Curriculum Vitae

Grace Gao

+1 650-725-3489 (work) gracegao AT stanford.edu
Durand 268, 496 Lomita Mall, Stanford CA, 94301 https://profiles.stanford.edu/gracegao

Areas of Expertise

Robust and secure perception, localization and navigation with applications to manned and unmanned aerial vehicles, autonomous driving cars, as well as space robotics.

Employment

Associate Professor, *Stanford University* **2024–present**
Department of Aeronautics and Astronautics
Department of Electrical Engineering (by courtesy)

Director, Navigation and Autonomous Vehicles Laboratory (Stanford NAV Lab)
Co-Director, Stanford Center for AI Safety
Co-Lead, Stanford SystemX Robotics Area

Assistant Professor **2019–2024**
Stanford University

Assistant Professor **2012–2019**
University of Illinois at Urbana-Champaign
Department of Aerospace Engineering

with affiliate appointments in:
Coordinated Science Laboratory
Department of Electrical and Computer Engineering
Department of Computer Science
Information Trust Institute
Computational Science and Engineering

Research Associate **2008–2012**
Stanford University

Education

Ph.D. Electrical Engineering **2004–2008**
Stanford University

M.S. Electronics Engineering **2001–2003**
Tsinghua University

B.S. Mechanical Engineering **1997–2001**
Tsinghua University

Selected Honors and Awards

Research Awards

2025	2024 Most Cited Manuscript, Journal of the Institute of Navigation (together with students)
2025, 2024, 2023, 2022, 2021, 2020, 2019, 2018, 2017, 2016, 2015, 2014, 2013, 2012, 2011, 2010, 2008, 2007	Best Presentation of the Session Award, *ION GNSS+ Conference* (33 times in total over 19 years, together with students)
2025	1st Place Winner, NASA Lunar Autonomy Challenge (together with students)
2025	Best Paper of the Track Award, *IEEE Aerospace Conference* (together with students)
2024	Chambers Faculty Scholar, Stanford University
2020	Amazon Research Award
2019	Campus Distinguished Promotion Award, *University of Illinois at Urbana-Champaign*
2018	CAREER Award, *National Science Foundation*
2017	Dean's Award for Excellence in Research, *College of Engineering, University of Illinois at Urbana-Champaign*
2016	Best Paper Award, *IEEE/ION PLANS Conference*
2009	William E. Jackson Award, for outstanding Ph.D. thesis, *Radio Technical Commission for Aeronautics (RTCA)*
2008	Early Achievement Award, *Institute of Navigation*

Teaching, Advising and Service Awards

2023	Excellence in Teaching, *AIAA Stanford Chapter*
2022	Excellence in Advising, *AIAA Stanford Chapter*
2022	Inspiring Early Academic Career Award, *Stanford Faculty Womens Forum*
2022	Excellent Reviewer, *Journal of Guidance, Control, and Dynamics*
2018, 2017	Engineering Council Award for Excellence in Advising, *University of Illinois at Urbana-Champaign*
2018, 2017, 2015, 2014	Teachers Ranked as Excellent, *University of Illinois at Urbana-Champaign* (5 times in total)
2016	Teacher of the Year, *AIAA Illinois Chapter*
2015	Everitt Award for Teaching Excellence, *College of Engineering, University of Illinois at Urbana-Champaign*

Invited Talks

2026	SpaceCHI 2026 Keynote
2026	Workshop on Competitive Embodied AI, University of California, Berkeley
2026	Stanford Robocic Center seminar, Stanford University
2025	Munich Satellite Navigation Summit
2025	CITRIS autonomy seminar series, University of California, Berkeley
2025	The United Nations CislunarPNT workshop
2025	Planetary science seminar series, Stanford University
2025	The MITRE Corporation
2024	Department of Mechanical Engineering, Rice University
2024	Ecole Nationale de l'Aviation Civile, France
2024	Airbus, Toulous France

2024 Department of Aerospace and Mechanical Engineering, University of Southern California
2023 Indian Institute of Technology Bombay
2023 Indian Institute of Technology Delhi
2023 Robotics Seminar, Massachusetts Institute of Technology
2023 The Robotics Institute, Carnegie Mellon University
2023 Stanford Center for AI safety, Stanford University
2023 The Aerospace Corporation
2023 University College London, UK
2023 Johns Hopkins University Applied Physics Laboratory
2023 NASA Jet Propulsion Laboratory
2022 Stanford Center for Positioning, Navigation and Time, Stanford University
2022 NASA Goddard Space Flight Center
2022 Department of Aerospace Engineering Sciences, University of Colorado Boulder
2022 Department of Aerospace Engineering, University of Michigan
2022 Department of Electrical and Computer Engineering, Cornell University
2021 Department of Aerospace Engineering and Mechanics, University of Minnesota
2021 Katherine Johnson Women in Aerospace Conference, Ann Arbor, MI
2021 Center for Automotive Research, Stanford University
2021 Stanford Center for AI safety, Stanford University
2020 Center for Automotive Research, Stanford University
2020 Stanford SystemX Symposium, Stanford University
2020 Robotics Seminar Series, West Virginia University
2020 Ford Autonomous Driving, CA
2018 Lawrence Livermore National Laboratory, Livermore, CA
2018 Department of Aeronautics and Astronautics, Stanford University
2017 Sibley School of Mechanical and Aerospace Engineering, Cornell University
2017 School of Aerospace Engineering, Georgia Institute of Technology
2017 Wright-Patterson Air Force Research Lab, Dayton, OH
2017 Kirtland Air Force Research Lab, Albuquerque, NM
2017 Robotics Seminar, Massachusetts Institute of Technology
2017 Department of Aerospace Engineering, University of Michigan
2017 Department of Mechanical and Aerospace Engineering, Illinois Institute of Technology
2016 US Army Communications-Electronics Research, Development and Engineering Center, (CERDEC), Aberdeen MD
2016 National Institute of Standards and Technology (NIST), Gaithersburg, MD
2016 Department of Electrical and Computer Engineering, University of Illinois at Urbana-Champaign
2016 Field Robotics Center, Carnegie Mellon University
2016 InsideGNSS Magazine Webinar
2016 Engineering for Everyone, University of Illinois
2015 Autonomous Systems and Robotics Technical Area, NASA Ames
2015 GPS World Magazine Webinar
2015 The GPS Laboratory, Stanford University
2014 Illinois State Geological Survey
2014 Stanford Center for Position, Navigation and Time Symposium, Stanford University
2014 Illinois State Geological Survey
2014 Rockwell Collins, Inc. Cedar Rapids, IA

