTV Video and Spatial Information for Automated Crowd Congestion Monitoring in Public Urban Spaces," Algorithms, 16:154 (21 pages), 2023. https://doi.org/10.3390/a16030154

V.W.H. Wong and K.H. Law, "Modeling Crowd Data and Spatial Connectivity as Graphs for Crowd Flow Forecasting in Public Urban Space," ASCE International Conference on Computing in Civil Engineering (i3CE 2023), June, 2023.

M.M. Sato, V.W.H. Wong, K.H. Law, H. Yeung, P. Witherell, "Explainability of Laser Powder Bed Fusion Melt Pool Classification using Deep Learning," Proceedings of the ASME 2023 International Design Engineering Technical Conferences and Computers and Information in Engineering Conference, IDETC/CIE2023 August 20-23, 2023, Boston, Massachusetts.

V.W.H. Wong, S.H. Kim, J. Park, J. Park and K.H. Law, "Generating Dispatching Rules for the Interrupting Swap-Allowed Blocking Job Shop Problem Using Graph Neural Network and Reinforcement Learning," MSEC 2023, ASME Manufacturing Science and Engineering Conference, Rutgers University College of Engineering, New Brunswick, NJ, June 12–16, 2023.

M.D. Lepech, A.S. Kiremidjian and K.H. Law, "The Role of Life Cycle Civil Engineering Practices in Smart and Sustainable Cities," Eighth International Symposium on Life-Cycle Civil Engineering, July 2-6, 2023.

H.D. Le, S.D. Kwon and K.H. Law, "Hybrid Energy Harvesting from Wind and Bridge Vibrations," 16th International Conference on Wind Engineering, Florence, Italy, August 27-31, 2023.

2022

C. Wang, S. Hornauer, S.X. Yu, F. McKenna and K.H. Law, "Instance Segmentation of Soft-Story Buildings from Street-view Images with Semiautomatic Annotation," Earthquake Engineering & Structural Dynamics, 2022;1-14. https://doi.org/10.1002/eqe.3805.

M.M. Sato, V.W.H. Wong, K.H. Law, H. Yeung, Z. Yang, B. Lane and P. Witherell, "Anomaly Detection of Laser Powder Bed Fusion Melt Pool Images Using Combined Unsupervised and Supervised Learning Methods," *International Design Engineering Technical Conferences & Computers and Information in Engineering Conference* (IDETC-CIE), ASME, DETC2022-88313, St. Louis, Missouri, August, 2022

S. Jeong, K.H. Law, "Chapter 14: Data management technologies for infrastructure monitoring," In J.P. Lynch, H. Sohn, M. Wang (eds.), Sensor Technologies for Civil Infrastructures, pp. 397-426, 2022. https://doi.org/10.1016/B978-0-08-102696-0.00013-0

C. Patrikakis, K.H. Law, "Society 5.0: Human Centric, Decentralized, and Hyperautomated," IT Professional, 24 (03): 16-17, 2022.

Y. Guo, C. Wang, S.X. Yu, F. McKenna, K.H. Law, "AdaLN: A Vision Transformer for Multidomain Learning and Predisaster Building Information Extraction from Images," ASCE Journal of Computing in Civil Engineering, 36(5):04022024, 2022.

R. Hou, S. Jeong, J.P. Lynch, M.M. Ettouney, K.H. Law, "Data-driven analytical load rating method of bridges using integrated bridge structural response and weigh-in-motion truck data," Mechanical Systems and Signal Processing, 163:108128, 2022. https://doi.org/10.1016/j.ymssp.2021.108128

VWH Wong, M Ferguson, KH Law, YTT Lee, P Witherell, "Segmentation of Additive Manufacturing Defects Using U-Net," Journal of Computing and Information Science in Engineering, 22(3):031005, 2022. https://doi.org/10.1115/1.4053078

2021

C. Wang, Q. Yu, K.H. Law, F. McKenna, S. Yu, E. Taciroglu, A. Zsarnóczay, W. Elhaddad, B. Cetiner,

"Machine learning-based regional scale intelligent modeling of building information for natural hazard risk management," Automation in Construction, Volume 122, Pages 103474, 2021.

V.W.H. Wong, M. Ferguson, K.H. Law, Y.-T.T. Lee and P. Witherell, "Segmentation of Additive Manufacturing Defects Using U-Net," Proceedings of the ASME 2021 International Design Engineering Technical Conferences and Computers and Information in Engineering Conference IDETC/CIE 2021, Virtual, Aug. 17–19.

K. H. Law, C. Wang, B. Cetiner, S. Hornauer, Q. Yu, F. McKenna, S. Yu, S. Rao and E. Taciroglu, "Chapter 22: Artificial Intelligence and Machine Learning," in State-of-Art in Computational Simulation for Natural Hazards Engineering, (ed. G. Deierlein and A. Zsarnóczay), Second Edition, 2021. DOI: 10.5281/zenodo.2579581

2020

S. Jeong, R. Hou, J.P. Lynch and K. H. Law, "Chapter 12: Structural-Infrastructure Health Monitoring," In: C.J. Anumba and N. Roofigari (eds.), *Cyber-Physical Systems in the Built Environment.* Springer, pp. 215-235, 2020.

R. Hou, S. Jeong, J.P. Lynch and K.H. Law, "Cyber-Physical System Architecture for Automating the Mapping of Truck Loads to Bridge Behavior using Computer Vision in Connected Highway Corridors," *Transportation Research Part C: Emerging Technologies,* 111:547-571, 2020. Paper Ref. TRC_2019_890_R1

Z. Li, H. Huang, N. Li, M.L.C. Zan, K.H. Law, "An agent-based simulator for indoor crowd evacuation considering fire impacts," Automation in Construction, 120, 103395, 2020.

Q. Yu, C. Wang, F. McKenna, S. Yu, E. Taciroglu, B. Cetiner, K.H. Law, "Rapid visual screening of soft-story buildings from street view images using deep learning classification," Earthquake Engineering and Engineering Vibration 19 (4), 827-838, 2020.

V. W. H. Wong, M. Ferguson, K. H. Law, Yung-Tsun T. Lee and P. Witherell, "Automatic Volumetric Segmentation of Additive Manufacturing Defects with 3D U-Net", *AAAI 2020 Spring Symposia*, Stanford, CA, USA, Mar 23-25, 2020. (Available at aiinmanufacturing.wixsite.com/symposium)

2019

R. Hou, Y. A. Dedhia, S. Jeong, K. H. Law, M. Ettouney and J. P. Lynch, "Fusion of Weigh-in-Motion System and Bridge Monitoring Data for Bridge Load Rating," *Proceedings of the 9th International Conference on Structural Health Monitoring of Intelligent Infrastructure*. St. Louis, MO, USA, August 4-7, 2019.

S. Jeong, M. Ferguson and K. H. Law, "Sensor Data Reconstruction and Anomaly Detection using Bidirectional Recurrent Neural Network," *Proceedings of the SPIE Smart Structures/NDE Conference.* Denver, CO, USA, March 4-7, 2019.

R. Hou, S. Jeong, K. H. Law and J. P. Lynch, "Reidentification of Trucks in Highway Corridors using Convolutional Neural Networks to Link Truck Weights to Bridge Responses," *Proceedings of the SPIE Smart Structures/NDE Conference.* Denver, CO, USA, March 4-7, 2019.

M. Ferguson, S. Jeong, and K. H. Law, "Worksite Object Characterization for Automatically Updating Building Information Models," *ASCE International Conference on Computing in Civil Engineering (i3CE),* Atlanta, Georgia, USA, June 17 - 19, 2019.

Ferguson, M., Lee, Y.T.T., Narayanan, A. and Law, K.H., "A Standardized PMML Format for Representing Convolutional Neural Networks with Application to Defect Detection," *Smart and Sustainable Manufacturing Systems*, 3(1): 79–97, 2019. https://doi.org/10.1520/SSMS20190032

M. Ferguson, S. Jeong, K.H. Law, S. Levitan, A. Narayanan, R. Burkhardt, T. Jena, Y-T. Tina Lee, "A Standardized Representation of Convolutional Neural Networks for Reliable Deployment of Machine Learning Models in the Manufacturing Industry," *ASME 2019 International Design Engineering Technical Conferences and Computers and Information in Engineering Conference,* Anaheim, CA, Paper No: DETC2019-97095, August 18-21, 2019. (https://doi.org/10.1115/DETC2019-97095)

M. Ferguson and K. H. Law*,* "A 2D-3D Object Detection System for Updating Building Information Models with Mobile Robots," *IEEE Winter Conference on Applications of Computer Vision* (WACV), Waikola Village, HI, USA, Jan 8-10, 2019.

S. Jeong, M. Ferguson, R. Hou, J. P. Lynch, H. Sohn and K. H. Law, "Sensor Data Reconstruction using Bidirectional Recurrent Neural Network with Application to Bridge Monitoring," *Advanced Engineering Informatics,* Volume 42, October 2019, 100991. https://doi.org/10.1016/j.aei.2019.100991

S. Jeong, R. Hou, J. P. Lynch, H. Sohn and K. H. Law, "A Scalable Cloud-based Cyberinfrastructure Platform for Bridge Monitoring," *Structure and Infrastructure Engineering – Maintenance, Management and Life-Cycle Design and Performance,* 15(1):82-102, 2019.
https://doi.org/10.1080/15732479.2018.1500617

V. W. H. Wong, M. Ferguson, K. H. Law and Y-T. T. Lee, "An Assistive Learning Workflow on Annotating Images for Object Detection," *2019 IEEE International Conference on Big Data (IEEE BigData 2019)*, Los Angeles, CA, USA, Dec 9-12, 2019.

Q. Yu, C. Wang, B. Cetiner, S.X. Yu, F. McKenna, E. Taciroglu, K.H. Law, "Building Information Modeling and Classification by Visual Learning at a City Scale," *33rd Conference on Neural Information Processing Systems* (NeurIPS 2019), Vancouver, Canada, December, 2019.

K.H. Law and J.P. Lynch, "Smart City: Technologies and Challenges," *IT Professional*, IEEE, 21(6):46-51, Nov.-Dec. 1 2019. **DOI:** 10.1109/MITP.2019.2935405

C. Wang, Q. Yu, B. Cetiner, F. McKenna, S. Yu, K.H. Law, E. Taciroglu, S. Govindjee, G. Deierlein, "Machine Learning for City-Scale Building Information Modeling," (Poster Presentation) *QuakeCoRE Annual Meeting*, New Zealand, September, 2019. http://hdl.handle.net/10092/17157

S. Taduri, K.H. Law, J.P. Kesan and R.D. Sriram, "Utilization of Bio-Ontologies for Enhancing Patent Information Retrieval," 2019 IEEE 43rd Annual Computer Software and Applications Conference (COMPSAC), Milwaukee, WI, July 15-19, 2019. **DOI:** 10.1109/COMPSAC.2019.10189

M. Ferguson, Y.-T. T. Lee, A. Narayanan, and K. H. Law, "A Standardized PMML Format for Representing Convolutional Neural Networks with Application to Defect Detection," *Smart and Sustainable Manufacturing Systems*, 3(1): 79–97, 2019. https://doi.org/10.1520/SSMS20190032

K.H. Law, "A software platform for civil infrastructure health monitoring," *Sustainable Buildings and Structures: Building a Sustainable Tomorrow: Proceedings of the 2nd International Conference in Sustainable Buildings and Structures* (ICSBS 2019), Suzhou, China, October 25-27, 2019,

Y. Qin, R. Xiao, Y. Wang and K.H. Law, "A Bridge Information Modeling Framework for Model Interoperability," *Computing in Civil Engineering 2019: Visualization, Information Modeling, and Simulation*, ASCE, Pages 447-454, Atlanta, GA, June, 2019.

M.L. Chu, K.H. Law, "Incorporating Individual Behavior, Knowledge, and Roles in Simulating Evacuation," *Fire Technology*, 55(2):437-464, 2019., https://doi.org/10.1007/s10694-018-0747-6

2018

M. Ferguson, R. Ak, Yung-Tsun T. Lee and K. H. Law, "Detection and Segmentation of Manufacturing Defects with Convolutional Neural Networks and Transfer Learning", *Smart and Sustainable Manufacturing Systems*. Vol. 2, No. 1, 2018, pp. 137-164, https://doi.org/10.1520/SSMS20180033.

S. Jeong, R. Hou, J. P. Lynch, H. Sohn and K. H. Law, "A Scalable Cloud-based Cyberinfrastructure Platform for Bridge Monitoring," *Structure and Infrastructure Engineering – Maintenance, Management and Life-Cycle Design and Performance,* 15(1):82-102, 2019.
https://doi.org/10.1080/15732479.2018.1500617

M. Ferguson, R. Bhinge, Yung-Tsun T. Lee and K. H. Law, "A Data Processing Pipeline for Prediction of Milling Machine Tool Condition from Raw Sensor Data," *Smart and Sustainable Manufacturing Systems, ASTM*. Vol. 2, No. 1, 2018, pp. 40- 63, https://doi.org/10.1520/SSMS20180019.

S. Jeong, K. H. Law, "An IoT platform for civil infrastructure monitoring application," *IT in Practice (ITiP) Symposium, IEEE COMPSAC (IEEE Computer Society Conference on Computers, Software and Applications),* Tokyo, Japan, July 23-27, 2018.

J. Park, M. Ferguson, K.H. Law, "Data Driven Analytics (Machine Learning) for System Characterization, Diagnostics and Control Optimization," *25th International Workshop on Intelligent Computing in Engineering*, Lausanne, Switzerland, June 10-13, 2018. (Also appears in Advanced Computing Strategies for Engineering, Ian F.C. Smith and Bernd Domer (Eds.) Lecture Notes in Computer Science (LNCS) 10863, Springer, pp. 16-36, 2018.

J. Ekstrom, G. Lau and K.H. Law, "Policy Analytics Tool to Identify Gaps in Environmental Governance," in J. Ramon Gil-Garcia, T.A. Pardo, L.F. Luna Reyes (ed.), In: Gil-Garcia J., Pardo T., Luna-Reyes L. (eds) *Policy Analytics, Modelling, and Informatics. Public Administration and Information Technology*, vol 24. Springer, pp 289-314, 2018. **DOI** https://doi.org/10.1007/978-3-319-61762-6_13

2017

M. Ferguson, R. Ak, Yung-Tsun T. Lee and K. H. Law, "Automatic Localization of Casting Defects with Convolutional Neural Networks", *2017 IEEE International Conference on Big Data* (IEEE BigData 2017). Boston, MA, USA, Dec 11-14, 2017.

M. Ferguson, R. Bhinge, Yung-Tsun T. Lee and K. H. Law", " A Generalized Method for Featurization of Manufacturing Signals, with Application to Tool Condition Monitoring ", *the 37th Computers and Information in Engineering Conference* (CIE). Cleveland, OH, USA, August 6-9, 2017.

R. Hou, S. Jeong, K. H. Law and J. P. Lynch, "Camera-based Triggering of Bridge Structure Health Monitoring Systems using a Cyber-Physical System Framework", *International Workshop on Structural Health Monitoring 2017* (IWSHM 2017). Stanford University, Stanford, CA, USA, September 12-14, 2017.

S. Jeong, R. Hou, J. P. Lynch, H. Sohn and K. H. Law, "A big data management and analytics framework for bridge monitoring", *International Workshop on Structural Health Monitoring 2017* (IWSHM 2017). Stanford University, Stanford, CA, USA, September 12-14, 2017.

S. Jeong, R. Hou, J. P. Lynch, H. Sohn and K. H. Law, "A hybrid cloud-based distributed data management infrastructure for bridge monitoring", *2017 World Congress on Advances in Structural Engineering and Mechanics* (ASEM17). Ilsan(Seoul), Korea, August 28 - September 1, 2017.

S. Jeong, R. Hou, J. P. Lynch, H. Sohn and K. H. Law, "A distributed cloud-based cyberinfrastructure framework for integrated bridge monitoring", *Proceedings of the SPIE Smart Structures/NDE Conference*. Portland, OR, USA, March 25-29, 2017.

S. Jeong, R. Hou, J. P. Lynch, H. Sohn and K. H. Law, "An information modeling framework for bridge monitoring," *Advances in Engineering Software*, 114:11-31, December 2017.

K. H. Law, S. Jeong and M. Ferguson, "A data-driven approach for sensor data reconstruction for bridge monitoring", *2017 World Congress on Advances in Structural Engineering and Mechanics* (ASEM17). Ilsan Seoul), Korea, August 28 - September 1, 2017.

J. Park, S. Kwon, and K. H. Law, "A Data-Driven, Cooperative Approach for Wind Farm Control: A Wind Tunnel Experimentation," *Energies*, 10:852, 2017. doi:10.3390/en10070852.

J. Park, D. Lechevalier, R. Ay, M. Ferguson, K. H. Law, Y.T. T. Lee and S. Rachuri, "Gaussian Process Regression (GPR) Representation in Predictive Model Markup Language (PMML)," *Smart and Sustainable Manufacturing Systems*, ASTM International, 1(1):121-141, 2017.