2014 Qualcomm Inc, San Diego, CA
2014 CyberGIS Center, University of Illinois at Urbana-Champaign
2013 Illinois Space Society, University of Illinois at Urbana-Champaign
2013 Quantitative Division, Dept. of Psychology, University of Illinois at Urbana-Champaign
2013 ION Dayton Section
2013 School of Aeronautics and Astronautics, Purdue University
2013 Department of Electrical and Computer Engineering, University of Illinois at Urbana-Champaign
2012 Department of Aerospace Engineering and Engineering Mechanics, University of Texas at Austin
2012 Sibley School of Mechanical and Aerospace Engineering, Cornell University
2012 Department of Aerospace Engineering, University of Illinois at Urbana-Champaign
2011 Department of Aerospace Engineering Sciences, University of Colorado Boulder
2011 U.S. NAE and Chinese CAE Joint Workshop on GNSS
2011 Department of Aeronautics and Astronautics, Stanford University
2011 Department of Aeronautics and Astronautics, , Massachusetts Institute of Technology
2010 German Aerospace Center (Deutsches Zentrum für Luft- und Raumfahrt)
2009 Qualcomm Inc, Santa Clara, California
2008 Stanford Center for Positioning, Navigation and Time, Stanford University
2007 The MITRE Corporation
2007 German Aerospace Center
2007 University of the German Federal Armed Forces (Universität der Bundeswehr)
2007 University of Calgary, Canada

Publications

Students supervised: **bold**; post-docs supervised: *italic*; Co-first authors: *

Note: the customary practice in the field for order of authors on scholarly publications is that students are named first; faculty are named last.

Journal Papers

[J67]. **Kaila M. Y. Coimbra** and Grace Gao, Lander-Aided Differential Doppler and One-Way Ranging for Lunar Rover Navigation with a Single Relay Satellite, NAVIGATION: Journal of the Institute of Navigation, Submitted.

[J66]. **Kaila M. Y. Coimbra** and Grace Gao, Time-Correlated Ephemeris Errors and Relativistic Effects for Single-Satellite Doppler Localization of Lunar Rovers, NAVIGATION: Journal of the Institute of Navigation, Submitted.

[J65]. **Adam Dai** and Grace Gao, DEM-Anchored SLAM for Lunar Surface Navigation, IEEE Transactions on Aerospace and Electronic Systems, Submitted.

[J64]. **Keidai Iiyama** and Grace Gao, GNSS-based Lunar Orbit and Clock Estimation With Stochastic Cloning UD Filter, Journal of Guidance, Control, and Dynamics, Submitted.

[J63]. **Daniel Neamati***, **Adam Dai***, **Mira Partha**, Lance Legel, and Grace Gao, DRIFT: Distributional Robustness of Image Feature Tracking, NAVIGATION: Journal of the Institute of Navigation, Submitted.

[J62]. **Adam Dai**, **Asta Wu**, **Keidai Iiyama**, **Guillem Casadesus Vila**, **Kaila M. Y. Coimbra**, **Thomas Deng**, and Grace Gao, Full Stack Navigation, Mapping, and Planning for the Lunar Autonomy Challenge, NAVIGATION: Journal of the Institute of Navigation, Submitted.

[J61]. **Keidai Iiyama** and Grace Gao, Trade-off Analysis for Lunar Augmented Navigation Service (LANS) Constellation Design, NAVIGATION: Journal of the Institute of Navigation, Submitted.

[J60]. **Keidai Iiyama** and Grace Gao, Ionospheric and Plasmaspheric Delay Characterization for Lunar Terrestrial GNSS Receivers with Global Core Plasma Model, NAVIGATION: Journal of the Institute of Navigation, Submitted.

[J59]. **Keidai Iiyama** and Grace Gao, Ephemeris and Almanac Design for Lunar Navigation Satellites, IEEE Transactions on Aerospace and Electronic Systems, vol. 62, pp. 15842-15854, 2026; DOI: 10.1109/TAES.2026.3721050.

[J58]. **Keidai Iiyama**, **Daniel Neamati**, and Grace Gao, Autonomous Constellation Fault Monitoring with Inter-satellite Links: A Rigidity-Based Approach, Navigation: Journal of the Institute of Navigation. May 2026, 73; DOI: 10.33012/navi.764.

[J57]. *Tara Mina*, **Alan Yang**, and Grace Gao, Designing Long GPS Memory Codes Using the Cross Entropy Method, Navigation: Journal of the Institute of Navigation. March 2026, 73; DOI: 10.33012/navi.746.

[J56]. **Alan Yang**, *Tara Mina*, and Grace Gao, Spreading Code Sequence Design via Mixed-Integer Convex Optimization, Navigation: Journal of the Institute of Navigation. September 2025, 72 (3); DOI: 10.33012/navi.706.

[J55]. **Kaila M. Y. Coimbra**, **Marta Cortinovis**, *Tara Mina*, and Grace Gao, Single-Satellite Lunar Navigation via Doppler Shift Observables for the NASA Endurance Mission, Navigation: Journal of the Institute of Navigation. September 2025, 72 (3); DOI: 10.33012/navi.710.

[J54]. **Adyasha Mohanty** and Grace Gao, Tightly Coupled Graph Neural Network and Kalman Filter for Smartphone Positioning, Navigation: Journal of the Institute of Navigation. December 2024, 71 (4); DOI 10.33012/navi.670.

[J53]. **Marta Cortinovis**, **Keidai Iiyama**, and Grace Gao, Satellite Ephemeris Approximation Methods to Support Lunar Positioning, Navigation, and Timing Services, Navigation: Journal of the Institute of Navigation. December 2024, 71 (4) ; DOI: 10.33012/navi.664

[J52]. **Derek Knowles**, **Ashwin V. Kanhere**, **Daniel Neamati**, and Grace Gao, gnss_lib_py: Analyzing GNSS Data with Python, SoftwareX. September 2024; DOI 10.1016/j.softx.2024.101811.

[J51]. **Adyasha Mohanty** and Grace Gao, A Survey of Machine Learning Techniques for Improving Global Navigation Satellite Systems, EURASIP Journal on Advances in Signal Processing. June 2024; DOI 10.1186/s13634-024-01167-7.

[J50]. **Tara Mina**, **Ashwin Kanhere**, *Akshay Shetty*, and Grace Gao, GPS Spoofing-Resilient Filtering Using Self-Contained Sensors and Chimera Signal Enhancement, Navigation: Journal of the Institute of Navigation. June 2024, 71 (2) ; DOI: 10.33012/navi.636.

[J49]. **Alan Yang**, *Tara Mina*, and Grace Gao, Spreading Code Optimization for Low-Earth Orbit Satellites via Mixed-Integer Convex Programming, EURASIP Journal on Advances in Signal Processing. May 2024; DOI 10.1186/s13634-024-01160-0.

[J48]. *Shubh Gupta* and Grace Gao, Reliable Urban Vehicle Localization Under Faulty Satellite Navigation Signals, EURASIP Journal on Advances in Signal Processing. April 2024; DOI: 10.1186/s13634-024-01150-2.

[J47]. **Keidai Iiyama**, *Sriramya Bhamidipati*, and Grace Gao, Precise Positioning and Timekeeping in Lunar Orbit via Terrestrial GPS Time-Differenced Carrier-Phase Measurements, Navigation: Journal of the Institute of Navigation. March 2024, 71(1); DOI: 10.33012/navi.635.

[J46]. **Adyasha Mohanty** and Grace Gao, Learning GNSS Positioning Corrections for Smartphones using Convolutional Neural Networks, Navigation: Journal of the Institute of Navigation, vol. 70, no. 4, December 2023; DOI: 10.33012/navi.622.