2016

R. Bhinge, J. Park, K. H. Law,D. Dornfeld, M. Moneer, S. Rachuri, "Towards a generalized energy prediction model for machine tools," *Journal of Manufacturing Science and Engineering*, 139(4):041013-041013-12, April, 2017. 2016;139(4):041013-041013-12. doi:10.1115/1.4034933.

M. Ferguson, K.H. Law, R. Bhinge, D. Dornfeld, J. Park and Y.-T. T. Lee, "Evaluation of a PMML Based GPR Scoring Engine on a Cloud Platform and Microcomputer Board for Smart Manufacturing," 2016 IEE International Conference on Big Data (IEEE Big Data 2016), Washington, D.C., USA, December 5-8, 2016. **(Best Paper Award)**

S. Jeong, Y. Zhang, S. O'Connor, J. P. Lynch, H. Sohn and K. H. Law, "A NoSQL Data Management Infrastructure for Bridge Monitoring ," *Smart Structures and Systems* 17(4):669-690, 2016.

S. Jeong, Y. Zhang, J. P. Lynch, H. Sohn and K. H. Law, "A Cloud-Based Information Infrastructure for Bridge Monitoring Applications ," *Proceedings of the SPIE Smart Structures/NDE Conference.* Las Vegas, NV, USA, March 20-24, 2016

S. Jeong, R. Hou, J.P. Lynch, H. Sohn and K. H. Law, "A Cyber Infrastructure Framework for Bridge Monitoring," *Proceedings of the 14th International Symposium on Structural Engineering (ISSE-14)* Beijing, China, Oct.12-15, 2016.

K.H. Law, J.C.P. Cheng, R. Fruchter and R. Sriram, "Engineering in Cloud," In: S. Murugesan and I. Bojanova (eds.), *Encyclopedia of Cloud Computing*, Wiley, Chapter 40, pp. 491-504, 2016.

J. Park, S. Kwon, and K. H. Law, "A Data-Driven Approach for Cooperative Wind Farm Control," *American Control Conference,* Boston, MA, July, 2016.

J. Park and K. H. Law, "A Data-Driven, Cooperative Wind Farm Control to Maximize the Total Power Production," *Applied Energy*, 165, pp. 151-165, 2016.

J. Park and K. H. Law, "A Data-Driven Approach for Optimal Control of a Physical System," *IFIP W7.5 Workshop,* Carnegie Mellon University, Pittsburgh, PA May 19-20, 2016.

J. Park and K. H. Law, "Bayesian Ascent: A Data-Driven Optimization Scheme for Real-Time Control with Application to Wind Farm Power Maximization," *IEEE Transactions on Control Systems Technology*, 24(5):1655-1668, 2016.

Z. Xu, X. Lu and K.H. Law, "A Computational Framework for Regional Seismic Simulation of Buildings with Multiple Fidelity Models," *Advances in Engineering Software,* 99:100-110, 2016.

2015

Patent No. 8981651, *Tiered Sensing and Resource Allocation System for Energy Use Optimization in Commercial Buildings*, Application No. 13/543789, Filing Date 7/7/2012, Issue Date: 3/17/2015

M. L. Chu, P. Parigi, K.H. Law and J.-C. Latombe, "Simulating Individual, Group and Crowd Behaviors in Building Egress," *SIMULATION: Transactions of the Society for Modeling and Simulation International*, 91:9:825-845, September 2015,

M. Das, J.C.P. Cheng and K.H. Law, "An Ontology Based Web Service Framework for Construction Supply Chain Collaboration and Management," *Engineering, Construction and Architectural Management*, 22(5):551-572, 2015.

S. Jeong, Y. Zhang, J.P. Lynch, H. Sohn and K. H. Law, "A NoSQL-based Data Management Infrastructure for Bridge Monitoring Database," *International Workshop on Structural Health Monitoring 2015 (IWSHM 2015).* Stanford University, Stanford, CA, USA, September 1-3, 2015.

S. Jeong, J. Byun, D. Kim, H. Sohn, I. H. Bae and K. H. Law, "A Data Management Infrastructure for Bridge Monitoring," *Proceedings of the SPIE Smart Structures/NDE Conference.* San Diego, CA, USA, March 10, 2015.

K. H. Law, G. Lau, S. Taduri, and J. Kesan, "An Ontology-Based Approach for Retrieving Information from Disparate Sectors in Government: The Patent System as an Exemplar," *48th Annual Hawaii International Conference on System Sciences,* Kauai, HI*,* pp. 2096-2105, January, 2015

J. Park, S. Kwon and K. H. Law, "Bayesian Ascent Method: An Efficient Data-Driven Optimization for Maximizing Wind Farm Power," *International Workshop on Structural Health Monitoring 2015 (IWSHM 2015).* Stanford University, Stanford, CA, USA, September 1-3, 2015.

J. Park and K. H. Law, "Cooperative Wind Turbine Control for Maximizing Wind Farm Power Using Sequential Convex Programming," *Energy Conversion and Management.* 101, pp. 295-316, 2015

J. Park and K. H. Law, "A Bayesian Optimization Approach for Wind Farm Power Maximization," *Proceedings of the SPIE Smart Structures/NDE Conference.* San Diego, CA, USA, March 9, 2015.

J. Park and K. H. Law, "Layout Optimization for Maximizing Wind Farm Power Production Using Sequential Convex Programming," *Applied Energy.* 151:320-334, 2015.

J. Park, K. Smarsly, K. H. Law, D. Hartmann, "Analyzing the Temporal Variation of Wind Turbine Response using Gaussian Mixture Model and Gaussian Discriminant Analysis," *ASCE Journal of Computing in Civil Engineering.* 29(4):Pp. B4014011-1-11, 2015. 10.1061/(ASCE)CP.1943-5487.0000416

J. Park, R. Bhinge, N. Biswas, A. Srinivasan, M. Moneer, S. Rachuri, D. Dornfeld and K. H. Law, "A Generalized Data-Driven Energy Prediction Model with Uncertainty for a Milling Machine Tool Using Gaussian Process," *ASME 2015 International Manufacturing Science and Engineering Conference (MSEC 2015),* Charlotte, NC, USA, Jul 8-12, 2015. **(Best Paper Award)**

J. Park, R. Bhinge, K. H. Law, D. Dornfeld, C. Mason, S. Rachuri, "Real-Time Energy Prediction for a Milling Machine Tool Using Sparse Gaussian Process Regression ", *2015 International Conference on Big Data (IEEE BigData 2015).* Santa Clara, CA, October 29-November 1, 2015.

Z. Xu, X. Lu and K.H. Law, "A Computational Framework for Regional Seismic Simulation of Buildings with Multiple Fidelity Models," *Engineering Mechanics Institute Conference,* Stanford University, Stanford, CA. June 16-19, 2015.

2014

J.A. Abdalla and K.H. Law, "A Framework for Building Energy Model to Support Energy Performance Rating and Simulation," *International Conference on Computing in Civil and Building Engineering*, Orlando, Florida, June 23-25, 2014.

R. Bhinge, J. Park, N. Biswas, M. Moneer, S. Rachuri, D. Dornfeld and K. H. Law, "An Intelligent Machine Monitoring System for Energy Prediction Using Gaussian Process Regression," *2014 IEEE International Conference on Big Data (IEEE BigData 2014)*. Washington, DC, USA, Oct 27-30, 2014

M. L. Chu, P. Parigi, J.-C. Latombe, and K.H. Law, "SAFEgress: A Flexible Platform to Study the Effect of Human and Social Behaviors on Egress Performance," *5th annual Symposium on Simulation for Architecture and Urban Design (SimAUD)*, Florida, US, April 13-16, 2014.

M. L. Chu, P. Parigi, J.-C. Latombe, and K.H. Law, "Simulating Effects of Signage, Groups and Crowds on Emergent Evacuation Pattern," *AI & Society*, September 2014, DOI 10.1007/S00146-014-0557-4.

M. L. Chu, P. Parigi, J.-C. Latombe, and K. H. Law, "Modeling social behaviors in an evacuation simulator," *Computer Animation and Virtual Worlds*, 25(3-4), pp. 375–384.

M. L. Chu, P. Parigi, J.-C. Latombe, and K.H. Law, "Modeling Social Behaviors in an Evacuation Simulator," *27th International Conference on Computer Animation and Social Agents (CASA 2014)* Texas, May 26-28, 2014.

K. H. Law, G. Lau, S. Kerrigan, and J. Ekstrom, "REGNET: Regulatory Information Management, Compliance and Analysis," *Government Information Quarterly,* 31(Supplement 1), pp. S37-S48, 2014. http://dx.doi.org/10.1016/j.giq.2014.01.006

K. H. Law, K. Smarsly and Y. Wang, "Sensor Data Management Technologies for Infrastructure Asset Management," In: M. Wang, H. Sohn and J. P. Lynch (eds.), *Sensor Technologies for Civil Infrastructures: Performance Assessment & Health Monitoring.* Cambridge, UK: Woodhead Publishing, pp. 3-32, 2014.

J. Park, G. Morgenthal, K. Kim, S. Kwon and K. H. Law, "Power Evaluation For Flutter-Based Electromagnetic Energy Harvester Using CFD Simulations," *Journal of Intelligent Material Systems and Structures*, 25(14)1800-1812, 2014. doi: 10.1177/1045389X14526954

K. Smarsly and K. H. Law, "Decentralized Fault Detection and Isolation in Wireless Structural Health Monitoring Systems using Analytical Redundancy," *Advances in Engineering Software*, 73:1-10, 2014, doi:10.1016/j.advengsoft.2014.02.005

2013

M. L. Chu and K. H. Law, "A Computational Framework Incorporating Human Behaviors for Egress Simulations," *ASCE Journal of Computing in Civil Engineering,* 27(6):699-707, 2013. **(Best Journal Paper Award)**

M.L. Chu, P. Parigi, J. - C. Latombe, and K. Law, *SAFEgress: A Flexible Platform to Study the Effect of Human and Social Behaviors on Egress Performance*, CIFE Technical Report #TR216, November, 2013.

S.C. Feng, S. Kumaraguru, K. Law, K. Ahn, N. Ivezic and B. Kulvantunyou, "Modeling Energy Information for Integrated Product Assembly Processes and Supply Chains," *APMS 2013 International Conference: Sustainable Production and Service Supply Chains,* September 9-12, 2013.

S.-D. Kwon, J. Park and K. H. Law, "Electromagnetic Energy Harvester with Repulsively Stacked Multilayer Magnets for Low Frequency Vibration," *Smart Materials and Structures*, 22, 1-13, 2013.

L.J. McGibbney, M. Peng and K.H. Law, "An Information Reporting Web Service Framework for Integration of Gate-to-Gate Process-to-Energy Metrics," *APMS 2013 International Conference: Sustainable Production and Service Supply Chains,* September 9-12, 2013.

J. Park and K. H. Law, "A Bayesian Optimization Approach For Wind Farm Monitoring and Power Maximization," *Proceedings of the 6th International Conference on Structural Health Monitoring of Intelligence Infrastructure.* Hong Kong, China, December 9, 2013.

J. Park, K. Smarsly, K. H. Law and D. Hartmann, "Application of Incremental Gaussian Mixture Models for Characterization of Wind Field Data," *Proceedings of the 9th International Workshop on Structural Health Monitoring.* Stanford, CA, USA, September 11, 2013.

J. Park, S. Kwon and K. H. Law, "Wind Farm Power Maximization Based On A Cooperative Static Game Approach," *Proceedings of the SPIE Smart Structures/NDE Conference.* San Diego, CA, USA, March 11, 2013.

J. Park, S. Kwon and K. H. Law, "Asynchronous Phase Shifted Electromagnetic Energy Harvester," *Proceedings of the SPIE Smart Structures/NDE Conference.* San Diego, CA, USA, March 11, 2013.

J. Park, K. Smarsly, K. H. Law, D. Hartmann, "Multivariate Analysis and Prediction of Wind Turbine Response to Varying Wind Field Characteristics based on Machine Learning," *Proceedings of the ASCE International Workshop on Computing in Civil Engineering.* Los Angeles, CA, USA, June 24, 2013.

K. Smarsly, D. Hartmann and K. H. Law, "An Integrated Monitoring System for Life-Cycle Management of Wind Turbines," *Smart Structures and Systems*, 12(2):209-233, 2013.

K. Smarsly, D. Hartmann and K. H. Law, "A Computational Framework for Life-Cycle Management of Wind Turbines incorporating Structural Health Monitoring," *Structural Health Monitoring - An International Journal*, 12(4):359-376, 2013.

K. Smarsly and K. H. Law, "A Migration-based Approach Towards Resource-Efficient Wireless Structural Health Monitoring," *Advanced Engineering Informatics,* 27(4):625–635, 2013.

K. Smarsly, K. H. Law and D. Hartmann, "A CyberInfrastructure for Integrated Monitoring and Life-Cycle Management of Wind Turbines," *Proceedings of the 20th International Workshop on Intelligent Computing in Engineering 2013.* Vienna, Austria, July 1, 2013.

K. Smarsly and K. H. Law, "Advanced Structural Health Monitoring based on Multi-Agent Technology," In: J. Zander and P.J. Mostermann (eds.), *Computation for Humanity: Information Technology to Advance Society.* Boca Raton, FL, USA: Taylor & Francis Group, pp. 95-126, 2013.

2012

M. L. Chu, K. H. Law, and J.-C. Latombe, *A Computational Framework for Egress Analysis with Realistic Human Behaviors*, *CIFE Technical Report #TR209*, September 2012.

M. L. Chu and K. H. Law, "Modeling Social Groups and Roles in Egress Simulation," *Proceedings of the 5th International Symposium on Human Behaviour in Fire.* Cambridge, UK, September 19-21, 2012.

K. Georgieva, K. Smarsly, M. König and K. H. Law, "An Autonomous Landslide Monitoring System based on Wireless Sensor Networks," *Proceedings of the 2012 ASCE International Conference on Computing in Civil Engineering.* Clearwater Beach, FL, USA, June 17, 2012.

M. Kurata, J.P. Lynch, K.H. Law and L.M. Salvino, "Bayesian Model Updating Approach for Systematic Damage Detection of Plate Type Structures," *IMAC XXX: Conference & Exposition on Structural Dynamics*, Jacksonville, FL, January, 2012.

M. Kurata, J. P. Lynch and K. H. Law, "Heuristic Damage Detection of Plate-Type Structures Using Bayesian Model Updating Approach," *Summary of Technical Papers of Annual Meeting* , Kinki Branch, AIJ, June, 2012. (in Japanese)

K. H. Law and G. Lau, "REGNET: Regulatory Information Management, Compliance and Analysis ," *6th International Conference on Theory and Practice of Electronic Governance (ICEGOV 2012)* , Albany, NY, October 2012. **(Best paper award)**

J. Park, K. Kim, S. Kwon and K. H. Law, "An Aero-elastic Flutter Based Electromagnetic Energy Harvester with Wind Speed Augmenting Funnel," *The 2012 Int'l Conference on Advances in Wind and Structures (AWAS 2012).* Seoul, Korea, August 26, 2012.

J. Park, G. Morgenthal, S. Kwon and K. H. Law, "Power Evaluation for Flutter-based Electromagnetic Energy Harvester using CFD Simulations," *First International Conference on Performance-based and Life-cyle Structural Engineering (PLSE 2012).* Hong Kong, China, December 5, 2012.

K. Smarsly, D. Hartmann and K. H. Law, "Integration of Structural Health and Condition Monitoring into the Life-cycle Management of Wind Turbines," *Proceedings of the 4th Workshop on Civil Structural Health Monitoring (CSHM-4)*, Berlin, Germany, November 6, 2012.

K. Smarsly, K. H. Law and D. Hartmann, "Towards Life-Cycle Management of Wind Turbines based on Structural Health Monitoring," *Proceedings of the First International Conference on Performance-Based Life-Cycle Structural Engineering (PLSE 2012).* Hong Kong, China, December 5, 2012.

K. Smarsly, K. Georgieva, M. König and K. H. Law, "Monitoring of Slope Movements coupling Autonomous Wireless Sensor Networks and Web Services," *Proceedings of the First International Conference on Performance-Based Life-Cycle Structural Engineering (PLSE 2012).* Hong Kong, China, December 5, 2012.

K. Smarsly, K. H. Law and D. Hartmann, "A Multiagent-Based Collaborative Framework for a Self-Managing Structural Health Monitoring System," *ASCE Journal of Computing in Civil Engineering*, 26(1):76-89,2012.

K. Smarsly, D. Hartmann and K. H. Law, "Structural Health Monitoring of Wind Turbines Observed by Autonomous Software Components - 2nd Level Monitoring," *Proceedings of the 14th International Conference on Computing in Civil and Building Engineering (ICCCBE).* Moscow, Russia, June 27, 2012.

K. Smarsly and K. H. Law, "Coupling Wireless Sensor Networks and Autonomous Software for Integrated Soil Moisture Monitoring," *Proceedings of the 10th International Conference on Hydroinformatics (HIC 2012).* Hamburg, Germany, July 14, 2012.

K. Smarsly, D. Hartmann and K. H. Law, "Structural Health Monitoring of Wind Turbines Observed by Autonomous Software Components – 2nd Level Monitoring," *Proceedings of the 14th International Conference on Computing in Civil and Building Engineering (ICCCBE),* Moscow, Russia, June 27, 2012.