[J45]. *Sriramya Bhamidipati*, **Tara Mina**, **Alana Sanchez**, and Grace Gao, Satellite Constellation Design for a Lunar Navigation and Communication System, Navigation: Journal of the Institute of Navigation, vol. 70, no. 4, December 2023; DOI: 10.33012/navi.613.

[J44]. *Sriramya Bhamidipati*, **Tara Mina** and Grace Gao, A Case Study Analysis for Designing a Lunar Navigation Satellite System with Time-Transfer from Earth-GPS, Navigation: Journal of the Institute of Navigation, vol. 70, no. 4, December 2023; DOI: 10.33012/navi.599.

[J43]. **Tara Mina**, **Ashwin V. Kanhere**, *Shreyas Kousik* and Grace Gao, Continuous GPS Authentication with Chimera Using Stochastic Reachability Analysis, Navigation: Journal of the Institute of Navigation, vol. 70, no. 4, December 2023; DOI: 10.33012/navi.616.

[J42]. **Shubh Gupta**, **Adyasha Mohanty**, and Grace Gao, Urban Localization using Robust Filtering at Multiple Linearization Points, EURASIP Journal on Advances in Signal Processing, October 2023; DOI: 10.1186/s13634-023-01062-7.

[J41]. **Daniel Neamati**, *Sriramya Bhamidipati* and Grace Gao, Mosaic Zonotope Shadow Matching for Risk-Aware Autonomous Localization in Harsh Urban Environments, Journal of Artificial Intelligence, September 2023; DOI: 10.1016/j.artint.2023.104000.

[J40]. **Sriramya Bhamidipati** and Grace Gao, Networked Timing Risk Analysis Against GPS Spoofing via Stochastic Reachability in PMUs, Navigation: Journal of the Institute of Navigation, vol. 70, no. 3, September 2023, DOI: 10.33012/navi.574.

[J39]. **Alexandros Tzikas***, **Derek Knowles***, Grace Gao, and Mykel Kochenderfer, Multi-robot Navigation using Partially Observable Markov Decision Processes with Belief-based Rewards, JAIS: Journal of Aerospace Information Systems, June 2023; DOI: 10.2514/1.I011146.

[J38]. *Shreyas Kousik*, **Adam Dai** and Grace Gao, Ellipsotopes: Combining Ellipsoids and Zonotopes for Reachability Analysis and Fault Detection, IEEE Transactions on Automatic Control, vol. 68, no. 6, pp. 3440-3452, June 2023; DOI: 10.1109/TAC.2022.3191750.

[J37]. *Akshay Shetty*, **Timmy Hussain** and Grace Gao, Decentralized Connectivity Maintenance for Multi-robot Systems Under Motion and Sensing Uncertainties, Navigation: Journal of the Institute of Navigation, vol. 70, no. 1, March 2023; DOI: 10.33012/navi.552.

[J36]. **Derek Knowles** and Grace Gao, Euclidean Distance Matrix-based Rapid Fault Detection and Exclusion, Navigation: Journal of the Institute of Navigation, vol. 70, no. 1, March 2023; DOI: 10.33012/navi.555.

[J35]. **Ashwin V. Kanhere***, **Shubh Gupta***, *Akshay Shetty* and Grace Gao, Improving GNSS Positioning using Neural Network-based Corrections, Navigation: Journal of the Institute of Navigation, vol. 69, no. 4, December 2022; DOI: 10.33012/navi.548.

[J34]. *Sriramya Bhamidipati*, *Shreyas Kousik* and Grace Gao, Set-Valued Shadow Matching Using Zonotopes for 3-D Map-Aided GNSS Localization, Navigation: Journal of the Institute of Naviga-

tion, vol. 69, no. 4, December 2022; DOI: 10.33012/navi.547.

[J33]. Amr Alanwar, Mahmoud Selim, *Shreyas Kousik*, Grace Gao, Marco Pavone and Karl Johansson, Safe Reinforcement Learning Using Black-Box Reachability Analysis, IEEE Robotics and Automation Letter, vol. 7, no. 4, pp. 10665-10672, October 2022; DOI: 10.1109/LRA.2022.3192205.

[J32]. *Sriramya Bhamidipati*, **Tara Mina** and Grace Gao, Time-Transfer from Earth-GPS for Designing a SmallSat-based Lunar Navigation Satellite System, Navigation: Journal of the Institute of Navigation, vol. 69, no. 3, September 2022; DOI: 10.33012/navi.535.

[J31]. **David Stier**, **Asta Wu**, **Adyasha Mohanty** and Grace Gao, A Test Platform for UWB-Based Localization of Dynamic Multi-Agent Systems, IEEE Robotics and Automation Letter, vol. 7, no. 2, pp. 3773-3778, April. 2022; DOI: 10.1109/LRA.2022.3146609.

[J30]. **Adyasha Mohanty**, **Asta Wu**, *Sriramya Bhamidipati* and Grace Gao, Precise Relative Positioning via Tight Coupling of GPS Carrier Phase and Multiple UWBs, IEEE Robotics and Automation Letters, vol. 7, no. 2, pp. 5757-5762, April. 2022; DOI: 10.1109/LRA.2022.3145051.

[J29]. **Tara Mina** and Grace Gao, Designing Low-Correlation GPS Spreading Codes with a Natural Evolution Strategy Machine Learning Algorithm, Navigation: Journal of the Institute of Navigation, vol. 69, no. 1, March 2022; DOI: 10.33012/navi.506.

[J28]. **Sriramya Bhamidipati** and Grace Gao, Robust GPS-Vision Localization via Integrity-Driven Landmark Attention, Navigation: Journal of the Institute of Navigation, vol. 69, no. 1, March 2022; DOI: 10.33012/navi.501.

[J27]. **Adyasha Mohanty**, **Shubh Gupta** and Grace Gao, A Particle Filtering Framework for Integrity Risk of GNSS-Camera Sensor Fusion, Navigation: Journal of the Institute of Navigation, vol. 68, no. 4, pp. 709-726, December 2021; DOI: 10.1002/navi.455.

[J26]. **Shubh Gupta** and Grace Gao, Data-Driven Protection Levels for Camera and 3D Map-based Safe Urban Localization, Navigation: Journal of the Institute of Navigation, vol. 68, no. 3, pp. 643-660, September 2021; DOI: 10.1002/navi.445.

[J25]. **Akshay Shetty** and Grace Gao, Predicting State Uncertainty Bounds Using Non-linear Stochastic Reachability Analysis for Urban GNSS-based UAS Navigation, IEEE Intelligent Transportation Systems, vol. 22, no. 9, pp. 5952-5961, September 2021; DOI: 10.1109/TITS.2020.3040517.

[J24]. **Shubhendra Chauhan** and Grace Gao, Spoofing Resilient State Estimation for the Power Grid Using an Extended Kalman Filter, IEEE Transactions on Smart Grid, vol. 12, no. 4, pp. 3404-3414, July 2021; DOI: 10.1109/TSG.2021.3051920.