R. A. Swartz, A.T. Zimmerman, J. P. Lynch, T.F. Brady, J. Rosario, L.W. Salvino, and K.H. Law, "Hybrid Wireless Hull Monitoring System for Naval Combat Vessels," *Structure and Infrastructure Engineering,* 8(7):621-638, 2012.

S. Taduri, G. T. Lau, K. H. Law and J. P. Kesan, "A Patent System Ontology for Facilitating Retrieval of Patent Related Information," *International Conference on Electronic Governance, ICEGOV,* 2012.

H. Yu, S. Taduri, J. P. Kesan, G. T. Lau and K. H. Law, "Retrieving Information Across Multiple, Related Domains Based on User Query and Feedback: Application to Patent Laws and Regulations," *Government Information Quarterly,* Vol 29, Issue 1, pp. S11-S21, January, 2012.

2011

J. C. P. Cheng and K.H. Law, "A Web Service Framework for Environmental and Carbon Footprint Monitoring in Construction Supply Chains," *Journal of Civil Engineering and Architecture*, 5(1), 1-12, 2011.

M. L. Chu, X. Pan, and K. H. Law, "Incorporating Social Behaviors in Egress Simulation," *Proceedings of 2011 Computing in Civil Engineering Workshop*, Miami, Florida , June 19-22, 2011.

J.A. Ekstrom, G. Lau, K.H. Law and M. Hardy, "Application of the MINOE Regulatory Analysis Framework: Case Studies," *12th Annual International Conference on Digital Government Research (dg.o 2011),* University of Maryland, June, 2011.

D. Hartmann, K. Smarsly and K. H. Law, "Coupling Sensor-Based Structural Health Monitoring with Finite Element Model Updating for Probabilistic Lifetime Estimation of Wind Energy Converter Structures," *Proceedings of the 8th International Workshop on Structural Health Monitoring.* Stanford, CA, USA, September 13, 2011.

M. B. Kane, J. P. Lynch and K.H. Law, "Market-Based Control of Shear Structures Utilizing Magnetorheological Dampers, " *Proceedings of the 2011 American Control Conference (ACC 2011)*, San Francisco, CA, June 29 – July 1, 2011.

K. H. Law, "Web Services in Civil and Structural Engineering Simulations," *International Symposium on Innovation & Sustainability of Structures in Civil Engineering*, Xiamen University, China, October, 2011.

K. H. Law and G. Lau, "REGNET: Regulatory Information Management, Compliance and Analysis," *International Symposium on Technology and Society (ISTAS)*, Chicago, IL, May 23-25, 2011. (abstract).

J. Lu, A. Elgamal, L. Yan, K.H. Law, and J.P. Conte, "Large Scale Numerical Modeling in Geotechnical Earthquake Engineering," *ASCE International Journal of Geomechanics*, 11(6), pp. 490-503, 2011.

C. Qu, Y. Wang, K.H. Law, H. Li, "Decentralized H2 Controller Design for Civil Structures through Double Homotopy Transformation," *The 6th International Workshop on Advanced Smart Materials and Smart Structures Technology, ANCRiSST2011*, July 25-26, 2011, Dalian, China.

Y. Q. Ni, B. Li, K.H. Lam, D. P. Zhu, Y. Wang, J. P. Lynch and K. H. Law, "In-Construction Vibration Monitoring of a Supertall Structure using a Long-Range Wireless Sensing System," *International Journal of Smart Structures & Systems,* 7(2):83-102, 2011.

K. Smarsly, K. H. Law and M. König, "Autonomous Structural Condition Monitoring based on Dynamic Code Migration and Cooperative Information Processing in Wireless Sensor Networks," *Proceedings of the 8th International Workshop on Structural Health Monitoring.* Stanford, CA, USA, September 13, 2011.

K. Smarsly, K. H. Law and D. Hartmann, "Implementation of a Multiagent-Based Paradigm for Decentralized Real-Time Structural Health Monitoring," *Proceedings of the 2011 ASCE Structures Congress* , Las Vegas, Nevada, USA, April 04, 2011.

K. Smarsly, K. H. Law and D. Hartmann, "Implementing a Multiagent-Based Self-Managing Structural Health Monitoring System on a Wind Turbine," *Proceedings of the 2011 NSF CMMI Engineering Research and Innovation Conference* Atlanta, Georgia, USA, January 04-07, 2011.

K. Smarsly, K.H. Law, and M. König, "Resource-Efficient Wireless Monitoring based on Mobile Agent Migration," *SPIE. Smart Structures/NDE 2011*. San Diego, CA, USA, March, 2011.

S. Taduri, G. Lau, K. H. Law, H. Yu and J. P. Kesan, "Developing an Ontology for the U.S. Patent System," *12th Annual International Conference on Digital Government Research (dg.o 2011) Digital*

Government Innovation in Challenging Times , University of Maryland, College Park, MD, June 12–15, 2011.

S. Taduri, G. Lau, K. H. Law, H. Yu and J. P. Kesan, "An Ontology-Based Interactive Tool to Search Documents in the U.S. Patent System," *12th Annual International Conference on Digital Government Research (dg.o 2011) Digital Government Innovation in Challenging Times* , University of Maryland, College Park, MD, June 12–15, 2011.

S. Taduri, H. Yu, G. Lau, K. H. Law and J. P. Kesan, "An Ontology to Integrate Multiple Information Domains in the Patent System ," *International Symposium on Technology and Society (ISTAS)* Chicago, IL, USA, May 23-25, 2011.

S. Taduri, H. Yu, G. Lau, K. H. Law and J. P. Kesan, "Developing a Comprehensive Patent Related Information Retrieval Tool ," *Journal of Theoretical and Applied Electronic Commerce Research (JTAER)*, Vol 6(2), pp. 1-16, August 2011.

S. Taduri, G. T. Lau, K. H. Law and J. P. Kesan, "Retrieval of Patent Documents from Heterogeneous Sources using Ontologies and Similarity Analysis," *Fifth IEEE International Conference on Semantic Computing (ICSC 2011)* , Stanford University, Palo Alto, CA, USA, September 18-21, 2011

Y. Wang and K. H. Law, "Structural Control with Multi-Subnet Wireless Sensing Feedback: Experimental Validation of Time-Delayed Decentralized H-inf Control Design," *Advances in Structural Engineering*, 14(1):25-39, 2011.

Y. Wang, K. H. Law, C.-H. Loh, S.-K. Juang, K.-C. Lu, and P.-Y. Lin, "Multi-Subnet Wireless Sensing Feedback for Decentralized H2 Control with Information Overlapping," *Proceedings of the 2011 American Control Conference (ACC 2011)*, San Francisco, CA, USA, June 29 - July 1, 2011.

Y. Wang and K. H. Law, "Wireless Sensor Networks in Smart Structural Technologies," In: Jia-Chin Lin (Ed.), *Recent Advances in Wireless Communications and Networks*, Chapter 19, ISBN: 978-953-307-274-6, InTech, pp. 405-434, 2011. (Available from: http://www.intechopen.com/articles/show/title/wireless-sensor-networks-in-smart-structural-technologies)

2010

J. C. P. Cheng, K. H. Law, H. Bjornsson, A. Jones, and R. Sriram, "Modeling and Monitoring of Construction Supply Chains," *Advanced Engineering Informatics*, 24(4):435-455, 2010.

J. C. P. Cheng, Y. Zhang, C. S. Han, B. Kumar, and K. H. Law, "Web-enabled Model-based CAD for Design and Construction," *Proceedings of the 13th International Conference on Computing in Civil and Building Engineering (ICCCBE XIII)*, Nottingham, UK, June 30 - July 2, 2010.

J.C.P. Cheng, Y. Zhang, C.S. Han, and K.H. Law, "Web-enabled Model-based CAD for the Architectural, Engineering and Construction Industry," *Proceedings of the 1st International Conference on Sustainable Urbanization*, Hong Kong, China, December 15-17, 2010.

J.C.P. Cheng and K.H. Law, "A Web Service Framework for Environmental and Carbon Footprint Monitoring in Construction Supply Chains," *Proceedings of the 1st International Conference on Sustainable Urbanization*, Hong Kong, China, December 15-17, 2010.

J. Ekstrom, G. Lau, C.P. Cheng, D. Spiteri, and K. Law, "Gauging Agency Involvement in Environmental Management using Text Analysis of Laws and Regulations," *I/S – A Journal of Law and Policy for the Information Society*, 6(2):189-219, 2010.

J. Ekstrom, G. Lau, D. Spiteri, J.C.P. Cheng, and K. Law, "MINOE: A Software to Evaluate Ocean Management in the Context of Ecosystems," *Coastal Management,* 38: 5, 457- 473, 2010.

M. Kurata, J. Kim, J.P. Lynch, K.H. Law, and L.M. Salvino, "A Probabilistic Model Updating Algorithm for Fatigue Damage Detection in Aluminum Hull Structures" *ASME 2010 Conference on Smart Materials, Adaptive Structures and Intelligent Systems (SMASIS2010),* Philadelphia, PA, 2010.

M. Kurata, J. Kim, J.P. Lynch, K.H. Law, and L.M. Salvino, "Fatigue Health Monitoring of Hull Structures using a Model-based Damage Detection Technique," (abstract) *Engineering Mechanics 2010*, Los Angeles, CA, 2010.

K.H. Law, J.C.P. Cheng, and C.S. Han, "Web Services in Architectural and Civil Engineering," *Proceedings of the 10th International Conference on Construction Applications of Virtual Reality* (CONVR 2010), Sendai, Miyagi, Japan November 4-5, 2010.

K.H. Law, Y. Wang, R.A. Swartz, and J.P. Lynch, "Wireless Sensing and Vibration Control of Civil Structures," *IEEE International Conference on Wireless Information Technology and Systems*, Waikiki, Hawaii, August 29 – September 3, 2010.

S. O'Connor, J. Kim, J.P. Lynch, K.H. Law, and L.M. Salvino, "Fatigue Life Monitoring of Metallic Structures by Decentralized Rainflow Counting Embedded in a Wireless Sensor Network" *ASME 2010 Conference on Smart Materials, Adaptive Structures and Intelligent Systems (SMASIS2010),* Philadelphia, PA, 2010.

X. Pan, C. S. Han, and K. H. Law, "Using Motion-Planning to Determine the Existence of an Accessible Route in a CAD Environment," *Assistive Technology*, 22(1)32-45, 2010.

X. Pan and K. H. Law, "A Multi-Agent Based Approach to Pedestrian Simulation," *Passenger Terminal World*, pp. 46-52, September, 2010.

R.A. Swartz, Y. Wang, J.P. Lynch, K.H. Law and C.H. Loh, "Experimental Validation of Market-Based Control using Wireless Sensor and Actuator Networks," *Proceedings of the Joint 7th International Conference on Urban Earthquake Engineering (7CUEE) & 5th International Conference on Earthquake Engineering (5ICEE)*, Tokyo, Japan, 2010.

Y. Wang, K.H. Law, C.-H. Loh, "Decentralized H_2 Control for Civil Structures through Homotopic Transformation," *Proceedings of the 5th World Conference on Structural Control and Monitoring*, Tokyo, Japan, July 12 - 14, 2010.

Y. Wang, K.H. Law, C.-H. Loh, S.-K. Huang, K.-C. Lu and P.-Y. Lin, "Decentralized Wireless Sensing and Control Using Genetic Algorithm Optimization," *The 11th International Symposium on Structural Engineering,* Guangzhou, China, December 18-20, 2010.

H. Yu, S. Taduri, J.P. Kesan, G.T. Lau, and K.H. Law, "Retrieving Information Across Multiple Related Domains Based on User Query and Feedback: Application to Patent Laws and Regulations," *4th International Conference on Electronic Governance (ICEGOV),* Beijing, China, October, 2010. **(Meritorious Paper Award)**

2009

C. P. Cheng, G. T. Lau, K. H. Law, J. Pan, and A. Jones, "Improving Access to and Understanding of Regulations through Taxonomies," *Government Information Quarterly*, 26(2): 238-245, 2009.

J. C. P. Cheng and K. H. Law, "A Portal-based Web Service Framework for Construction Supply Chain Integration and Collaboration," *Proceedings of the 2009 NSF CMMI Research and Innovation Conference*, Honolulu, Hawaii, June 22-25, 2009.

J. C. P. Cheng, K. H. Law, A. Jones, and R. Sriram, "Service Oriented and Orchestrated Framework for Supply Chain Integration," *Proceedings of the 2009 ASME International Design Engineering Technical Conferences and Computers and Information in Engineering Conferences (2009 IDETC/CIE)*, San Diego, California, August 30-September 2, 2009,

K. H. Law, A. Swartz, J. P. Lynch, and Y. Wang, "Decentralized Control Strategies with Wireless Sensing and Actuation," *Proceedings of the 2009 NSF CMMI Research and Innovation Conference*, Honolulu, Hawaii, June 22-25, 2009,

M. A. T. Le, and K. H. Law, "A System Dynamic Approach for Simulation of Experience Transfer in the AEC Industry," *ASCE Journal of Management in Engineering*, 25(4): 195-203, 2009.

J.P. Lynch, R.A. Swartz, A.T. Zimmerman, T. Brady, J. Rosario, L.W. Salvino and K.H. Law, "Monitoring of a High Speed Naval Vessel using a Wireless Hull Monitoring System," *The 7th International Workshop on Structural Health Monitoring*, Stanford University, Stanford, CA, September 9-11, 2009.

R.A. Swartz, A.T. Zimmerman, J.P. Lynch, T. Brady, J. Rosario, L.W. Salvino and K.H. Law, "Wireless Hull Monitoring Systems for Modal Analysis of Operational Naval Vessels," *Proceedings of the International Modal Analysis Conference (IMAC XXVII)*, Orlando, Florida, February 9-12, 2009.

Y. Wang and K. H. Law, "Decentralized H∞ Control with Experimental Validation using Multi-Subnet Wireless Sensing Feedback," *the Fifth International Workshop on Advanced Smart Materials and Smart Structures Technology (ANCRiSST) 2009,* Boston, MA, July 30-31, 2009.

Y. Wang, K. H. Law, and S. Lall, "Time-delayed Decentralized H∞ Controller Design for Civil Structures: a Homotopy Method through Linear Matrix Inequalities," *Proceedings of the 2009 American Control Conference (ACC 2009)*, St. Louis, MO, USA, June 10-12, 2009.

Y. Wang, J. P. Lynch, and K. H. Law, "Decentralized H∞ Controller Design for Large-scale Civil Structures," *Earthquake Engineering and Structural Dynamics*, 38(3): 377-401, 2009.

2008

C. P. Cheng, G. T. Lau, K. H. Law, J. Pan, and A. Jones, "Regulation Retrieval Using Industry Specific Taxonomies," *Artificial Intelligence and Law*, 16(3):277-303, 2008.

C. P. Cheng, G. T. Lau, J. Pan and K. H. Law, "Domain-Specific Ontology Mapping by Corpus-Based Semantic Similarity," *Proceedings of 2008 NSF CMMI Engineering Research and Innovation Conference*, Knoxville, Tennessee, USA, January 7-10, 2008.

C. P. Cheng, K. H. Law, and H. Bjornsson, "A Collaborative Web Service Platform for AEC Supply Chain," *Proceedings of the 12th International Conference on Computing in Civil and Building Engineering (ICCCBE XII)*, Beijing, China, October 16-18, 2008.

C. P. Cheng, K. H. Law, and H. Bjornsson, "A Distributed Portal-Based Platform for Construction Supply Chain Interoperability," *Proceedings of the 7th European Conference on Product and Process Modelling (ECPPM)*, Sophia Antipolis, France, September 10-12, 2008. **(2nd Prize, Student Paper Contest)**

C. P. Cheng, J. Pan, G. T. Lau, K. H. Law, and A. Jones, "Relating Taxonomies with Regulations," *Proceedings of the 9th Annual International Conference on Digital Government Research (dg.o2008)*, Montreal, Canada, May 18-21, 2008. **(Best Research Paper Award).**

K. H. Law, A. Swartz, J. P. Lynch, and Y. Wang, "Wireless Sensing and Structural Control Strategies," *ANCRiSST 2008, The Fourth International Workshop on Advanced Smart Materials and Smart Structures Technologies*, Waseda University, Tokyo, Japan, June 24-25, 2008.

K. C. Lu, C. H. Loh, Y. S. Yang, J. P. Lynch, K. H. Law, "Real-time structural damage detection using wireless sensing and monitoring system," *Smart Structures and Systems*, Vol. 4, No. 6, pp. 759-778, 2008.

J. P. Lynch, Y. Wang, A. Swartz, K.-C. Lu, and C.-H. Loh, "Implementation of a Closed-Loop Structural Control System using Wireless Sensor Networks," *Journal of Structural Control and Health Monitoring*, Wiley, 15(4): 518-539, 2008.

J. Pan, C. P. Cheng, G. T. Lau, and K. H. Law, "Utilizing Statistical Semantic Similarity Techniques for Ontology Mapping - with Applications to AEC Standard Models," *Journal of Tsinghua Science and Technology*, Elsevier, 13(S1):217-222, 2008.