[J23]. **Shubhendra Chauhan** and Grace Gao, Synchrophasor Data Under GPS Spoofing: Attack Detection and Mitigation Using Residuals, IEEE Transactions on Smart Grid, vol. 12, no. 4, pp. 3415-3424, July 2021; DOI: 10.1109/TSG.2021.3051926.

[J22]. **Cara Kataria**, Steven Franke, Grace Gao and Jennifer Bernhard, Secure Antenna Polarization Modulation Line-of-Sight Analysis and Demonstration, IEEE Transactions on Antennas and Propagation, vol. 69, no. 7, pp. 4100-4108, July 2021; DOI: 10.1109/TAP.2021.3060454.

[J21]. **Matthew Peretic** and Grace Gao, Design of a Parallelized Direct Position Estimation-Based GNSS Receiver, Navigation: Journal of the Institute of Navigation, vol. 68, no. 1, pp. 21-39, December 2020; DOI: 10.1002/navi.402.

[J20]. **Sriramya Bhamidipati** and Grace Gao, Integrity Monitoring of Graph-SLAM Using GPS and Fish-eye Camera, Navigation: Journal of the Institute of Navigation, vol. 67, no. 3, pp. 583-600, August 2020; DOI: 10.1002/navi.381.

[J19]. **Arthur Chu**, **Shubhendra Chauhan** and Grace Gao, GPS Multi-Receiver Direct Position Estimation for Aerial Applications, IEEE Transactions on Aerospace and Electronic Systems, vol. 56, no. 1, pp. 249-262, Feburary 2020; DOI: 10.1109/TAES.2019.2915393.

[J18]. **Tara Mina**, **Sriramya Bhamidipati** and Grace Gao, GPS Spoofing Detection for the Power Grid Network using a Multi-Receiver Hierarchical Framework Architecture, Navigation: Journal of the Institute of Navigation, vol. 66, no. 4, pp. 857-875, December 2019; DOI: 10.1002/navi.341.

[J17]. **Sriramya Bhamidipati** and Grace Gao, GPS Multi-Receiver Joint Direct Time Estimation and Spoofer Localization, IEEE Transactions on Aerospace and Electronic Systems, vol. 55, no. 4, pp. 1907-1919, August 2019; DOI: 10.1109/TAES.2018.2879532.

[J16]. **Akshay Shetty** and Grace Gao, Adaptive Covariance Estimation of LiDAR-based Positioning Errors for UAVs, Navigation: Journal of the Institute of Navigation, vol. 66, no. 2, pp. 463-476, May 2019. DOI: 10.1002/navi.307.

[J15]. **Cara Kataria**, Grace Gao and Jennifer Bernhard, Design of a Compact Hemispiral GPS Antenna with Direction Estimation Capabilities, IEEE Transactions on Antennas and Propagation, vol. 67, no. 5, pp. 2878-2885, May 2019; DOI: 10.1109/TAP.2019.2899009.

[J14]. **Sriramya Bhamidipati** and Grace Gao, Locating Multiple GPS Jammers Using Networked UAVs, IEEE Transactions on Internet of Things, vol. 6, no. 2, pp. 1816-1828, April 2019; DOI: 10.1109/JIOT.2019.2896262.

[J13]. **Derek Chen** and Grace Gao, Probabilistic Graphical Fusion of LiDAR, GPS, and 3D Building Maps for Urban UAV Navigation, Navigation: Journal of the Institute of Navigation, vol. 66, no. 1, pp. 151-168, March 2019; DOI: 10.1002/navi.298.

[J12]. **Yuting Ng** and Grace Gao, GNSS Multi-Receiver Vector Tracking, IEEE Transactions on Aerospace and Electronic Systems, vol. 53, no. 5, pp. 2583-2593, October 2017; DOI: 10.1109/TAES.2017.2705338.

[J11]. *Liang Heng* and Grace Gao, Accuracy of Range-Based Cooperative Positioning: A Lower Bound Analysis, IEEE Transactions on Aerospace and Electronic Systems, vol. 53, no. 5, pp. 2304-2316, October 2017; DOI: 10.1109/TAES.2017.2691921.

[J10]. *Liang Heng*, **Athindran Rakesh Kumar** and Grace Gao, Location Hash: Private Proximity Detection Using Partial GPS Information, IEEE Transactions on Aerospace and Electronic Systems, vol. 52, no. 6, pp. 2873-2885, December 2016; DOI: 10.1109/TAES.2016.150301.

[J9]. Grace Gao, Matteo Sgammini, Mingquan Lu and Nobuaki Kubo, Protecting GNSS Receivers from Jamming, Proceedings of the IEEE, vol. 104, no. 6, pp. 1327-1338, June 2016; DOI: 10.1109/JPROC.2016.2525938.

[J8]. *Liang Heng*, Daniel B. Work and Grace Gao, GNSS Signal Authentication from Cooperative Peers, IEEE Intelligent Transportation Systems, vol. 16, no. 4, pp. 1794-1805, August 2015; DOI: 10.1109/TITS.2014.2372000.

[J7]. *Liang Heng*, Todd Walter, Per Enge and Grace Gao, GNSS Multipath and Jamming Mitiga-

tion Using High-Mask-Angle Antennas and Multiple Constellations, IEEE Transactions on Intelligent Transportation Systems, vol. 16, no. 2, pp. 741-750, April 2015; DOI: 10.1109/TITS.2014.2342200.

[J6]. Grace Gao, Holmer Denks, Achim Steingassnd, Michael Meurer, Todd Walter and Per Enge, DME Interference Mitigation Based on Flight Test Data Over European Hot Spot, GPS Solutions, vol. 17, no. 1, January 2013.

[J5]. Grace Gao and Per Enge, How Many GNSS Satellites Are Too Many? IEEE Transactions on Aerospace and Electronic Systems, vol. 48, no. 4, pp. 2865-2874, October 2012; DOI: 10.1109/TAES.2012.6324666.

[J4]. Liang Heng, Grace Gao, Todd Walter and Per Enge, GPS Signal-in-Space Integrity Performance Evolution in the Last Decade, IEEE Transactions on Aerospace and Electronic Systems, IEEE Transactions on Aerospace and Electronic Systems, vol. 48, no. 4, pp. 2932-2946, October 2012; DOI: 10.1109/TAES.2012.6324670.

[J3]. Patrick Henkel, Grace Gao, Todd Walter and Christoph Gunther, Robust Multi-Carrier, Multi-Satellite Vector Phase Locked Loop with Wideband Ionospheric Correction and Integrated Weighted RAIM, Journal of Italian Institute of Navigation, issue 190, December 2009.

[J2]. Grace Gao, Alan Chen, Sherman Lo, David De Lorenzo and Per Enge, Compass-M1 Broadcast Codes in E2, E5b and E6 Frequency Bands, IEEE Journal of Selected Topics in Signal Processing, Special Issue on Advanced Signal Processing for GNSS and Robust Navigation, vol. 3, no. 4, pp. 599-612, August 2009; DOI: 10.1109/JSTSP.2009.2025635.