J. Pan, C. P. Cheng, G. T. Lau, and K. H. Law, "Utilizing Statistical Semantic Similarity Techniques for Ontology Mapping - with Applications to AEC Standard Models," *Proceedings of the 12th International Conference on Computing in Civil and Building Engineering (ICCCBE XII)*, Beijing, China, October 16-18, 2008.

Y. Wang, A. Swartz, A. Zimmerman, A. Askin, J. P. Lynch, K. H. Law, K.-C. Lu, and C.-H. Loh, "Decentralized Wireless Structural Sensing and Control with Multiple System Architectures Operating at Different Sampling Frequencies," *Proceedings of SPIE, Health Monitoring of Structural and Biological Systems II, 6935*, San Diego, CA, USA, March 9 - 13, 2008.

2007

C. P. Cheng, G. T. Lau, J. Pan, K. H. Law, and A. Jones, "Domain-Specific Ontology Mapping by Corpus-Based Semantic Similarity," *Proceedings of the Scientific Foundations Workshop of End-to-End Service Utility (E2ESU)*, NIST, Gaithersburg, Washington DC, USA, March 22-23, 2007.

C. P. Cheng, G. T. Lau, and K. H. Law, "Mapping Regulations to Industry-Specific Taxonomies," *Proceedings of the 11th International Conference on Artificial Intelligence and Law*, Stanford University, Stanford, CA, USA, June 4-8, 2007.

A. Elgamal, J. Lu, L. He, K. Law, and Z. Yang, "Techniques for Simulation of Large-Scale Nonlinear Soil-Structure Systems," *International Workshop on Constitutive Modeling, Development, Implementation, Evaluation, and Application*, Hong Kong, January 12-13, 2007.

K. J. Loh, J. P. Lynch, Y. Wang, K. H. Law, M. Fraser, A. Elgamal, "Validation of a Wireless Traffic Vibration Monitoring System for the Voigt Bridge," *Proceedings of the World Forum on Smart Materials and Smart Structures Technology*, Chongqing & Nanjing, China, May 22 - 27, 2007.

X. Pan, C. S. Han, K. Dauber and K. H. Law. "A Multi-agent Based Framework for the Simulation of Human and Social Behaviors during Emergency Evacuations," *AI and Society,* 22:113-132, 2007.

H. W. Park, H. Sohn, K. H. Law, and C. R. Farrar, "Time Reversal Active Sensing for Structural Health Monitoring of a Composite Plate," *Journal of Sound and Vibration*, Elsevier, 302:50-66, 2007.

H. Sohn, H. W. Park, K. H. Law, and C. R. Farrar. "Combination of a Time Reversal Process and a Consecutive Outlier Analysis for Baseline-Free Damage Diagnosis," *Journal of Intelligent Material Systems and Structures*, 18(4):335-346, 2007.

H. Sohn, H. W. Park, K. H. Law, and C. R. Farrar. "Damage Detection in Composite Plates by Using an Enhanced Time Reversal Method," *Journal of Aerospace Engineering, ASCE*, 133(8):1080-1091, 2007.

Y. Wang, J. P. Lynch, K. H. Law, "A Wireless Structural Health Monitoring System with Multithreaded Sensing Devices: Design and Validation," *Structure and Infrastructure Engineering - Maintenance, Management and Life-Cycle Design & Performance*, Taylor & Francis, 3(2):103-120, 2007. (Editor's Choice Article for 2007)

Y. Wang, J. P. Lynch, K. H. Law, "Wireless Sensing Technologies for Civil Infrastructure Monitoring and Management," *Proceedings of the 5th International Seminar for Safety of Infrastructures,* 54-96, KISTEC (Korea Infrastructure Safety and Technology Corporation), Seoul, Korea, September 14, 2007.

Y. Wang, J. P. Lynch, K. H. Law, "Decentralized H∞ Controller Design for Large-scale Wireless Structural Sensing and Control Systems," *Proceedings of the 6th International Workshop on Structural Health Monitoring*, Stanford, CA, September 11 - 13, 2007.

Y. Wang, K. J. Loh, J. P. Lynch, K. H. Law, "Wireless Sensing and Control," *Proceedings of the International Conference on Smart Materials and Nanotechnology in Engineering*, Harbin, China, July 1 - 4, 2007.

Y. Wang, J. P. Lynch, K. H. Law, "Information Driven Wireless Sensing and Control for Civil Structures," *Proceedings of the World Forum on Smart Materials and Smart Structures Technology*, Chongqing & Nanjing, China, May 22 - 27, 2007.

Y. Wang, R. A. Swartz, J. P. Lynch, K. H. Law, C.-H. Loh, "Performance Evaluation of Decentralized Wireless Sensing and Control in Civil Structures," *Proceedings of the SPIE 14th International Symposium on Smart Structures and Materials & Nondestructive Evaluation and Health Monitoring*, San Diego, CA, USA, March 18 - 22, 2007.

Y. Wang, J. P. Lynch, K. H. Law, C.-H. Loh, A. Elgamal, "Reliable Information Management in a Low-cost Wireless Structural Monitoring and Control Network," *Proceedings of the SPIE 14th International Symposium on Smart Structures and Materials & Nondestructive Evaluation and Health Monitoring*, San Diego, CA, USA, March 18 - 22, 2007.

Y. Wang, R. A. Swartz, J. P. Lynch, K. H. Law, K.-C. Lu, C.-H. Loh, "Decentralized Civil Structural Control using Real-time Wireless Sensing and Embedded Computing," *Smart Structures and Systems*, Techno Press, 3(3):321-340, 2007.

2006

Z. Aziz, C. Anumba, and K. Law, "Using Context-Awareness and Web-Services to Enhance Construction Collaboration," *The 11th International Conference on Computing in Civil and Building Engineering, (ICCCBE XI)*, Montreal, Canada, June, 2006.

J. Cao, J. Wang, K. H. Law, S. Zhang, and M. Li, "An Interactive Service Customization Model," *Journal of Information and Software Technology*, 48:280-296, 2006.

J. Cheng, C. P. Cheng, M. A. L. Thi and K. H. Law, "Engineering Simulations with Web-based Services" *The 11th International Conference on Computing in Civil and Building Engineering, (ICCCBE XI)*, Montreal, Canada, June, 2006.

G. T. Lau, K. H. Law, and G. Wiederhold, "A Relatedness Analysis of Government Regulations using Domain Knowledge and Structural Organization," *Information Retrieval*, 9:657-680, 2006.

G. T. Lau and K. H. Law, "A Prototype Study on Electronic-Rulemaking," *Encyclopedia of Digital Government*, May 2006.

G. T. Lau, H. Wang, and K. H. Law, "Locating Related Regulations Using a Comparative Analysis Approach," *Proceedings of the National Conference on Digital Government Research (dg.o2006)*, San Diego, CA, May 21-24, 2006.

K. H. Law and G. T. Lau, "E-Rulemaking: Needs from the ICT Perspectives," *Proceedings of the Workshop on E-Rulemaking at the Crossroads, the National Conference on Digital Government Research (dg.o2006)*, San Diego, CA, May 24, 2006.

K.-C. Lu, Y.-S. Yang, C.-H. Loh, J. P. Lynch, and K. H. Law, "Structural Health Monitoring and Damage Diagnosis: Based on Embedded Algorithm and Visualized User Interface," *Proceedings of the US-Taiwan Workshop on Smart Structural Technology for Seismic Hazard Mitigation*, Taipei, Taiwan, October 12-14, 2006.

X. Pan, C. S. Han, K. H. Law, and J. Latombe, "A Computational Framework for the Simulation of Human and Social Behaviors during Emergency Evacuations," *The 11th International Conference on Computing in Civil and Building Engineering, (ICCCBE XI)*, Montreal, Canada, June, 2006.

X. Pan, C. S. Han, K. Dauber and K. H. Law, "Human and Social Behavior in Computational Modeling and Analysis of Egress," *Automation in Construction*, 15(4):448-461, 2006.

X. Pan, C. S. Han, K. H. Law, and J. Latombe, "A Computational Framework to Simulate Human and Social Behaviors during Emergency Evacuations," *Blume Center News*, The John A. Blume Earthquake Engineering Center, Stanford University, Issue No. 44, Spring, 2006.

Y. Wang, K. J. Loh, J. P. Lynch, M. Fraser, K. H. Law, A. Elgamal, "Vibration Monitoring of the Voigt Bridge using Wired and Wireless Monitoring Systems," *Proceedings of the 4th China-Japan-US Symposium on Structural Control and Monitoring*, Hangzhou, China, October16-17, 2006.

Y. Wang, R. A. Swartz, J. P. Lynch, K. H. Law, K.-C. Lu, C.-H. Loh, "Application of Decentralized Wireless Sensing and Control in Civil Structures," *Proceedings of the US-Taiwan Workshop on Smart Structural Technology for Seismic Hazard Mitigation*, Taipei, Taiwan, October 12-14, 2006.

Y. Wang, R. A. Swartz, J. P. Lynch, K. H. Law, K.-C. Lu, C.-H. Loh, "Decentralized Real-time Velocity Feedback Control of Structures using Wireless Sensors," *Proceedings of the 4th International Conference on Earthquake Engineering*, Taipei, Taiwan, October 12-13, 2006.

Y. Wang, R. A. Swartz, J. P. Lynch, K. H. Law, K.-C. Lu, C.-H. Loh, "Decentralized Civil Structural Control using a Real-time Wireless Sensing and Control System," *Proceedings of the 4th World Conference on Structural Control and Monitoring*, San Diego, CA, July 11-13, 2006.

Y. Wang, J. P. Lynch, and K. H. Law, "Wireless Sensing, Actuation and Control -- with Applications to Civil Structures," *Proceedings of the 13th EG-ICE Workshop*, Ascona, Switzerland, pp. 670-689, June 25-30, 2006. *Intelligent Computing In Engineering and Architecture,* Lecture Notes in Artificial Intelligence 4200, I. Smith (ed.), Springer-Verlag, 2006.

Y. Wang, A. Swartz, J. P. Lynch, K. H. Law, K.-C. Lu, and C.-H. Loh, "Wireless Feedback Structural Control with Embedded Computing," *Proceedings of the SPIE 11th International Symposium on Nondestructive Evaluation for Health Monitoring and Diagnostics*, San Diego, CA, USA, February 26 - March 2, 2006. **(Best Student Paper Award).**

2005

U. B. Holz, G. H. Golub, and K. H. Law, "A Subspace Approximation Method for the Quadratic Eigenvalue Problem ," *SIAM Journal on Matrix Analysis and Applications*, 26(2):498-521, 2005.

S. L. Kerrigan and K. H. Law, "A Regulation-Centric, Logic-Based Compliance Assistance Framework ," *Journal of Computing in Civil Engineering, ASCE*, 19(1):1-15, 2005.

G. T. Lau, K. H. Law, and G. Wiederhold, "Analyzing Government Regulations Using Structural and Domain Information," *IEEE Computer*, 38(12):70-76, 2005.

G. T. Lau, K. H. Law, and G. Wiederhold, "A Relatedness Analysis Tool for Comparing Drafted Regulations and the Associated Public Comments," *Journal of Law and Policy for the Information Society* , 1(1):95-110, 2005.

G. T. Lau, K. H. Law, and G. Wiederhold, "Legal Information Retrieval and Application to E-Rulemaking," *Proceedings of the 10th International Conference on Artificial Intelligence and Law (ICAIL 2005)*, Bologna, Italy, pp. 146-154, Jun 6-11, 2005.

G. T. Lau, H. Wang, K. H. Law, and G. Wiederhold, "A Relatedness Analysis Approach for Regulation Comparison and E-Rulemaking Applications," *Proceedings of the National Conference on Digital Government Research (dg.o2005)*, Atlanta, GA, pp. 69-77, May 15-18, 2005.

Y. Lei, A. S. Kiremidjian, K. K. Nair, J. P. Lynch and K. H. Law, "Algorithms for Time Synchronization of Wireless Structural Monitoring Sensors," *Earthquake Engineering and Structural Dynamics*, John Wiley & Sons, 34(6):555-573, 2005.

D. Liu, J. Peng, and K. H. Law, "Integrating Engineering Web Services with Distributed Data Flows and Mobile Classes ," *ASCE International Conference on Computing in Civil Engineering*, Cancun, Mexico, July 12-15, 2005.

D. Liu, J. Peng, K. H. Law, G. Wiederhold, and R. D. Sriram, "Composition of Engineering Web Services with Distributed Data Flows and Computations," *Advanced Engineering Informatics*, 19:25-42, 2005.

J. P. Lynch, Y. Wang, K. H. Law, J. H. Yi, C. G. Lee, C. B. Yun, "Validation of Large-Scale Wireless Structural Monitoring System on the Geumdang Bridge," *Proceedings of the 9th International Conference on Structural Safety and Reliability*, Rome, Italy, June 19-23, 2005.

X. Pan, C. S. Han, K. Dauber and K. H. Law, "A Multi-agent Based Framework for the Simulation of Human and Social Behaviors during Emergency Evacuations," *Social Intelligence Design,* Stanford University, March 24-26, 2005.

X. Pan, C. S. Han and K. H. Law, "A Multi-agent Based Simulation Framework for the Study of Human and Social Behavior in Egress Analysis," *Proceedings of the ASCE 2005 International Conference on Computing in Civil Engineering*, Cancun, Mexico, July 12-15, 2005.

X. Pan, C. S. Han, K. Dauber and K. H. Law, "Human and Social Behavior in Computational Modeling and Analysis of Egress," *Proceedings of the First Conference on the Future of the AEC Industry*, Building Futures Council, Las Vegas, NV, pp. 189-204, March 16 - 17, 2005.

J. Peng and K. H. Law, "Reference Data Models for Supporting the Network for Earthquake Engineering Simulation (NEES)," *ASCE International Conference on Computing in Civil Engineering*, Cancun, Mexico, July 12-15, 2005.

H. Sohn, H. W. Park, K. H. Law, and C. R. Farrar, "Instantaneous Online Monitoring of Unmanned Aerial Vehicles without Baseline Signals," *Proceedings of the 23rd International Modal Analysis Conference*, Orlando, FL, January 31- February 3, 2005.

Y. Wang, J. P. Lynch, and K. H. Law, "Validation of an Integrated Network System for Real-Time Wireless Monitoring of Civil Structures," *Proceedings of the 5th International Workshop on Structural Health Monitoring* , Stanford, CA, USA, September 12-14, 2005.

Y. Wang, J. P. Lynch and K. H. Law, "Design of a Low-Power Wireless Structural Monitoring System for Collaborative Computational Algorithms," *Proceedings of SPIE 10th Annual International Symposium on Nondestructive Evaluation for Health Monitoring and Diagnostics*, San Diego, CA, 2005.

Y. Wang, J. P. Lynch, and K. H. Law, "Wireless Structural Sensors Using Reliable Communication Protocols for Data Acquisition and Interrogation," *Proceedings of the 23rd International Modal Analysis Conference (IMAC XXIII)*, Orlando, FL, January 31 - February 3, 2005.

J. Peng and K. H. Law, *Data Retrieval Tools: Software Design Specification*, NEESit Technical Report, 2005.

J. Peng and K. H. Law, *Data Retrieval Tools: Test Plan,* NEESit Technical Report, 2005.

2004

Abudayyeh, O., Cai, H. B., Fenves, S. J., Law, K., O'Neill, R., & Rasdorf, W., "Assessment of the computing component of civil engineering education," *ASCE Journal of Computing in Civil Engineering*, 18(3), 187-195, 2004.

J. Cheng, G. Lau, and K. H. Law, "A Simulation Access Language and Framework For Project Management Applications," *Proceedings of the 10th International Conference on Computing in Civil and Building Engineering*, Weimar, Germany, June 2-4, 2004.

J. Cheng, K. H. Law, and B. Kumar, "Online Collaboration of Project Management Applications," *Proceedings of the 11th International Workshop of the EG-ICE*, Weimar, Germany, June 1, 2004.

J. Cao, J. Wang, S. Zhang, M. Li, and K. H. Law, "Engineering Process Coordination Based on A Service Event Notification Model," *Proceedings of the 3rd International Conference on Grid and Cooperative Computing*, Wuhan, China, October 21- 24, 2004.

G. T. Lau and K. H. Law, "An Information Infrastructure for Comparing Accessibility Regulations and Related Information from Multiple Sources," *Proceedings of the 10th International Conference on Computing in Civil and Building Engineering*, Weimar, Germany, June 2-4, 2004. **(Best Student Paper Award).**

G. T. Lau, S. Kerrigan, H. Wang, K. H. Law and G. Wiederhold, "An Information Infrastructure for Government Regulation Analysis and Compliance Assistance," *Proceedings of the National Conference on Digital Government Research (dg.o2004)*, Seattle, WA, May 24-26, 2004.

G. T. Lau, S. Kerrigan, H. Wang, K. H. Law and G. Wiederhold, "A Software Infrastructure for Government Regulation Analysis and Compliance Assistance," *Proceedings of the National Conference on Digital Government Research (dg.o2004)*, Seattle, WA, May 24-26, 2004.