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Books

[B2]. Jade Morton, Frank van Diggelen, Bradford Parkinson, James Spilker, Jr., Sherman Lo, and Grace Gao, "Position, Navigation, and Timing Technologies in the 21st Century: Integrated Satellite Navigation, Sensor Systems, and Civil Applications, vol. 1 & 2" *John Wiley & Sons*, 2021.

[B1]. Lance Davis, Per Enge and Grace Gao, "Global Navigation Satellite Systems: Report of a Joint Workshop of the National Academy of Engineering and the Chinese Academy of Engineering," the National Academies Press, ISBN 13: 978-0-309-22275-4, 2012.

Conference Papers

[C165]. **Sitan Huang**, Grace X. Gao, End-to-End Vision-Language-Action Policies for Autonomous Lunar Rover Docking, IEEE Aerospace Conference, Big Sky, MT, March 2027. (Abstract accepted).

[C164]. **Elena Wittemyer**, Grace X. Gao, Safe and Informative Path Planning for Lunar Propulsive Drones, IEEE Aerospace Conference, Big Sky, MT, March 2027. (Abstract accepted).

[C163]. **Guillem Casadesus Vila** and Grace Gao, Modular Autonomy Stack for Lunar Surface Rover Missions, IEEE Aerospace Conference, Big Sky, MT, March 2027. (Abstract accepted).

[C162]. **Guillem Casadesus Vila** and Grace Gao, Comprehensive Evaluation of Front-End Feature Matching for Lunar Visual SLAM, IEEE Aerospace Conference, Big Sky, MT, March 2027. (Abstract accepted).

[C161]. **Matthias Kura**, **Keidai Iiyama**, and Grace Gao, Optimal Reconfiguration of Lunar

Navigation Constellations, Proceedings of the Institute of Navigation GNSS+ conference (ION GNSS+ 2026), Orlando, FL, Sep 2026.

[C160]. **Matthias Kura**, **Keidai Iiyama**, and Grace Gao, Sidelobe vs. Side of Main Lobe: GNSS Signal Reception and Filtering using LuGRE Experiment Data, Proceedings of the Institute of Navigation GNSS+ conference (ION GNSS+ 2026), Orlando, FL, Sep 2026.

[C159]. **Kaila M. Y. Coimbra** and Grace Gao, Lander-Aided Differential Doppler and One-Way Ranging for Lunar Rover Navigation with a Single Relay Satellite, Proceedings of the Institute of Navigation GNSS+ conference (ION GNSS+ 2026), Orlando, FL, Sep 2026.

[C158]. **Kaila M. Y. Coimbra** and Grace Gao, Time-Correlated Ephemeris Errors and Relativistic Effects for Single-Satellite Doppler Localization of Lunar Rovers, Proceedings of the Institute of Navigation GNSS+ conference (ION GNSS+ 2026), Orlando, FL, Sep 2026.

[C157]. **Mira Partha**, **Daniel Neamati**, **Dev Jayram**, and Grace Gao, Bird's-Eye-View Mapping from Vehicle Cameras via 3D Foundation Models, Proceedings of the Institute of Navigation GNSS+ conference (ION GNSS+ 2026), Orlando, FL, Sep 2026.

[C156]. **Asta Wu***, **Ashlynn Sweet***, and Grace Gao, Signal-of-Opportunity Mapping with Gaussian Process Regression and Quality Bounds for Uncertainty-Aware Urban Navigation, Proceedings of the Institute of Navigation GNSS+ conference (ION GNSS+ 2026), Orlando, FL, Sep 2026.

[C155]. Timothy Chen*, **Adam Dai***, Maximilian Adang, Grace Gao, and Mac Schwager, Coverage Optimization for Camera View Selection, Computer Vision and Pattern Recognition (CVPR), Denver, CO, June 2026.

[C154]. **Adam Dai**, **Guillem Casadesus Vila**, and Grace Gao, Visual SLAM with 3D Gaussian Splatting and DEM Anchoring for Lunar Surface Missions, IEEE Aerospace Conference, Big Sky, MT, March 2026.

[C153]. **Guillem Casadesus Vila**, **Adam Dai**, and Grace Gao, Semantic Segmentation and Depth Estimation for Real-Time Surface Mapping Using Gaussian Splatting, IEEE Aerospace Conference, Big Sky, MT, March 2026.

[C152]. **Evan Twarog**, **Daniel Neamati**, and Grace Gao, Prescribed Fire Smoke Monitoring: Failure-Case Simulation for Sensor Placement Decision-Making, American Geophysical Union (AGU) Annual Meeting, New Orleans, LA, December 2025.

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[C32]. **Derek Chen**, *Liang Heng*, **Dan Jia** and Grace Gao, Distributed Array of GPS Receivers for 3D Wind Profile Determination in Wind Farms, Proceedings of the Institute of Navigation GNSS+ conference (ION GNSS+ 2013), Nashville, TN, Sep 2013.*Best Presentation of the Session Award.*

[C31]. *Liang Heng* and Grace Gao, Networked GPS Approach to Tracking Marine Animal Schools, Proceedings of the Institute of Navigation GNSS+ conference (ION GNSS+ 2013), Nashville, TN, Sep 2013.

[C30]. *Liang Heng*, Todd Walter, Per Enge and Grace Gao, Overcoming RFI with High Mask Angle Antennas and Multiple GNSS Constellations, Proceedings of the Institute of Navigation GNSS+ conference (ION GNSS+ 2013), Nashville, TN, Sep 2013.

[C29]. Grace Gao, Kaz Gunning, Todd Walter and Per Enge, Mitigating Personal Privacy Device Interference for Aviation Users, Proceedings of the 25th International Technical Meeting of the Satellite Division of the Institute of Navigation (ION GNSS 2012), Nashville, TN, Sep 2012.

[C28]. Liang Heng, Grace Gao, Todd Walter and Per Enge, GLONASS signal-in-space anomalies

since 2009, Proceedings of the 25th International Technical Meeting of the Satellite Division of the Institute of Navigation (ION GNSS 2012), Nashville, TN, Sep 2012. *Best Presentation of the Session Award.*

[C27]. Liang Heng, Grace Gao, Todd Walter and Per Enge, Automated Verification of Potential GPS Signal-In-Space Anomalies Using Ground Observation Data, Proceedings of the IEEE/ION PLANS conference, Myrtle Beach, SC, Apr 2012.

[C26]. Sam Pullen, Grace Gao, Carmen Tedeschi and John Warburton, The Impact of Uninformed RF Interference on GBAS and Potential Mitigations, ION International Technical Meeting 2012, Newport Beach, California, Jan 2012.

[C25]. Liang Heng, Grace Gao, Todd Walter and Per Enge, Statistical Characterization of GLONASS Broadcast Clock Errors and Signal-In-Space Errors, ION International Technical Meeting 2012, Newport Beach, California, Jan 2012.

[C24]. Grace Gao, Liang Heng, Todd Walter and Per Enge, Breaking the Ice: Navigating in the Arctic, Proceedings of the Institute of Navigation GNSS conference (ION GNSS 2011), Portland, Oregon, Sep 2011. *Best Presentation of the Session Award.*

[C23]. Liang Heng, Grace Gao, Todd Walter and Per Enge, Statistical Characterization of GLONASS Signal-In-Space Errors, Proceedings of the Institute of Navigation GNSS conference (ION GNSS 2011), Portland, Oregon, Sep 2011.

[C22]. Myungjun Choi, Juan Blanch, Dennis Akos, Liang Heng, Grace Gao, Todd Walter and Per Enge, Demonstrations of Multi-Constellation Advanced RAIM for Vertical Guidance using GPS and GLONASS Signals, Proceedings of the Institute of Navigation GNSS conference (ION GNSS 2011), Portland, Oregon, Sep 2011.

[C21]. Stefan Erker, Steffen Thoelert, Johann Furthner, Michael Meurer, Grace Gao, Liang Heng, Todd Walter and Per Enge, GLONASS K First in Orbit Signal in Space Analysis of Russian New Satellite Generation, Proceedings of the Institute of Navigation GNSS conference (ION GNSS 2011), Portland, Oregon, Sep 2011.

[C20]. Liang Heng, Grace Gao, Todd Walter and Per Enge, Statistical Characterization of GPS Signal-In-Space Errors, ION International Technical Meeting 2011, San Diego, California, Jan 2011.

[C19]. Patryk Jurkowski, Patrick Henkel, Grace Gao and Christoph Gunther, Integer ambiguity resolution with tight and soft baseline constraints for freight stabilization at helicopters and cranes, ION National Technical Meeting 2011, San Diego, California, Jan 2011.

[C18]. David Varodayan and Grace Gao, Redundant Metering for Integrity with Information-Theoretic Confidentiality, Proceedings of the IEEE International conference on Smart Grid Communications, SGC 2010, Gaithersburg, Maryland, Oct 2010.

[C17]. Grace Gao, Liang Heng, Gabriel Wong, Eric Phelts, Juan Blanch, Todd Walter, Per Enge, Stefan Erker, Steffen Thoelert and Michael Meurer, GPS in Mid-life with an International Team of Doctors, Analyzing IIF-1 Satellite Performance and Backward- Compatibility, Proceedings of the Institute of Navigation GNSS conference (ION GNSS 2010), Portland, Oregon, Sep 2010. *Best Presentation of the Session Award.*

[C16]. Liang Heng, Grace Gao, Todd Walter and Per Enge, GPS Signal-in-Space Anomalies in the Last Decade, Data Mining of 400,000,000 GPS Navigation Message, Proceedings of the Institute of Navigation GNSS conference (ION GNSS 2010), Portland, Oregon, Sep 2010.

[C15]. Grace Gao, Haochen Tang, Juan Blanch, Jiyun Lee, Todd Walter and Per Enge, Methodology and Case Studies of Signal-in-Space Error Calculation Top-down Meets Bottom-up, Proceedings of the Institute of Navigation GNSS conference (ION GNSS 2009), Savannah, Georgia, Sep 2009.

[C14]. Patrick Henkel, Grace Gao, Todd Walter and Christoph Gunther, Robust Multi-Carrier, Multi-Satellite Vector Phase Locked Loop with Wideband Ionospheric Correction and Integrated Weighted RAIM, ENC Global Navigation Satellite Systems Conference 2009, Naples, Italy, May 2009.

[C13]. Grace Gao, Dennis Akos, Todd Walter and Per Enge, Understanding the GIOVE-B Broadcast Codes of the Galileo System, IEEE Asilomar Conference on Signals, Systems and Computers, Pacific Grove, California, Oct 2008.

[C12]. Shankar Ramakrishnan, Grace Gao, David De Lorenzo, Todd Walter, Per Enge and Dennis Akos, Design and Analysis of Reconfigurable Embeded GNSS Receivers Using Model-Based Design Tools, Proceedings of the Institute of Navigation GNSS conference (ION GNSS 2008), Savannah, Georgia, Sep 2008. *Best Presentation of the Session Award.*

[C11]. Grace Gao, Alan Chen, Sherman Lo, David De Lorenzo and Per Enge, Compass-M1 Broadcast Codes and their Application to Acquisition and Tracking, ION National Technical Meeting 2008, San Diego, California, Jan 2008.

[C10]. Grace Gao, DME/TACAN Interference and its Mitigation in L5/E5 Bands, Proceedings of the Institute of Navigation GNSS (ION GNSS 2007), Fort Worth, Texas, Sep 2007. *Best Presentation of the Session Award* and Student Paper Award.

[C9]. Grace Gao, David De Lorenzo, Todd Walter and Per Enge, Acquisition and Tracking of GIOVE-A Broadcast L1/E5/E6 Signals and Analysis of DME/TACAN Interference on Receiver Design, ENC Global Navigation Satellite Systems Conference 2007, Geneva, Switzerland, May 2007.

[C8]. Grace Gao, Seebany Datta-Barua, Todd Walter and Per Enge, Ionosphere Effects for Wideband GNSS Signals, ION Annual Meeting 2007, Cambridge, Massachusetts, Apr 2007.

[C7]. Grace Gao, David De Lorenzo, Alan Chen, Sherman Lo, Dennis Akos, Todd Walter and Per Enge, Galileo GIOVE-A Broadcast E5 Codes and their Application to Acquisition and Tracking, ION National Technical Meeting 2007, San Diego, California, Jan 2007.

[C6]. Grace Gao, Jim Spilker Jr., Todd Walter, Per Enge and Anthony Pratt, Code Generation Scheme and Property Analysis of Broadcast Galileo L1 and E6 Signals, Proceedings of the Institute of Navigation GNSS (ION GNSS 2006), Fort Worth, Texas, Sep 2006.

[C5]. Grace Gao, Zhe Xiang, Hao Wang, Jun Shen, Jian Huang and Song Song, An Approach to Security and Privacy of RFID System for Supply Chain, IEEE International Conference on e-Commerce Technology for Dynamic e-Business 2004, Beijing, China, Sep 2004.

[C4]. Grace Gao, Richard Yao and Zhenming Feng, Hadamard Coded Multi-band UWB, IEEE Semiannual Vehicular Technology Conference (VTC) 2003, Orlando, Florida, Oct 2003.

[C3]. Richard Yao, Grace Gao, Zhengqi Chen and Wenwu Zhu, UWB Multipath Channel Model Based on Time-Domain UTD Technique, IEEE Global Communications Conference GLOBECOM 2003, San Francisco, California, Dec 2003.

[C2]. Grace Gao, Lu Mingquan and Feng Zhenming, Asymmetric Hexagonal QAM Based OFDM System, IEEE International Conference on Communications, Circuits and Systems and West Sino Expositions 2002, Xi'an, China, Jun 2002.

[C1]. Grace Gao, Lu Mingquan and Feng Zhenming, Optimal Wavelet Packet Based Multicarrier Modulation over Multipath Wireless Channels, IEEE International Conference on Communications, Circuits and Systems and West Sino Expositions 2002, Xi'an, China, Jun 2002.