G. T. Lau, S. Kerrigan, K. H. Law and G. Wiederhold, "An E-Government Information Architecture for Regulation Analysis and Compliance Assistance," *Proceedings of the Sixth International Conference on Electronic Commerce (ICEC)*, Delft, The Netherlands, October 25-27, 2004.

D. Liu, J. Peng, K. H. Law, and G. Wiederhold, "Efficient Integration of Web Services with Distributed Data Flow and Active Mediation," *Proceedings of the Sixth International Conference on Electronic Commerce (ICEC)*, Delft, The Netherlands, October 25-27, 2004.

J. P. Lynch, A. Sundararajan, K. H. Law, H. Sohn and C. R. Farrar, "Piezoelectric Structural Excitation using a Wireless Active Sensing Unit," *International Modal Analysis Conference XXII*, Dearborn, MI, January 26-29, 2004.

J. P. Lynch, A. Sundararajan, H. Sohn, G. Park, C. Farrar and K. H. Law, "Embedding Actuation Functionalities in a Wireless Structural Health Monitoring System," *Proceedings of the 1st International Workshop on Smart Materials and Structures Technology*, Honolulu, Hawaii, pp. 129-137, January 12-14, 2004.

J. P. Lynch and K. H. Law, "Decentralized Energy Market-Based Structural Control," *Structural Engineering and Mechanics*, Techno Press, 17(3-4): 557-572, 2004.

J.P. Lynch, A. Sundararajan, K. H. Law, H. Sohn, and C. R. Farrar, "Design of a Wireless Active Sensing Unit for Structural Health Monitoring," *Proceedings of the SPIE 9th Annual International Symposium on NDE for Health Monitoring and Diagnostics*, San Diego, CA, March 14-18, 2004.

J. P. Lynch, K. H. Law, A. S. Kiremidjian, E. Carryer, C. R. Farrar, H. Sohn, D. W. Allen, B. Nadler, and J. R. Wait, "Design and Performance Validation of a Wireless Sensing Unit for Structural Monitoring Applications," *Structural Engineering and Mechanics*, 17(3-4): 393-408, 2004.

J. P. Lynch, Y. Wang, A. Sundararajan, K. H. Law, and A. S. Kiremidjian, "Design and Development of Power-Efficient Wireless Sensing Units for Structural Health Monitoring Applications," *Presented at the International Symposium on Earthquake Engineering in the Past and Future Fifty Years*, Harbin, China, August 2004.

J. P. Lynch, Y. Wang, A. Sundararajan, K. H. Law, and A. S. Kiemidjian, "Wireless Sensing for Structural Health Monitoring of Civil Structures," *Proceedings of International Workshop on Integrated Life-Cycle Management of Infrastructures*, Hong Kong, December 9-11, 2004.

J. Lu, J. Peng, A. W. Elgamal, Z. Yang, and K. H. Law, "Parallel Finite Element Modeling of Earthquake Ground Response and Liquefaction," *Journal of Earthquake Engineering and Engineering Vibration*, 3(1): 23-37, 2004.

J. Lu, L. He, Z. Yang, J. Peng, A. W. Elgamal, and K. H. Law. "Computational Modeling of Nonlinear Soil-Structure Interaction on Parallel Computers," *Proceedings of the 13th World Conference on Earthquake Engineering*, No. 530, Vancouver, Canada, Aug 2-6, 2004.

H. Sohn, H. W. Park , K. H. Law, and C. R. Farrar, "Minimizing Misclassification of Damage Using Extreme Value Statistics," *US-Korea Joint Seminar/Workshop on Smart Structures Technologies*, Sheraton Walker Hill Hotel in Seoul, Korea, September 2-4, 2004.

H. Sohn, H. W. Park, K. H. Law, and C. R. Farrar, "Instantaneous Damage Detection using Time Reversal Process," *Submitted to the 15th International Conference on Adaptive Structures and Technologies*, Bar Harbor, Maine, October 25-27, 2004.

H. W. Park, H. Sohn, and K. H. Law, "Damage detection in composite plates by using time reversal active sensing," Proceedings of the *Third International Conference on Advances in Structural Engineering and Mechanics*, Seoul, Korea, September 2-4, 2004.

J. Peng and K. H. Law, "Building Finite Element Analysis Programs in Distributed Services Environment," *Computers & Structures*, 82(22): 1813-1833, 2004.

J. Peng, G. Lau and K.H. Law, "Internet-Enabled Model for Nonlinear Dynamic Structural Simulations," *Proceedings of the 10th International Conference on Computing in Civil and Building Engineering (ICCCBE-X)*, Weimar, Germany, June 2-4, 2004.

J. Peng, J. Lu, K. H. Law, and A. W. Elgamal, "ParCYCLIC: Finite Element Modeling of Earthquake Liquefaction Response on Parallel Computers," *International Journal for Numerical and Analytical Methods in Geomechanics*, 28(12): 1207-1232, 2004.

J. Peng, J. Lu, K. H. Law, and A. W. Elgamal, "Simulation of Earthquake Liquefaction Response on Parallel Computers," *Proceedings of the ASCE Structural Congress and Expositions*, Nashville, TN, May 22-26, 2004.

J. Peng, F. McKenna, and K. H. Law, "A Modular Framework for Earthquake Engineering Analysis and Simulations," *Proceedings of the 13th World Conference on Earthquake Engineering*, No. 1129, Vancouver, Canada, August 2-6, 2004.

J. Peng, J. Lu, K. H. Law, and A. W. Elgamal, "PARCYCLIC: Finite Element Modeling of Earthquake Liquefaction Response on Parallel Computers," *Proceedings of the 13th World Conference on Earthquake Engineering*, No. 361, Vancouver, Canada, August 2-6, 2004.

J. P. Bardet, K. H. Law, J. Peng, and J. Swift, "Overview of NEES Data and Metadata Models," *Proceedings of the 13th World Conference on Earthquake Engineering,* No. 4001, Vancouver, Canada, August 2-6, 2004.

K. H. Law, *Summary Report on NEESgrid's Data Curation Summit*, Technical Report NEESgrid-2004-43, 2004, http://it.nees.org/documentation/pdf/TR_2004_43.pdf.

J. Peng and K. H. Law, *A Brief Review of Data Models for NEESgrid*, Technical Report NEESgrid-2004-01, 2004, http://it.nees.org/documentation/pdf/TR_2004_01.pdf.

J. Peng, K. H. Law, and G. Pekcan, *Reference NEESgrid Data Model for Shake Table Experiment*, NEESgrid Technical Report, 2004.

J. Peng and K. H. Law, *Validity and Usability of the NEESgrid Reference Data Model*, Technical Report NEESgrid-2004-44, 2004,
http://it.nees.org/documentation/pdf/TR_2004_44.pdf.

J. Peng and K. H. Law, *Reference NEESgrid Data Model*, Technical Report NEESgrid-2004-40, 2004, http://it.nees.org/documentation/pdf/TR-2004-40.pdf.

J. Peng, D. Liu, J. Cheng, C. S. Han and K. H. Law, "Internet-Enabled Distributed Engineering (Web) Services," International Workshop on Integrated Life-Cycle Management of Infrastructures, Hong Kong, December 9-11, 2004.

J. Wang, J. O. Leckie, K. H. Law, G. Wiederhold, "Distributed Information Organization and Management Framework for Regulation Compliance," *Proceedings of the 37th Hawaii International Conference on System Sciences (HICSS 37)*, *MiniTracks E-Government Cluster*, January 5-8, 2004.

2003

J. Cheng, M. Gruninger, R. D. Sriram, and K. H. Law, "Process Specification Language For Project Scheduling Information Exchange," *International Journal of IT in Architecture, Engineering and Construction*, 1(4): 307-328, 2003.

J. Cheng, K. H. Law, and B. Kumar, "Integrating Project Management Applications as Web Services," *Proceedings of the 2nd International Conference on Innovation in Architecture, Engineering and Construction*, Loughborough University, UK, June 25-27, 2003.

S. Kerrigan, and K. H. Law, "Logic-Based Regulation Compliance-Assistance," *Proceedings of the Ninth International Conference on Artificial Intelligence and Law (ICAIL 2003)*, Edinburgh, Scotland, UK, June 24-28, 2003.

S. Kerrigan, C. Heenan, H. Wang, K. H. Law, and G. Wiederhold, "Regulatory Information Management and Compliance Assistance," *Proceedings of the National Conference on Digital Government Research*, Boston, MA, May 18-21, 2003.

G. T. Lau, S. Kerrigan and K. H. Law, "An Information Infrastructure for Government Regulations," *Proceedings of the 13th Workshop on Information Technology and Systems*, Seattle, Washington, December 13-14, 2003.

G. T. Lau, K. H. Law, and G. Wiederhold, "Similarity Analysis on Government Regulations," *Proceedings of the Ninth ACM SIGKDD International Conference on Knowledge Discovery and Data Mining*, pp. 111-117, Washington, DC, August 24-27, 2003.

G. T. Lau, K. H. Law, and G. Wiederhold, "A Framework for Regulation Comparison with Application to Accessibility Codes," *Proceedings of the National Conference on Digital Government Research (dg.o2003)*, pp. 251-254, Boston, MA, May 18-21, 2003.

G. T. Lau, K. H. Law, and B. Kumar, "A Regulatory Information Infrastructure with Application to Accessibility Codes," *Proceedings of Include 2003: Inclusive Design for Society and Business*, pp. 65-71, London, March 25-28, 2003.

D. Liu, N. Sample, J. Peng, K. H. Law, and G. Wiederhold, "Active Mediation Technology for Service Composition," *Proceedings of the International Workshop on Component Based Business Information Systems Engineering (CBBISE`03)*, Geneva, Switzerland, September 2, 2003.

D. Liu, J. Cheng, K. H. Law, G. Wiederhold, and R. D. Sriram, "An Engineering Information Service Infrastructure for Ubiquitous Computing," *ASCE Journal of Computing in Civil Engineering*, 17(4): 219-229, 2003.

J. P. Lynch, A. Sundararajan, K. H. Law, A. S. Kiremidjian, and E. Carryer, "Power-Efficient Data Management for a Wireless Structural Monitoring System," *Proceedings of the 4th International Workshop on Structural Health Monitoring*, Stanford, CA, September 15-17, 2003.

J. P. Lynch, A. Sundararajan, K. H. Law, A. S. Kiremidjian & E. Carryer, "Power-Efficient Wireless Structural Monitoring with Local Data Processing," *International Conference on Structural Health Monitoring and Intelligent Infrastructures* (SHMII-03), Tokyo, Japan, November 13-15, 2003.

J. P. Lynch, A. Sundararajan, K. H. Law, A. S. Kiremidjian, E. Carryer, H. Sohn, and C. Farrar, "Field Validation of a Wireless Structural Monitoring System on the Alamosa Canyon Bridge," *Proceedings of the SPIE 10th Annual International Symposium on Smart Structures and Materials*, San Diego, CA, USA, March 2-6, 2003.

J. P. Lynch, A. Sundararajan, K. H. Law, A. S. Kiremidjian, E. Carryer, "Design of Wireless Sensor Units with Embedded Statistical Time-Series Damage Detection Algorithms for Structural Health Monitoring," *Caltrans/UCSD Workshop on Structural Health Monitoring and Diagnostics of Bridge Infrastructure*, San Diego, CA, USA, March 7-8, 2003.

J. P. Lynch, A. Sundararajan, K. H. Law, A. S. Kiremidjian, T. W. Kenny, and E. Carryer, "Embedment of Structural Monitoring Algorithms in a Wireless Sensing Unit," *Structural Engineering and Mechanics*, Techno Press, 15(3): 285-297, 2003.

J. P. Lynch, A. Partridge, K. H. Law, T. W. Kenny, A. S. Kiremidjian and E. Carryer, "Design of a Piezoresistive MEMS-Based Accelerometer for Integration with a Wireless Sensing Unit for Structural Monitoring," *Journal of Aerospace Engineering*, ASCE, 16(3): 108-114, 2003.

J. P. Lynch, A. Sundararajan, K. H. Law, H. Sohn and C. Farrrar, "New Opportunities for Structural Monitoring: Wireless Active Sensing," *Proceedings of the International Workshop on Advance Sensors, Structural Health Monitoring and Smart Structures* , Keio University, Tokyo, Japan, November 10-11, 2003.

J. Peng, J. Lu, K. H. Law, and A. Elgamal, "Simulation of Earthquake Liquefaction Response on Parallel Computers," *Blume Earthquake Engineering Research Center News Letter*, Issue 35, Stanford University, Stanford, CA, July 2003.

J. Peng and K. H. Law, *An Internet-Enabled Software Framework for the Collaborative Development of a Structural Analysis Program*, Technical report #TR141, the John A. Blume Earthquake Engineering Center, Stanford, CA, 2003.

J. Peng and K. H. Law, "A Software Framework for Internet-Enabled Nonlinear Dynamic Structural Analysis," *Proceedings of the ASCE Conference and Exposition*, Nashville, TN, November 12-15, 2003.

J. Peng, D. Liu, J. Cheng, C. S. Han, and K. H. Law, "Emergence of Distributed Engineering Web Services," *Proceedings of the 4th Joint Symposium on Information Technology in Civil Engineering*, Nashville, TN, November 14-15, 2003.

J. Peng, D. Liu, and K. H. Law, "An Engineering Data Access System for a Finite Element Program," *Advances in Engineering Software*, 34(3): 163-181, 2003.

J. Peng and K. H. Law, *Software Framework for Collaborative Development of Nonlinear Dynamic Analysis Program*, Pacific Earthquake Engineering Research Center, Technical Report #2003/02, Berkeley, CA, 2003.

2002

J. Cheng, B. Kumar, and K. H. Law, "A Question Answering System for Project Management Applications," *Advanced Engineering Informatics*, 16(4): 277-289, 2002.

J. Cheng, P. Trivedi, and K. H. Law, "Ontology Mapping Between PSL and XML-Based Standards For Project Scheduling," *Proceedings of 3rd International Conference on Concurrent Engineering in Construction*, pp. 143-156, Berkeley, CA, July 1-2, 2002.

J. Cheng and K. H. Law, "Using Process Specification Language for Project Information Exchange," *Proceedings of 3rd International Conference on Concurrent Engineering in Construction*, pp. 63-74, Berkeley, CA, July 1-2, 2002.

C. Han, J. C. Kunz, and K. H. Law, "Compliance Analysis for Disabled Access," *Advances in Digital Government Technology, Human Factors, and Policy*. William J. McIver, Jr. and Ahmed K. Elmagarmid (eds), pp. 149-163, Kluwer, Boston, MA, 2002.

S. Kerrigan, C. Heenan, and K. H. Law, "Regnet: An Infrastructure for Regulatory Information Management and Compliance Assistance," *Proceedings of the National Conference on Digital Government Research*, pp. 377-382, Los Angeles, CA, May 20-22, 2002.

D. Liu, K. H. Law, and G. Wiederhold, "Analysis of Integration Models for Service Composition," *Proceedings of Third International Workshop on Software and Performance*, Rome, Italy, July 24-26, 2002.

D. Liu, K. H. Law, and G. Wiederhold, "Data-flow Distribution in FICAS Service Composition Infrastructure," *Proceedings of 15th International Conference on Parallel and Distributed Computing Systems*, Louisville, KY, September 19-21, 2002.

D. Liu, J. Cheng, K. H. Law, and G. Wiederhold, "Ubiquitous Computing Environment for Project Management Services," *Proceedings of the International Workshop on Information Technology in Civil Engineering*, pp. 273-285, Washington, DC, November 5-7, 2002.

J. P. Lynch, A. Sundararajan, K. H. Law, A. S. Kiremidjian, T. W. Kenny, and E. Carryer, "Computational Core Design of a Wireless Structural Health Monitoring System," *Proceedings of Advances in Structural Engineering and Mechanics (ASEM'02) Conference*, Pusan, Korea, August 21-23, 2002.

J. P. Lynch and K. H. Law, *Decentralization of Wireless Monitoring and Control Technologies for Smart Civil Structures*, John A. Blume Technical Report #140, Stanford University, Stanford, CA, 2002.

J. P. Lynch and K. H. Law, "Decentralized Control Techniques for Large-Scale Civil Structural Systems," *Proceedings of the 20th International Modal Analysis Conference (IMAC XX)*, Los Angeles, CA, February 4-7, 2002.

J. P. Lynch, A. Sundararajan, K. H. Law, and A. S. Kiremidjian, "Embedding Algorithms in a Wireless Structural Monitoring System," *Proceedings of the International Conference on Advances and New Challenges in Earthquake Engineering Research (ICANCEER'02)*, Hong Kong, China, August 19-20, 2002.

J. P. Lynch and K. H. Law, "An Energy Framework for Decentralized Market-Based Structural Control," *Proceedings of the International Conference on Advances and New Challenges in Earthquake Engineering Research (ICANCEER'02)*, Hong Kong, China, August 19-20, 2002.

J. P. Lynch and K. H. Law, "Energy Market-Based Control for Linear Civil Structures," *Proceedings of the US-Korea Workshop on Smart Structural Systems*, Pusan, Korea, August 21-23, 2002.