Magazine Articles

[M20]. **Keidai Iiyama**, Sam Pullen and Grace Gao, Can satellite-based radionavigation be extended to the Moon and other extraterrestrial bodies? What are the key challenges to lunar radionavigation, and how can they be addressed?, Inside GNSS Magazine, Sep-Oct 2025.

[M19]. **Adyasha Mohanty** and Grace Gao, High-Precision Positioning with Smartphone Measurements: Learning GNSS Positioning Corrections using Graph Convolution Neural Networks, Inside GNSS Magazine, May-June 2023.

[M18]. **Daniel Neamati**, *Sriramya Bhamidipati* and Grace Gao, No Signal is also a Signal, Inside GNSS Magazine, Mar 2023.

[M17]. *Sriramya Bhamidipati*, **Tara Mina** and Grace Gao, Lunar Navigation: A Case-Study Analysis, Inside GNSS Magazine, Nov-Dec 2022. Cover Story.

[M16]. **Akshay Shetty** and Grace Gao, GPS-Lidar Fusion with 3D City Models, GPS World Magazine, Sep 2017. Cover Story.

[M15]. **Yuting Ng** and Grace Gao, Position Estimation Using Non-Line-of-Sight GPS signals, GPS World Magazine, Mar 2017.

[M14]. **Sriramya Bhamidipati**, Yuting Ng and Grace Gao, Multi-Receiver GPS-Based Direct Time Estimation for PMUs, Inside GNSS Magazine, Jan-Feb 2017. Cover Story.

[M13]. *Liang Heng*, **Athindran Ramesh Kumar** and Grace Gao, GPS Confidential: Enabling Proximity Detection While Preserving Location Privacy, Inside GNSS Magazine, Sep-Oct 2015.

[M12]. **Eliot Wycoff**, **Yuting Ng** and Grace Gao, Python GNSS Receiver: An Object-Oriented Software Platform Suitable for Multiple Receivers, GPS World Magazine, Feb 2015.

[M11]. *Liang Heng*, **Daniel Chou** and Grace Gao, Reliable GPS-Based Timing for Power Systems: A Multi-Layered, Multi-Receiver Architecture, Inside GNSS Magazine, Nov-Dec 2014.

[M10]. *Liang Heng*, Daniel B. Work and Grace Gao, Reliability from Unreliable Peers: Cooperative GNSS Authentication, Inside GNSS Magazine, Sep-Oct 2013.

[M9]. Sam Pullen and Grace Gao, GNSS Jamming in the Name of Privacy: Potential Threat to GPS Aviation, Inside GNSS Magazine, Mar-Apr 2012.

[M8]. Liang Heng, Grace Gao, Todd Walter and Per Enge, Digging into GPS integrity: Charting the evolution of signal-in-space performance by data mining 400,000,000 navigation messages, GPS World, vol. 22, no. 11, pp. 4449, Nov 2011.

[M7]. Grace Gao, Liang Heng, Todd Walter and Per Enge, Breaking the Ice: Navigation in the Arctic, Inside GNSS Magazine, Sep-Oct 2011.

[M6]. R. Eric Phelts, Grace Gao, Gabriel Wong, Liang Heng, Todd Walter, Per Enge, Stefan Erker, Steffen Thoelert and Michael Meurer, Aviation Grade, New GPS Signals Chips Off the Block IIF, Inside GNSS Magazine, Jul-Aug 2010.

[M5]. Steffen Thoelert, Steffen Erker, Michael Meurer, Liang Heng, Eric Phelts, Grace Gao, Gabriel Wong, Todd Walter and Per Enge, On the Air, New Signals from the First GPS IIF Satellite, Inside GNSS Magazine, Jul-Aug 2010. Cover Story.

[M4]. Grace Gao, Liang Heng, David De Lorenzo, Sherman Lo, Dennis Akos, Alan Chen, Todd Walter, Per Enge and Bradford Parkinson, Modernization Milestone: Observing the First GPS Satellite with an L5 Payload, Inside GNSS Magazine, May-Jun 2009.

[M3]. Grace Gao, Dennis Akos, Todd Walter and Per Enge, GIOVE-B on the Air: Understanding Galileo's New Signals, Inside GNSS Magazine, May-Jun 2008.

[M2]. Grace Gao, Alan Chen, Sherman Lo, David De Lorenzo and Per Enge, GNSS over China: the Compass MEO Satellite Codes, Inside GNSS Magazine, Jul-Aug 2007. Cover Story.

[M1]. Sherman Lo, Alan Chen, Per Enge, Grace Gao, Dennis Akos, Jean-Luc Issler, Lionel Ries, Thomas Grelier and Joel Dantepal, GNSS Album: Images and Spectral Signatures of the New GNSS Signals, Inside GNSS Magazine, May-Jun 2006. Cover Story.

Patents

[P2]. Grace Gao and David Varodayan, "Method and Apparatus for Processing Signals," United States Patent 12/912,878.

[P1]. Hao Wang, Rongyao Fu, Song Song, Grace Gao, Zhe Xiang, and Jian Huang, "Apparatus and Method for Detecting Asset Position," United States Patent 200707309.

Teaching

Instructor, AA 278: *Lunar Positioning Navigation and Time (PNT)* **Spring 2026**
Stanford University

Instructor, AA 272: *Global Positioning Systems* **Fall 2026, Fall 2025, Fall 2024,**
Stanford University **Fall 2023, Winter 2023, Winter 2022,**
Winter 2021, Winter 2020

Instructor, AA 275: *Navigation for Autonomous Systems* **Winter 2025, Winter 2024,**
Stanford University **Fall 2022, Fall 2021, Fall 2020**

Instructor, AA 173: *Flight Mechanics and Controls* **Winter 2026, Spring 2025,**
Stanford University **Spring 2024, Spring 2022,**
Spring 2021, Spring 2020

Instructor, AE 483: *UAV Navigation and Control* **Fall 2018, Fall 2015**
University of Illinois at Urbana-Champaign

Instructor, AE 598ANS: *Advanced Navigation Systems* **Spring 2019, Spring 2018**
University of Illinois at Urbana-Champaign **Spring 2017, Spring 2016, Spring 2015**

Instructor, AE/ECE 456: *Global Navigation Satellite Systems*

University of Illinois at Urbana-Champaign **Fall 2016, Fall 2014, Spring & Fall 2013**

PhD/Postdoc Advising

Current PhD Students

Sri Aditya Deevi
Hosei O
Elena Wittemyer
Mattias Kura
Kaila Coimbra
Guillem Casadesus Vila
Daniel Neamati
Mira Partha
Asta Wu
Lyla Dong (Co-advised with Prof. Eric Appel)

Graduated PhD Students

Keidai Iiyama (2026, PNT Research Engineer, Intuitive Machines)
Adam Dai (2026, Perception Engineer, Anduril)
Alan Yang (2025, co-advised with Prof. Stephen Boyd, Research Scientist, Meta)
Adyasha Mohanty (2024, Assistant Professor at Harvey Mudd College)
Derek Knowles (2024, Software Engineer, Hivemapper)
Ashwin Kanhere (2024, MIT Lincoln Laboratory)
Shubh Gupta (2023, Research Scientist, Applied Intuition)
Tara Mina (2023, Research Engineer at Georgia Tech)
Sriramya Bhamidipati (2021, Robotics Technologist, NASA Jet Propulsion Laboratory)
Akshay Shetty (2021, Supernal, Hyundai Motor Group)
Shubhendra Chauhan (2020, Latitude AI)
Cara Kataria (2020, co-advised with Prof. Jennifer Bernhard, MIT Lincoln Laboratory)