J. P. Lynch, A. S. Kiremidjian, K. H. Law, T. W. Kenny, and E. Carryer, "Issues in Wireless Structural Damage Monitoring Technologies," *Proceedings of the 3rd World Conference on Structural Control (3WCSC)*, Como, Italy, April 7-12, 2002.

J. P. Lynch, K. H. Law, A. S. Kiremidjian, C. Ed Carryer, Farrar, H. Sohn, D. Allen, B. Nadler, and J. Wait, "Laboratory and Field Validation of a Wireless Sensing Unit Design for Structural Monitoring," *Proceedings of US-Korea Workshop on Smart Structural Systems*, Pusan, Korea, August 21-23, 2002.

J. P. Lynch and K. H. Law, "Market-Based Control of Linear Structural Systems," *Earthquake Engineering and Structural Dynamics*, 31(10): 1855-1877, 2002.

J. P. Lynch, K. H. Law, A. S. Kiremidjian, E. Carryer, T. W. Kenny, A. Partridge, and A. Sundararajan, "Validation of a Wireless Modular Monitoring System for Structures," *Proceedings of SPIE 9th Annual International Symposium on Smart Structures and Materials*, San Diego, CA, March 17-21, 2002.

J. P. Lynch, K. H. Law, A. S. Kiremidjian, T. W. Kenny, and E. Carryer, "A Wireless Modular Monitoring System for Civil Structures," *Proceedings of the 20th International Modal Analysis Conference (IMAC XX)*, Los Angeles, CA, February 4-7, 2002.

J. Peng and K. H. Law, "An Internet-Enabled Software Framework for Collaborative Development of Structural Analysis Program," *Proceedings of the ASCE Structural Congress & Expositions*, Denver, CO, April 2002.

J. Peng and K. H. Law, "A Prototype Software Framework for Internet-Enabled Collaborative Development of a Structural Analysis Program," *Engineering with Computers*, 18(1): 38-49, 2002.

2001

"Damage Diagnosis using Experimental Ritz Vectors," (with H. Sohn) *ASCE Journal of Engineering Mechanics*, Vol. 127, No. 11, pp. 1184-1193, 2001.

"Extraction of Ritz Vectors from Vibration Test Data," (with H. Sohn) *Mechanical Systems and Signal Processing,* 15(1):213-226, 2001.

"Information Infrastructure for Regulation Management and Compliance Checking," (with S. Kerrigan, G. Lau, L. Zhou, Gio Wiederhold) *National Conference on Digital Government Research*, Los Angeles, May 21-23, 2001, pp. 167-170., 2001.

"The Design of a Wireless Sensing Unit for Structural Monitoring," (with Jerome P. Lynch, Anne S. Kiremidjian, Tom W. Kenny and Ed Carryer) *Proceedings of The Third Workshop on Structural Health Monitoring*, Stanford University, Stanford CA, September 12-14, 2001.

"Formulation of a Market-Based Approach for Structural Control," (with Jerome P. Lynch) *Proceedings of the 19th International Modal Analysis Conference* (IMAC XIX) Orlando, FL, USA, February 5-9, 2001.

"The Development of a Wireless Modular Health Monitoring System for Civil Structures," (with Jerome P. Lynch, Erik G. Straser, Anne S. Kiremidjian, and Tom W. Kenny) *Proceedings of the MCEER Mitigation of Earthquake Disaster by Advanced Technologies* (MEDAT-2) Workshop, November 30-31, 2000, Las Vegas, NV, USA, pp. 105-108.

2000

"Bayesian Probabilistic Damage Detection of A Reinforced-Concrete Bridge Column," (with H. Sohn) *Earthquake Engineering and Structural Dynamics*, 29:1131-1152, 2000.

"Application of Load-Dependent Ritz Vectors to Bayesian Probabilistic Damage Detection," (H. Sohn and K.H. Law) *Probabilistic Engineering Mechanics*, 15(2):139-153, 2000.

"A Distributed Implementation of an Adaptive Finite Element Method for Fluid Problems," (with E. De Santiago) *Computers and Structures*, 74:97-119, 2000.

"A Design Generation System for Steel Connections using XML and Case-Based Reasoning," (with Yabuki, N., Miyajima, Y., Komuro, M.) *Journal of Civil Engineering Information Systems*, 9:91-100, 2000 (in Japanese).

"An Integrated Model for the Representation, Processing, and Documentation of Design Standards," (with N. Yabuki) *Journal of Civil Engineering Information Systems*, (Japan) 9:161-168, 2000.

"A Framework for Health Monitoring of Structures," (with Straser, E.G., Sohn, H., Kiremidjian, A.S) *Structures Congress and Exposition*, ASCE, Philadephia, PA, May 8-10, 2000.

"Framework for Collaborative Structural Analysis Software Development," (with J. Peng) *Structural Congress & Expositions,* ASCE, Philadelphia, PA., May 2000.

"CHAOS: An Active Security Mediation System," (with D. Liu and G. Wiederhold) *12th International Conference on Advanced Information Systems Engineering*, CAiSE, Stockholm, Sweden, June 2000.

"A Distributed Object Component-based Approach to Large-scale Engineering Systems and an Example Component Using Motion Planning Techniques for Disabled Access Usability Analysis," (with C.S. Han and J.C. Kunz) *8th International Conference on Computing in Civil and Building Engineering* (VIII-ICCCBE) ASCE, Stanford, CA, August, 2000.

"A Market-Based Control Solution for Semi-Active Structural Control," (with J.P. Lynch) *Proceedings of the 8th International Conference of Computing in Civil and Building Engineering*, Stanford University, Stanford, CA, August 2000

"An Open Source Model for Collaborative Development of Finite Element Program," (with J. Peng, F. McKenna, G.L. Fenves) *International Conference on Computing in Civil and Building Engineering* (VIII-ICCCBE), Palo Alto, CA, August 2000.

1999

"Building Design Services in a Distributed Architecture," (with C.S. Han, J.C. Kunz) *Journal on Computing in Civil Engineering*, ASCE 13(1):12-22, 1999. **(Best Journal Paper Award).**

"A Robust Distributed Adaptive Finite Element Program for Coupled Fluid-Structure Problems," (with E. De Santiago) *Engineering with Computers*, 15:137-154, 1999.

"Statistical Analysis of Bridge Damage Data from the 1994 Northridge, CA Earthquake," (with N.I. Basoz, A.S. Kiremidjian, S.A. King) *Earthquake Spectra*, 15(1):25-53, 1999.

"An Experimental Study of Temperature Effects on Modal Parameters of the Alamosa Canyon Bridge," (H. Sohn, M. Dzwonczyk, E.G. Straser, A.S. Kiremidjian, K.H. Law and T. Meng) *Earthquake Engineering and Structural Dynamics*, 28:879-897, 1999.

"Subspace Iterative Methods for Eigenvalue Problems," (with T. Zhang and G. Golub) *Linear Algebra and Its Applications*, 294:239-258, 1999.

"Application of Ritz Vectors to Damage Detection for a Grid-type Bridge Model," (with H. Sohn) *Proc. 17th International Modal Analysis Conference*, Kissimmee, FL, 1999.

"An Internet-Based Distributed Building Design Service Framework.," (with C.S. Han and J.Kunz) *Eighth International Conference on the Durability of Building Materials and Components*, Vancouver, Canada, pp. 2590-2600, May/June, 1999.

"Extraction of Ritz Vectors and Their Application to Structural Damage Diagnosis," (with H. Sohn) (abstract) *the 5th U.S. National Congress on Computational Mechanics*, University of Colorado, Boulder, CO, pp. 19, Aug. 1999.

"The Development and Application of a Damage Detection Toolbox for Matlab," (with J.P. Lynch and H. Sohn) (abstract) *the 5th U.S. National Congress on Computational Mechanics*, University of Colorado, Boulder, CO, pp. 20, Aug. 1999.

"Flexibility Based Extraction of Ritz Vectors and Their Application to Damage Diagnosis," (with H. Sohn) *2nd International Workshop on Structural Health Monitoring*, Stanford University, Stanford, CA, September 8-10, 1999.

"An Internet-Based Distributed Service Architecture," (with C.S. Han and J.C. Kunz) *Proceedings of the 1999 ASME Design Engineering Technical Conference*, Las Vegas, Nevada, paper no. DETC99/CIE-9077, September, 1999.

1998

"Computer Interpretation of Process and Instrumentation Drawings," (with C. Howie, J. Kunz, T. Binford, T. Chen) *Advances in Engineering Software*, 29(7-9):563-570, 1998.

"Eigenvalue Perturbation and Generalized Krylov Subspace Method," (with T. Zhang, G.H. Golub) *IMACS Journal on Applied Numerical Mathematics*, 27:185-202, 1998.

"On the Homotopy Method for Perturbed Symmetric Generalized Eigenvalue Problems," (with T.Zhang and G.H. Golub) *SIAM Journal on Scientific Computing*, 19(5):1625--1645,~ 1998.

"Client/Server Framework for On-Line Building Code Checking," (with C.S. Han, J.C. Kunz) *Journal on Computing in Civil Engineering*, ASCE 12(4): 181-194, 1998.

"A Bayesian Probabilistic Damage Detection Using Load-Dependent Ritz Vectors," (with H. Sohn) *the 16th International Modal Analysis Conference*, Santa Barbara, CA, February, 1998.

"Application of Load-Dependent Ritz Vectors to Probabilistic Damage Detection," (with H. Sohn) *SPIE's 5th Annual International Symposium on Smart Structures and Materials*, San Diego, CA, March, 1998.

"Adaptive Modeling of Environmental Effects in Modal Parameters for Damage Detection in Civil Structures," (with H. Sohn, M. Dzwonczyk, E. Straser, T. Meng and A.S. Kiremidjian) *SPIE's 5th Annual International Symposium on Smart Structures and Materials*, San Diego, CA, March, 1998.

"Bridge Damage Characteristics in the 1994 Northridge Earthquake," (with S.A. King, N.I. Basoz and A.S. Kiremidjian) (abstract) *6th National Conference on Earthquake Engineering*, Seattle, WA, May 1998.

"Some Personal Experience in Computer Aided Engineering Research," *Artificial Intelligence in Structural Engineering -- Information Technology for Design, Collaboration, Maintenance, and Monitoring, Conference*, the European Group for Structural Engineering Applications of Artificial Intelligence (EG-SEA-AI), Ascona, Switzerland, Lecture Notes in Artificial Intelligence 1454, (ed. I. Smith), pp. 178-196, July, 1998.

"Internet-Based Computer-Aided Design: Leveraging Product Model, Distributed Object, and World Wide Web Standards," (with C.S. Han and J.C. Kunz) *Structures Congress*, ASCE, San Francisco, CA, Paper Ref: T191-4,July, 1998.

"A Hybrid Prescriptive/Performance Based Approach to Automated Building Code Checking," (with C.S. Han and J. Kunz) *International Computing Congress*, ASCE, pp. 537-548, Boston, MA, October, 1998. **(Best Student Paper Award).**

1997

"An Interactive Computer Assisted System for Conceptual Design of Steel Structures," (with H. Fuyama and H. Krawinkler), *Computers and Structures*, 63(4):647-662, 1997.

"A Data Management Model for Collaborative Design in a CAD Environment," (with K. Krishnamurthy) *Engineering with Computers*, 13(2):65-88, 1997.

"Making Automated Building Code Checking a Reality," (with C.S. Han, J. Kunz) *Facility Management Journal*, pp. 22-28, September/October, 1997.

"A Bayesian Probabilistic Approach for Structure Damage Detection," (with H. Sohn) *Earthquake Engineering and Structural Dynamics*, 26:1259-1281, 1997.

"Methodologies for Evaluating the Socio-Economic Consequences of Large Earthquakes," (S.A. King, A.S. Kiremidjian, N. Basoz, K.H. Law, M. Vucetic, M. Doroudian, R.A. Olson, J.M. Eidinger, K.A. Goettel and G. Horner) *Earthquake Spectra*, 13(4):565-584, 1997.

"A Model for Software Interoperation in Engineering Enterprise Integration," (with C.T. Howie and J.C. Kunz) *Proceedings of 1997 ASME Design Engineering Technical Conference*, Sacramento, CA, September 14-17, 1997.

" Cyber Construction Management (C2M)," (with S. Nishigaki, Y. Maruyama, N. Kano) *Seventh International Conference on Computing in Civil and Building Engineering*, Seoul, Korea, pp. 2161-2166, August, 1997.

"A Distributed Finite Element Method with Application to Coupled Fluid-Structure Problems," (with E. De Santiago) *NAFEMS World Congress*, The Universitat of Stuttgart, Germany, pp. 546-557, April, 1997.

"A Distributed Adaptive Program for Fluid-Structure Problems," (with E. De Santiago) *Fourth U.S. National Congress on Computational Mechanics*, (Abstract), San Francisco, CA, pp. 212, August, 1997.

"Numerical Methods for Structural Dynamic Re-Analysis," (with G.H. Golub and T. Zhang) *Fourth U.S. National Congress on Computational Mechanics*, (Abstract), San Francisco, CA, pp. 285, August, 1997.

"Structural Damage Monitoring for Civil Structures," (with A.S. Kiremidjian, E.G. Straser, T. Meng H. Sohn, Redlefsen, L. and Cruz, R) *International Workshop on Structural Health Monitoring*, Stanford University, Stanford, CA, , pp. 371-382, September, 1997.

"Development of a Cyber Construction Management Framework," (with S. Nishigaki, Y. Maruyama, K. Koga, K. Tsukada, K. Tamaki, N. Kano, A. Kishimoto) *CALS Expo. International*, Tokyo, Japan, Proceedings Track 6, pp. 1-10, November, 1997.

1996

"Simulation of the hydrodynamic device model on distributed memory parallel computers," (with N. R. Aluru and R. W. Dutton) *IEEE Trans. on CAD*, 15(9):1029-1047, 1996.

"A Distributed Finite Element Method for Solving the Incompressible Navier-Stokes Equations," (with E. De Santiago), *International Journal for Numerical Methods in Engineering*, 39:4243-4258, 1996.

"A Parallel Implementation of a Generalized Lanczos Procedure for Structural Dynamic Analysis," (with D.R. Mackay) *International Journal of High Speed Computing*, 8(2):171-204, 1996.

"REDRAW - A Diagrammatic Reasoning System for Qualitative Structural Analysis," (with S. Tessler and Y. Iwasaki), *Advances in Engineering Software*, 25:149-159, 1996.

"Earthquake Hazard Assessment Through Geographic Information Systems," (with S.A. King and A.S. Kiremidjian) *ASCE Conference on Natural Disaster Reduction*, Washington, D.C., March 5-8, 1996.

"Damage Assessment of Transportation Systems in the 1994 Northridge, CA Earthquake," (with N. Basoz, A.S. Kiremidjian, S.A. King and K.H. Law) *EERI Annual Meeting*, Los Angeles, CA, February, 1996.

"Bridge Damage and Its Consequences in the 1994 Northridge Earthquake," (with N. Basoz, A.S. Kiremidjian, S.A. King and K.H. Law) *Fourth National Workshop on Bridge Research in Progress Research Abstract*, Buffalo, New York, June 17-19, 1996.

" A Configuration and Version Management Model for Collaborative Design," (with K. Krishnamurthy) *Internatinal Conference on Information Technology in Civil and Structural Engineering Design* - Taking Stock and Future Directions,Glasgow, Scotland, August, 1996.

"Utilization of GIS and Network Analysis for Earthquake Damage Assessment of Transportation Systems," (with N. Basoz, S. King and A. Kiremidjian), *International Conference on Information Technology in Civil and Structural Engineering Design*, Taking Stock and Future Directions, Glasgow, Scotland, August, 1996.

"A Data Management Model for Change Control in Collaborative Design Environment," (with K. Krishnamurthy) *Proceedings of the Third Congress on Computing in Civil Engineering*, ASCE, Anaheim, CA, June 1996.

"An Implementation of Finite Element Method on Distributed Workstations," (with Eduardo De Santiago) *Proceedings of the Twelfth Conference on Analysis and Computation*, Structures Congress XIV, ASCE, Chicago, Illinois, pp. 188-199,April, 1996.

"Geographic Information Systems for Emergency Response Management of Transportation Systems," (with A. Kiremidjian, N. Basoz and S.A. King) *ASCE-NDR Conference*, Washington, D.C., March 5-8, 1996.

"Working with Diagrams and Drawings," (with Y. Iwasaki, S. Tessler, H. Goto, T. Binford, T.L. Chen, J. Kunz, C. Howie) Applications of Artificial Intelligence in Structural Engineering - III, *Proceedings of the 3rd Workshop of the European Group for Structural Engineering Applications of Artificial Intelligence* (EG-SEA-AI), held at Ross Priory, University of Strathclyde, UK, August, 12-13, 1996, pp. 113-121.

1995

"A Robust Incomplete Factorization Based on Value and Space Constraints," (with M. Suarjana) *International Journal for Numerical Methods in Engineering*, 38:1703-1719, 1995.

"Numerical Solution of Two-Carrier Hydrodynamic Semiconductor Device Equations Employing a Stabilized Finite Element Method," (with N.R. Aluru, A. Raefsky, P.M. Pinsky and R.W. Dutton) *Computer Methods in Applied Mechanics and Engineering*, 125:187-220, 1995.

"Computer Representations of Design Standards and Building Codes: A U.S. Perspective," (with S.J. Fenves, J.H. Garrett, Jr., H. Kiliccote and K.A. Reed) *International Journal of Construction Information Technology*, 3(1):13-34, 1995.

"An Integrated Approach to Design Standards Representation, Processing and Documentation," (with N. Yabuki) *International Journal of Construction Information Technology*, 3(1):91-111, 1995.

"An analysis of the hydrodynamic model - Boundary conditions and simulations," (with N. R. Aluru, P. M. Pinsky and R. W. Dutton) *COMPEL, The International Journal for Computation and Mathematics in Electrical and Electronic Engineering*, 14(2/3):157-185, 1995.

"A Data Management Model for Design Change Control," (with K. Krishnamurthy) *Concurrent Engineering: Research and Applications*, 3(4):329-343, 1995.

"A Methodology for Parallelizing PDE Solvers: Applications to Semiconductor Device Simulation," (with B. Herndon, N. Aluru, A. Raefsky, R.J.G. Goossens and R. Dutton) *Seventh SIAM Conference on Parallel Processing for Scientific Computing*, SIAM, San Francisco, CA, 1995. .

"Numerical Methods for Comprehensive Semiconductor Device Simulations," (with N. R. Aluru, P. M. Pinsky and R. W. Dutton) *Advances and Trends in Computational and Applied Mathematics*, 20-22 April, Austin, Texas, 1995.

"Parallel and Stabilized Finite Element Methods for Submicron Semiconductor Device Simulations," (with N. R. Aluru, P. M. Pinsky and R. W. Dutton) *Third US National Congress on Computational Mechanics*, June 12-14, Dallas, Texas, 1995.

"An Implementation of Finite Element Method on Distributed Workstations," (with E. De Santiago, N. R. Aluru) *Third US National Congress on Computational Mechanics*, June 12-14, Dallas, Texas, 1995.

"FIESTA-HD: A Parallel Finite Element Program for Hydrodynamic Device Simulation," (with N. R. Aluru, A. Raefsky and R. W. Dutton) *Parallel CFD'95*, California Institute of Technology, June 26-28, 1995.(also appeared in *Parallel Computational Fluid Dynamics, Implementations and Results Using Parallel Computers*, A. Ecer, J. Periaux, N. Satofuka,S. Taylor (ed.), Elsevier Science, pp. 379-386, 1996.)

"Advances in Numerical Methods for Convective Hydrodynamic Model of Semiconductor Devices," (with N. R. Aluru and R. W. Dutton) *SISDEP'95*, Erlangen, Germany, September 6-8, 1995.

"Change Management for Collaborative Engineering," (with Krishnamurthy, K.*)Proceedings of the Second Congress on Computing in Civil Engineering*, ASCE, Atlanta, GA, June 1995, pp. 1110-1118.

"Version Management in a CAD Paradigm," (with Krishnamurthy, K.) *Proceedings of the Ninth Annual ASME Database Symposium*, Boston, MA, pp. 1133-1144, September 1995.

"Configuration Management in a CAD Paradigm," (with K. Krishnamurthy) *Proceedings of the International Mechanical Engineering Congress*, San Francisco, CA, Vol. CED-7, pp. 103-116, 1995.

"Computer Interpretation of Process and Instrumentation Drawings," (with C. Howie, J. Kunz, T. Binford and T. Chen) *The Fourth International Conference on the Application of AI Techniques to Civil and Structural Engineering*, (CIVIL-COMP 95) Developments in Computer Aided Design and Modeling for Civil Engineering, Ed. by B.H.V. Topping, Civil-Comp Press, pp. 13-20, 1995.

"Qualitative Structural Analysis Using Diagrammatic Reasoning," (with S. Tessler and Y. Iwasaki)*14th International Joint Conference on AI*, Montreal, Canada, pp. 885-891, August, 20-25, 1995.

"Application of the HyperDocument Model to Design,"(in Japanese) (with N. Yabuki) *20th Symposium on Civil Engineering Information Systems*, JSCE, October, 1995.

"Use of GIS for Seismic Hazard Mitigation study," (with King S. A., Basoz N. and Kiremidjian A. S.) *Second Congress in Computing in Civil Engineering*, Atlanta, GA, pp. 1039-1046, June, 1995.

"Earthquake Damage and Loss Estimation Through Geographic Information Systems," (with King S. A., Kiremidjian A.S. and Basoz N.). *5th Seismic Zonation Conference*, Nice, France, October, 1995.

"Consequences of Damage to Bridges in the Northridge Earthquake," (with A. Kiremidjian, N. Basoz and S. King) *NSF Grantees Workshop*, Lake Tahoe, CA, April, 1995.

"Analysis of Highway Networksfor Emergency Response and Economic Recovery"(with Basoz N., Kiremidjian A.S.) *National Seismic Conference on Bridges and Highways*, San Diego, December, 1995.

"CUREe/Kajima Joint Development of a GIS-Based Earthquake Damage and Loss Estimation Methodology," (with Kiremidjian A.S., King S.A., Mizukoshi K., Miyamura M. and Basoz N.) *11th World Conference on Earthquake Engineering*, 1995.

Piror to 1995

"Space-Time Galerkin/Least-Squares Finite Element Formulation for the Hydrodynamic Device Equations," (with N.R. Aluru, A. Raefsky, P.M. Pinsky, R.J.G. Goossens and R.W. Dutton) *Transactions on Electronics, Institute of Electronics, Information and Communication Engineers* (IEICE) of Japan, Vol E77-C, No. 2, pp.227-235, 1994.

"Humanware, Human Error, and Hiyari-Hat: a Template of Unsafe Symptoms," (with S. Nishigaki, J. Vavrin, N. Kano, T. Haga, J.C. Kunz) *J. of Construction Management and Engineering*, ASCE, 120(2):421-442, 1994.

"A Lanczos-Based Method for Structural Dynamics Re-Analysis Problems," (with C.M.M. Carey and G.H. Golub) *International Journal for Numerical Methods in Engineering*, 37:2857-2883, 1994.

"Drift Control in Moment Resisting Steel Frame Structures," (with H. Fuyama and H. Krawinkler) *The Structural Design of Tall Buildings*, 3:163-181, 1994.

"A Computer-Based Design Support System for Steel Frame Structures," (with H. Fuyama and H. Krawinkler) *The Structural Design of Tall Buildings*, 3:183-200, 1994.

"Successive Conjugate Gradient Method for Structural Analysis with Multiple Load Cases," (with M. Suarjana) *International Journal for Numerical Methods in Engineering*, 37:4185-4203, 1994.

"Safety Problems in On-Site Construction Work Processes," (with S. Nishigaki) *Proceedings of the 11th International Symposium on Automation and Robotics in Construction (ISARC)*, Brighton, UK, pp.13-18, May, 1994.

"A Version and Configuration Scheme for Collaborative Engineering," (with K. Krishnamurthy) *First Congress on Computing in Civil Engineering*, ASCE, pp. 2022-2029, 1994.

"Towards a Formal Model of Version and Configuration Management for Collaborative Engineering," (with K. Krishnamurthy) *Engineering Data Management: Integrating the Engineering Enterprise*, Eighth Annual Engineering Database Symposium, ASME, pp. 21-32, 1994.

"Numerical Methods for Dynamic Re-Analysis of Structures with Localized Modifications," (with C.M.M. Carey, D.R. Mackay and G.H. Golub) *Second International Conference on Computational Structures Technology*, Athens, Greece, 1994. In Advances in Computational Mechanics, M. Papadrakakis and B.H.V. Topping (editors), Civil-Comp Press, Edinburgh, UK, pp. 207-214, 1994.

"An Implementation of a Generalized Lanczos Procedure for Structural Dynamic Analysis on Distributed Memory Computers," (with D.R. Mackay) *Second International Conference on Computational Structures Technology*, Athens, Greece, 1994. In Advances in Parallel and Vector Processing for Structural Mechanics, B.H.V. Topping and M. Papadrakakis (editors), Civil-Comp Press, Edinburgh, UK, pp. 93-105, 1994.

"Large Scale Engineering Computations on Distributed Memory Parallel Computers and Distributed Workstations," *NSF Workshop on Scientific Supercomputing, Visualization and Animation in Geotechnical Earthquake Engineering and Engineering Seismology*, Carnegie-Mellon University, October, 1994.

"An Object-Logic Model for the Representation and Processing of Design Standards," (with N. Yabuki) *Engineering with Computers*, 9:133-159, 1993.

"A Parallel Row-Oriented Sparse Solution Method for Finite Element Structural Analysis," (with D.R. Mackay) *International Journal for Numerical Methods in Engineering*, 36:2895-2919, 1993.

"QStruc: An Approach for Qualitative Structural Analysis," (with R. Fruchter and Y. Iwasaki) *Computing Systems in Engineering*, 4(3/4):147-157, 1993.

"An Approach for Qualitative Structural Analysis," (with R. Fruchter and Y. Iwasaki) *AI in Engineering, Design and Manufacturing*, 7(3):189-207, 1993.

"A HyperDocument Model for Design Standards Documentation," (with N. Yabuki) *Journal on Computing in Civil Engineering*, ASCE, 7(2):218-237, 1993.

"A Finite Element Formulation for the Hydrodynamic Semiconductor Device Equations," (with N.R. Aluru, A. Raefsky, P.M. Pinsky, R.J.G. Goossens and R.W. Dutton) *Computer Methods in Applied Mechanics and Engineering*, 107:269-298, 1993.

"Qualitative Modeling and Analysis of Lateral Load Resistance in Frames," (with R. Fruchter and H. Krawinkler) *AI in Engineering, Design and Manufacturing, Artificial Intelligence for Engineering Design, Analysis and Manufacturing*, 7(4):239-256, 1993.

"Computer Assisted Conceptual Structural Design of Steel Buildings," (with H. Fuyama and H. Krawinkler) *Fifth International Conference on Computing in Civil and Building Engineering*, pp. 969-976, 1993.

"Knowledge-Based Creation of an Architectural 3-D Model from 2-D Drawings." (with H. Goto, Y. Endo, O. Morimoto and T. Kazama) *Fifth International Conference on Computing in Civil and Building Engineering*, pp. 1073-1076, 1993.

"Space-Time Galerkin/Least-Squares Finite Element Formulation for the Hydrodynamic Device Equations," (with N.R. Aluru, P.M. Pinsky, A. Raefsky, R.J.G. Goossens and R.W. Dutton) *International Workshop on VLSI Process and Device Modeling (VPAD),* Nara, Japan, pp. 16-17, May, 1993.

"d-Zone Triangulation: A Boundary Refinement Scheme for Quadtree Based Mesh," (with D. Yang and R.W. Dutton) *International Workshop on VLSI Process and Device Modeling (VPAD)*, Nara, Japan, pp. 120-121, May, 1993.

"An Interactive Computer Assisted System for Conceptual Design of Steel Buildings," (with H. Fuyama and H. Krawinkler) *Third International Conference on the Application of Artificial Intelligence to Civil and Structural Engineering*, Edinburgh, Scotland, pp. 285-296, August, 1993.

"REDRAW - A Diagrammatic Reasoning System for Qualitative Structural Analysis," (with S. Tessler and Y. Iwasaki) *Third International Conference on the Application of Artificial Intelligence to Civil and Structural Engineering*, Edinburgh, Scotland, pp. 227-234, August, 1993.

"Qualitative Structural Analysis using Diagrammatic Reasoning," (with S. Tessler and Y. Iwasaki) *Seventh International Workshop on Qualitative Reasoning about Physical System*, Seattle, Washington, 1993.

"An Automated Mesh Refinement Scheme Based on Level-Control Function," (with D. Yang and R. Dutton) *NUPAD IV*, Seattle, Washington, June, 1992, pp. 181-186.

"Qualitative Interpretation of Structures," (with R. Fruchter, Y. Iwasaki and H. Krawinkler) *Workshop on Qualitative Analysis of Structures, AI in Design*, Pittsburgh, PA, June, 1992.

"A Framework for the Documentation, Representation, and Processing of Design Standards," (with N. Yabuki) *Eighth National Conference on Computing in Civil Engineering*, ASCE, Dallas, Texas, June, 1992, pp. 97-104.

"An Integrated System for Design Standards Processing," (with N. Yabuki) *CIB Proceedings Publication 165, Joint CIB Workshops on Computers and Information in Construction*, Montreal, Canada, pp. 293-307,May, 1992.

"A Hyper Document Model for Engineering Design Support," (with N. Yabuki) *ASME Winter Annual Meetings*, Anaheim, CA, paper no. 92-WA/EDB-7, November, 1992.

"A Formal Approach to Automating Conceptual Structural Design, Part I - Methodology," (with D. Jain, G. Luth and H. Krawinkler) *Engineering with Computers*, 7:79-89, 1991.

"A Formal Approach to Automating Conceptual Structural Design, Part II - Application to Floor Framing Generation," (with D. Jain, G. Luth and H. Krawinkler) *Engineering with Computers*, 7:91-107, 1991.

"An Architecture for Managing Design Objects in a Sharable Relational Framework," (with G. Wiederhold, T. Barsalou, N. Siambela, W. Sujansky, D. Zingmund and H. Singh) *International Journal of Systems Automation, Research and Applications*, 1(1):47-66, 1991.

"An Implementation of A Generalized Sparse/Profile Finite Element Solution Method," (with D.R. Mackay and A. Raefsky) *Computer and Structure*, 41(4):723-737, 1991.

"A Parallel Sparse Solution Method for Finite Element Problems," (with D.R. Mackay) *1st U.S. National Congress on Computational Mechanics*, Chicago, IL, pp.10, 1991.

"View Object Approach for Managing Design/Built Information," (with P. Scarponcini) *The Seventh Conference on Computing in Civil Engineering*, ASCE, pp. 192-201, 1991.

"A Methodology for Conceptual Structural Design," (with G. Luth, D. Jain and H. Krawinkler) *The Seventh Conference on Computing in Civil Engineering*, ASCE, pp. 34-43, 1991.

"Generation of Floor Framing Plans for Steel Office Buildings," (with G. Luth, D. Jain and H. Krawinkler) *The Seventh Conference on Computing in Civil Engineering*, ASCE, pp. 288-297, 1991.

"Generating Qualitative Models for Structural Engineering Analysis and Design," (with R. Fruchter and Y. Iwasaki) *The Seventh Conference on Computing in Civil Engineering*, ASCE, pp. 268-277, 1991.

"Parallel Preconditioned Conjugate Gradient Methods for Structural Analysis Problems with Multiple Loadings," (with M. Suarjana) *The Tenth Conference on Electronic Computation*, Structural Division, ASCE, pp. 337-344, 1991.

"A Formal Approach for Managing Building Design Information in a Sharable Relational Framework," *The Fourth International Conference on Computing in Civil and Building Engineering*, Tokyo, Japan, July, 1991, pp. 339-346.

"QStruc: An Approach for Qualitative Structural Analysis," (with R. Fruchter and Y. Iwasaki) *The Second InternationalConference on the Application of AI Techniques to Civil and Structural Engineering*, (CIVIL-COMP 91), Oxford, UK, September,1991, pp. 27-37.

"Computing in Civil Engineering Curriculum: Needs and Issues," (with W.J. Rasdorf, M. Karamouz and O.Y. Abudayyeh*) Journal of Professional Issues in Engineering*, ASCE, 116(2): 128-141, 1990.

"Management of Complex Structural Engineering Objects in a Relational Framework," (with T. Barsalou and G. Wiederhold) *Engineering with Computers*, 6:81-92, 1990.

"The Role of Computing in Civil Engineering Education," (with M. Karamouz, W. Rasdorf and O. Abudayyeh*) Education Forum*, ASCE, Las Vegas, Nevada, pp. 337-343, 1990.

"Managing Design Objects in a Sharable Relational Framework," (with G. Wiederhold, T. Barsalou, N. Siambela, W. Sujansky and D. Zingmund) *ASME International Conference on Computers in Engineering,* Boston, MA, pp. 56-61, 1990.

"PMAPM: An Object Oriented Project Model for A/E/C Process with Multiple Views," (with K. Ito and R.E. Levitt) *The 2nd CIB W78+W74 Seminar on Computer Integrated Construction* ,Tokyo, Japan, CIB Proceedings Publication 138, pp.75-80, September, 1990.

"A Parallel Finite Element Method and Its Prototype Implementation on a Hypercube," (with W.T. Carter Jr. and T.L. Sham) *Computers and Structures*, 31(6):921-934, 1989.

"On Updating the Structure of Sparse Matrix Factors," *International Journal for Numerical Methods in Engineering*, 28:2339-2360, 1989.

"Finite Element Computations on a Linear Systolic Array," (with Steven W. Hammond*) Structures Congress,* ASCE, San Francisco, CA, pp. 187-196, May, 1989.

"Applying a Semantic Structural Model for Engineering Database Design," (with T. Barsalou) *ASME International Conference on Computers in Engineering* , Anaheim, CA, pp. 61-66,1989.