Past Postdocs

Shubh Gupta (2024, Research Scientist, Applied Intuition)
Tara Mina (2024, Research Engineer, Georgia Tech)
Sriramya Bhamidipati (2022, NASA Jet Propulsion Laboratory)
Akshay Shetty (2022, Zoox)
Shreyas Kousik (2021, Assistant Professor, Georgia Institute of Technology)
Heng Liang (2013, co-founder and CTO, Roadstar.ai)

Service

Professional Service

Conference and Workshop Organizing

2025	Co-organizer, *Bay Area Robotics Symposium*
2024	Co-organizer, *Bay Area Robotics Symposium*
2024	Organizer and facilitator, Panel on Autonomous Navigation for Ground, Seaborne, and Airborne Vehicles, *ION GNSS+ Conference*
2024	Organizing committee member, Future Leaders in Aerospace Symposium, Stanford University
2023	Co-organizer, *Workshop on Closing the Loop on Localization, IROS 2023 Conference*
2023, 2016, 2015, 2012, 2011	Session Chair, *ION ITM Conference*
2022	Session chair, *IROS 2022 Conference*
2022	Program committee member, *National Science Foundation CPS PI Meeting*
2022, 2017, 2015, 2012, 2011, 2008	Session chair, *ION GNSS+ Conference*
2022	Session chair, *ICRA 2022 Conference*
2021	Organizer, *3rd NorCal Control Workshop*
2021	Program committee member, *1st Workshop on AI for Space, CVPR 2021*
2018, 2016, 2013	Track chair, *ION GNSS+ Conference*
2018, 2016	Session chair, *IEEE/ION PLANS Conference*

Journal Editorial Activities

2016-2018	Associate Editor, *IEEE Transactions on Aerospace and Electronic Systems*

Memberships

2015-present	IEEE Senior member
2006-present	Institute of Navigation (ION) member

Affiliations

2020 - present	Reviewer, NASA Space Technology Graduate Research Opportunity Program
2022 - present, 2016, 2015	Reviewer, NASA Postdoctoral Program
2019, 2017, 2016, 2015	Review panelist, *National Science Foundation*
2017	Founding member, *National UAS Standardized Testing and Rating Board*
2015, 2014	Treasurer, Satellite Division, *ION*
2013, 2012	Elected Officer (Air Representative), *ION*
2011, 2010	Judging Panel, Fulbright Scholar Program, Stanford University
2010	Judging Panel, GNSS USA Challenge

University and Departmental Service

University Service

at Stanford University

2025-present	Committee on Academic Computing and Information Systems (C-ACIS)
2024-present	Faculty Lead of the Safety Pillar, Stanfordd Center for Sustainable Mobility
2024-present	Tenure evaluation committee
2022-present	Co-director, Stanford AI Safety Center
2020-present	Co-lead, Stanford SystemX Alliance Robotics Area

at University of Illinois at Urbana-Champaign

2019	Aerospace Engineering department head search committee
2019	Faculty search committee, Department of Computer Science
2019, 2018, 2016, 2015	Coordinated Sciences Lab (CSL) advisory committee
2018, 2017	CSL staff award committee
2017	Information Trust Institute (ITI) search committee for CREDC Managing Director
2017	Committee for implementing a new degree program in Innovation, Leadership and Engineering Entrepreneurship (ILEE)
2016	CSL search committee for a Robotics Institute technical engineer

Department Service

at Stanford University

2026-present	Chair of faculty search committee
2021-present	Lead of Dynamics, Guidance, Navigation, Control, and Autonomy cluster
2024-present	Tenure evaluation committee
2020-2024	Founding co-chair (2020-2022) and member (2020-2024) of diversity, equity and inclusion committee
2019-2022	Graduate admission committee
2021	Selection committee member, Aero Astro Community Research Experience (AACREs)
2020	New direct PhD program committee

at University of Illinois at Urbana-Champaign

2018-2019	Aerospace Engineering (AE) faculty search committee
2018-2019	AE graduate program committee
2016-2019	AE department awards committee
2017, 2016	Chair of AE department undergrad curriculum committee (Passed a major undergrad curriculum change)
2016, 2015	AE department advisory committee
2016, 2015	Chair of AE faculty meeting
2016, 2015	AE department undergrad curriculum committee
2015, 2014	AE graduate admission committee
2015, 2014	Secretary of AE department faculty meeting
2015, 2014	Chair of Engineering Open House
2013	AE faculty search committee

Student Service

at Stanford University

2026 - present	Faculty mentor, Thrive at Stanford
2019 - present	Faculty advisor, Women in Aeronautics and Astronautics (WIAA)
2019 - present	Summer Undergraduate Research Fellowship (SURF)
2021 - 2026	Faculty mentor, Enhancing Diversity in Graduate Education (EDGE) Fellows
2022, 2021	Faculty panelist, Summer First Program
2022, 2021	Faculty panelist, Summer Undergraduate Research Fellowship (SURF)
2021	Faculty advisor for Aero Astro Community Research Experience (AACREs)
2021	Faculty advisor for Research Experience for Undergraduate (REU) students
2021	Faculty advisor for Inclusion, Diversity, and Equity in a Learning Environment (IDEAL)

at University of Illinois at Urbana-Champaign

2018, 2017, 2016, 2015	Faculty advisor of UIUC team for NASA Micro-g NExT competition (The student teams were selected all four years.)
2016, 2015	Faculty advisor for UIUC Engineering Open House projects
2015	Faculty advisor for Boeing IT Case Competition (The student team won the 2nd place, and was invited to Boeing headquarters for the award ceremony.)

Outreach

2024	Organizing committee member, Future Leaders in Aerospace Symposium, Stanford University
2023	Faculty panelist, Future Leaders in Aerospace Workshop at Massachusetts Institute of Technology
2020	Faculty panelist, Mechanical Engineering Rising Star Workshop at Stanford University
2019, 2017	Workshop for Girls Learning Electrical Engineering (GLEE) Summer Camp
2019	Workshop for Catalyzing Inclusive STEM Experiences All Year Round (CISTEME365)
2013-2019	Showcase research projects in UIUC Engineering Open House
2018	Lecture and demo for Girls Adventures in Mathematics, Engineering, and Science (GAMES) Summer Camp
2017	Lecture and demo for Girls Learning Air and Space Science (GLASS)
2017, 2016, 2015	Panelist at Women in PNT Event at ION GNSS+ Conferences
2017 - 2013	Outreach through DoE CREDC Center
2016	Lecture for "Saturday Engineering for Everyone"
2015	Lectures and demo at Hobbico E-fest
2008, 2007	Workshop at Sally Ride Science Festival