"On Standard Processing with Predicate Calculus," (with D. Jain and H. Krawinkler) *The Sixth Conference on Computing in Civil Engineering*, ASCE, pp. 259-266, 1989.

"A Parallel Implementation of a Substructure-Oriented Subspace Iteration Method," (with D.R. Mackay) *The Sixth Conference on Computing in Civil Engineering*, ASCE, pp. 757-764, 1989.

"The Role of Computing in Civil Engineering Curriculum," (with M. Karamouz, W. Rasdorf and O. Abudayyeh) *The Sixth Conference on Computer in Civil Engineering*, pp. 442-450, 1989.

"Data Exchange for Collaborating Structural Design Programs," (with J. H. Grubbs and L. Leach) *Journal of Computing in Civil Engineering*, ASCE, 2(2):144-159, 1988.

"Automated Processing of Design Standards," (with J.R. Cronembold) *Journal of Computing in Civil Engineering*, ASCE, 2(3):255-273, 1988.

"Architecture and Operation of a Systolic Engine for Finite Element Computations," (with S.W. Hammond) *Computers and Structures*, 30(1-2):365-374, 1988.

"An Integrated System for Structural Modeling, Analysis and Design," (with R. Wentorf and J.R. Cronembold *the Fifth Conference on Computing in Civil Engineering*, ASCE, Alexandria, Virginia, pp. 134-143, 1988.

"A Sparse Matrix Solution Representation for Structural Analysis," *the Fifth Conference on Computing in Civil Engineering*, ASCE, Alexandria, Virginia, pp. 323-332, 1988.

"Architecture and Operation of a Systolic Engine for Finite Element Computations," (with Steven W. Hammond) *the Symposium on Advances and Trends in Computational Structural Mechanics and Fluid Dynamics*, Washington, D.C., pp. 365-374, October, 1988.

"Conceptual Database Design for Engineering Modeling," (with D.L. Spooner) *Symposium on Engineering Database Management, Computers in Engineering Conference*, ASME, San Francisco, California, pp. 19-26, August, 1988.

"Abstraction Database Concepts for Engineering Modeling," (with D.L. Spooner and M.K. Jouaneh) *Engineering with Computers*, 2(2):79-94, 1987.

"On the Hidden Line Removal Problem," (with W.R. Spillers) *Computers and Structures*, 26(4):709-717, 1987.

"An Intrinsic Behavior-Based Model for Interactive Structural Design," (with J.H. Grubbs and M.H. Ackroyd) *Engineering with Computers*, 2(4):185-198, 1987.

"An Intrinsic Approach to Interactive Structural Design," (with J.H. Grubbs) *Structures Congress*, ASCE, Orlando, Florida, 1987.

"A Natural Language Interpreter for Plate Girder Design," (with R. Wentorf and M.H. Ackroyd) *Engineering with Computers*, 1(3):127-147, 1986.

"A Node-Addition Model for Symbolic Factorization," (with S.J. Fenves) *ACM Transaction on Mathematical Software*, 12(1):37-50, 1986.

"A Parallel Finite Element Solution Method," *Computers and Structures*, 23(6):845-858, 1986.

"An Expert System for Inactive Hazardous Waste Site Characterization," (with T.F. Zimmie and D.R. Chapman) *the Symposium on Expert Systems in Civil Engineering*, ASCE, Seattle, Washington, pp. 159-173, 1986.

"Development of a Rule Based Expert System for Characterization of Hazardous Waste Sites," (with T.F. Zimmie and D.R. Chapman) *National Conference on Environmental Engineering*, Cincinnati, Ohio, pp. 341-347, 1986.

"Intrinsic Models for Interactive Structural Design," (with J.H. Grubbs and M.H. Ackroyd) *the Fourth Conference on Computing in Civil Engineering*, ASCE, Boston, Massachusetts, pp. 330-342, 1986.

"Data Modelling for Building Design," (with M.K. Jouaneh) *the Fourth Conference on Computing in Civil Engineering*, ASCE, Boston, Massachusetts, pp.21-36, 1986.

"Natural Language Processing and Computer Graphics for Engineering Design," (with R. Wentorf) *the Fourth Conference on Computing in Civil Engineering*, ASCE, Boston, Massachusetts, pp. 37-51, 1986.

"Systolic Arrays for Finite Element Analysis," *Computers and Structures*, 20(1-3):55-65, 1985.

"Sparse Matrix Factor Modification in Structural Reanalysis," *International Journal for Numerical Methods in Engineering*, 21:37-63, 1985.

"Modified Quadtree Mesh Generator and Efficient Adaptive Analysis," (with M.S. Shephard) *International Conference on Accuracy Estimates and Adaptive Refinements in Finite Element Computations*, Portugal, pp. 129-138,1984.

"Relational Model for Computer Analysis and Design," *The First Symposium on Computer Aided Design in Civil Engineering,* San Francisco, California, pp. 71-82, 1984.

"Systolic Arrays for Finite Element Analysis," *the Symposium on Advances and Trends in Structures and Dynamics*, Washington, D.C., pp. 55-65, 1984.

"A Two Step Approach to Finite Element Ordering," (with S.J. Fenves*) International Journal for Numerical Methods in Engineering*, 19:891-911,1983.

"A Physical Interpretation of Factorization and Factor Modification in Structural Analysis," (with S.J. Fenves) *the Journal of Franklin Institute*, 316(5):385-404, 1983.

"Sparse Matrices, Graph Theory and Reanalysis," (with S.J. Fenves) *Proceedings of First Conference on Computing in Civil Engineering*, ASCE, New York, New York, pp. 234-249, 1981.

"Expected Flow in Transportation Network," (with S.J. Fenves) *Proceedings of Second U.S. National Conference on Lifeline Earthquake Engineering*, Stanford University, pp. 673-692, 1979.

Current and Former PhD and Post-Doctoral Students

Current Ph.D. Students

Matthew Sato, Department of Civil and Environmental Engineering

Former Ph.D. Students

Vivian W.H. Wong
Ph.D. Thesis: Spatio-temporal Representation Learning: Applications to Manufacturing Planning and Pedestrian Crowd Analysis
Department of Civil and Environmental Engineering
Date of Completion: June, 2024
(Current or Most Recently Known Coordinate: University of Florida)

Jacqueline (Tsz Yin) Lo
Ph.D. Thesis: Innovation Management in the Construction Industry: Innovation Performance Indicators for AECOO Organizations
Department of Civil and Environmental Engineering
(co-Advisor: Dr. Calvin Kam)
Date of Completion: November 2021
(Current or Most Recently Known Coordinate: Hong Kong Polytechnic University)

Max Ferguson
Ph.D. Thesis: Improving Mobile Robot Navigation with Dynamic Building Information Models and Stochastic Neural Control
Department of Civil and Environmental Engineering
Date of completion: December 2020
(Current or Most Recently Known Coordinate: Luminpdf)

Flavia Cristina Grey Rodriguez (Co-Advisor)
Ph.D. Thesis: SPACE-MATE: A Framework to Harmonize Occupant Well-Being and Building Sustainability
Department of Civil and Environmental Engineering
(Principal Advisor: Dr. Renate Fruchter)
Date of completion: August, 2019
(Current or Most Recently Known Coordinate: Unknown)

Seongwoon Jeong
Ph.D. Thesis Title: A Scalable and Interoperable Cyberinfrastructure Platform for Civil Infrastructure Monitoring
Department of Civil and Environmental Engineering
Date of completion: March, 2019
(Current or Most Recently Known Coordinate: Broadcom/VMware/Uhana)

Maria Frank (Co-Advisor)

Ph.D. Thesis Title: Uncovering Hidden Demands of Global Learners - Mind and Body in a PBL Context
Department of Civil and Environmental Engineering
(Principal Co-Advisor: Dr. Renate Fruchter)
Date of completion: March, 2017
(Current or Most Recently Known Coordinate: Unknown)

Jinkyoo Park
Ph.D. Thesis Title: Data-Driven Cooperative Control for Wind Farm Power Maximization
Department of Civil and Environmental Engineering
Date of completion: March, 2016
(Current or Most Recently Known Coordinate: Korea Advanced Institute of Science and Technology)

Kevin Wong (Co-Advisor)
Ph.D. Thesis Title: Detection of Atypical Patterns of Occupancy and Mobility in Smart Homes and Offices with a Network of Motion Detectors
Department of Electrical Engineering
(Principal Co-Advisor: Hamid Aghajan)
Date of completion: August, 2015
(Current or Most Recently Known Coordinate: Unknown)

Meiling (Zan) Chu
Ph.D. Thesis Title: A Computational Framework Incorporating Human and Social Behaviors for Occupant-Centric Egress Simulation
Department of Civil and Environmental Engineering
Date of completion: January 2015
(Current or Most Recently Known Coordinate: Apple Computer, Inc.)

Amanda (Amy) Askin
Ph.D. Thesis Title: An Advanced Strategy for Energy Efficient Lighting Incorporating Distributed Sensing and Tailored Controls
Department of Civil and Environmental Engineering
Date of completion: October 2011
(Current or Most Recently Known Coordinate: Lawrence Livermore Laboratory)

Chin-Ping (Jack) Cheng
Ph.D. Thesis Title: SC Collaborator: A Service Oriented Framework for Construction Supply Chain Collaboration and Monitoring
Department of Civil and Environmental Engineering (Minor: Management Science and Engineering)
Date of completion: December, 2009
(Current or Most Recently Known Coordinate: Hong Kong University of Science and Technology)

Yang Wang
Ph.D. Thesis Title: Wireless Sensing and Decentralized Control for Civil Structures: Theory and Implementation
Department of Civil and Environmental Engineering
Date of completion: September, 2007
(Current or Most Recently Known Coordinate: Georgia Institute of Technology)

Xiaoshan Pan
Ph.D. Thesis Title: Computational Modeling of Human and Social Behaviors for Emergency Egress Analysis

Department of Civil and Environmental Engineering
Date of completion: June, 2006
(Current or Most Recently Known Coordinate: CDM Tech.)

Gloria Lau
Ph.D. Thesis Title: A Comparative Analysis Framework for Semi-Structured Documents, with Applications to Government Regulations
Department of Civil and Environmental Engineering (Minor: Computer Science)
Date of completion: August, 2004
(Current or Most Recently Known Coordinate: Alpha Medical)

Jinxing Cheng
Ph.D. Thesis Title: A Simulation Access Language and Framework with Applications to Project Management
Department of Civil and Environmental Engineering (Minor: Computer Science)
Date of completion: August, 2004
(Current or Most Recently Known Coordinate: Suning R&D Center, USA.)

Shawn Kerrigan
Ph.D. Thesis Title: A Software Infrastructure for Regulatory Information Management and Compliance Assistance
Department of Civil and Environmental Engineering (Minor: Computer Science)
Date of completion: August, 2003
(Current or Most Recently Known Coordinate: Plus, Inc.)

David Liu
Ph.D. Thesis Title: A Distributed Data Flow Model for Composing Software Services
(Co-advisor, Principal Advisor: Professor Gio Wiederhold)
Department of Electrical Engineering
Date of completion: June, 2003
(Current or Most Recently Known Coordinate: Plus, Inc.)

Jie Wang
Ph.D. Thesis Title: Distributed Information Organization and Management for Hazardous Waste Regulation Compliance Checking
(Co-advisor, Principal Advisor: Professor Jim Leckie)
Department of Civil and Environmental Engineering
Date of completion: March, 2003
(Current or Most Recently Known Coordinate: Stanford University)

Jun Peng
Ph.D. Thesis Title: An Internet-Enabled Software Framework for the Collaborative Development of a Structural Analysis Program
Department of Civil and Environmental Engineering (Minor: Computer Science)
Date of completion: December, 2002
(Current or Most Recently Known Coordinate: PonyAI, Inc.)

Jerome P. Lynch
Ph.D. Thesis Title: Decentralization of Wireless Monitoring and Control Technologies for Smart Civil Structures
Department of Civil and Environmental Engineering

Date of completion: July, 2002
(Current or Most Recently Known Coordinate: Duke University)

Urmi B. Holz
(Co-advisor, Principal Advisor: Professor Gene Golub)
Ph.D. Thesis Title: Subspace Approximation Methods for Perturbed Quadratic Eigenvalue Problems
Department of Mathematics
Date of completion: July, 2002
(Current or Most Recently Known: National Security Agency)

Charles S. Han
Ph.D. Thesis Title: Computer Models and Methods for a Disabled Access Analysis Design Environment
Department of Civil and Environmental Engineering
Date of completion: June, 2000
(Current or Most Recently Known Coordinate: Aditazz, Inc..)

Hoon Sohn
Ph.D. Thesis Title: A Bayesian Probabilistic Approach to Damage Detection for Civil Structures
Department of Civil and Environmental Engineering
Date of Completion: December, 1998
(Current or Most Recently Known Coordinate: Korea Advanced Institute of Science and Technology)

Eduardo De Santiago
Ph.D. Thesis Title: A Distributed Implementation of The Finite Element Method for Coupled Fluid Structure Problems
Department of Civil Engineering
Date of Completion: December, 1996.
(Current or Most Recently Known Coordinate: Primera Engineers Ltd., Chicago)

Karthik Krishnamurthy
Ph.D. Thesis Title: A Data Management Model for Change Control in Collaborative Design Environments
Department of Civil Engineering
Date of Completion: February, 1996.
(Current or Most Recently Known Coordinate: Candela IoT Corp)

Narayana Aluru
Ph.D. Thesis Title: Parallel and Stabilized Finite Element Methods for the Hydrodynamic Transport Model of Semiconductor Devices
Department of Civil Engineering
Date of Completion: June, 1995
(Current or Most Recently Known Coordinate: University of Texas at Austin)

Dian Yang
(Co-advisor, Principal Advisor: Professor Robert Dutton)
Ph.D. Thesis Title: Mesh Generation and Information Model for Device Simulation
Scientific Computing and Computational Mathematics Program
Date of Completion: June, 1994.
(Current or Most Recently Known Coordinate: Apache Design, Inc..)

Made Suarjana

Ph.D. Thesis Title: Conjugate Gradient Method for Linear and Nonlinear Structural Analysis on Sequential and Parallel Computers
Department of Civil Engineering
Date of Completion: February, 1994
(Current or Most Recently Known Coordinate: Bandung Institute of Technology, Indonesia)

Hiroyuki Fuyama
(Co-advisor, Principal Advisor: Professor Helmut Krawinkler)
Ph.D. Thesis Title: Computer Assisted Conceptual Structural Design of Steel Buildings
Department of Civil Engineering.
Date of Completion: November, 1992
(Current or Most Recently Known Coordinate: Takasago R&D Center, Mitsubishi Heavy Industries, Ltd., Japan)

David R. Mackay
Ph.D. Thesis Title: Solution Methods for Static and Dynamic Structural Analysis on Distributed Memory Computers.
Department of Civil Engineering.
Date of Completion: August, 1992.
(Current or Most Recently Known Coordinate: ParaTools, Inc.)

Nobuyoshi Yabuki
Ph.D. Thesis Title: An Integrated Framework for Design Standards Processing.
Department of Civil Engineering
Date of Completion: June, 1992
(Current or Most Recently Known Coordinate: Osaka University, Japan)

Gregory Luth
(Co-advisor, Principal Advisor: Professor Helmut Krawinkler)
Ph.D. Thesis Title: Reasoning and Representation for Integrated Structural Design of High Rise Commercial Office Buildings.
Department of Civil Engineering.
Date of Completion: June, 1991.
(Current or Most Recently Known Coordinate: Gregory P. Luth & Associates)

Deepak Jain
(Co-advisor, Principal Advisor: Professor Helmut Krawinkler)
Ph.D. Thesis Title: Logic Based Approach to Structural Engineering Design
Department of Civil Engineering
Date of Completion: March, 1991
(Current or Most Recently Known Coordinate: a9.com)

John H. Grubbs
Ph.D. Thesis Title: An Intrinsic Approach to Structural Design
Department of Civil Engineering (Rensselaer Polytechnic Institute)
Date of Completion: December, 1986.
(Current or Most Recently Known Coordinate: Thayer Leader Development Group, West Point)

Former Post-Doctoral Researchers

Dr. Lewis McGibbney (Current or Most Recently Known Coordinate: Jet Propulsion Lab (JPL), Pasadena, CA)

Dr. Kay Smarsly,(Current or Most Recently Known Coordinate: Hamburg University of Technology, Germany)
Dr. Julia Ekstrom, (Current or Most Recently Known Coordinate: California Department of Water Resources)
Dr. Jiayi Pan (Current or Most Recently Known Coordinate: California Department of Transportation)
Dr. Jun Peng (Current or Most Recently Known Coordinate: PonyAI)
Dr. Hyun Woo Park (Current or Most Recently Known Coordinate: Dong-A University)
Dr. Chuck Han (Current or Most Recently Known Coordinate: Aditazz, Inc.)
Dr. Renate Fruchter (Current or Most Recently Known Coordinate: Stanford University)

PhD Advisor

Dr. Steven J. Fenves, Emeritus Professor, Carnegie Mellon University