Stanford

Allison Okamura

Richard W. Weiland Professor in the School of Engineering and Professor of Mechanical Engineering

Curriculum Vitae available Online

CONTACT INFORMATION

- **Administrative Contact (Research)**

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Bio

BIO

Allison Okamura is the Richard W. Weiland Professor of Engineering at Stanford University in the Department of Mechanical Engineering, with a courtesy appointment in Computer Science. She is Director of Graduate Studies for Stanford Mechanical Engineering, Deputy Director of the Wu Tsai Neurosciences Institute, Science Fellow of the Hoover Institution, and Executive Committee Member of the Stanford Robotics Center. She is an IEEE Fellow and was previously editor-in-chief of the journal IEEE Robotics and Automation Letters. Her awards include the IEEE Engineering in Medicine and Biology Society Technical Achievement Award, IEEE Robotics and Automation Society Distinguished Service Award, and Duca Family University Fellow in Undergraduate Education. She received her BS degree from the University of California at Berkeley, and PhD degree from Stanford. Her interests include haptics, teleoperation, mixed reality, medical robotics, soft robotics, and rehabilitation. Outside academia, she enjoys spending time with her family, running, and playing ice hockey.

ACADEMIC APPOINTMENTS

- Professor, Mechanical Engineering
- Member, Bio-X
- Faculty Affiliate, Institute for Human-Centered Artificial Intelligence (HAI)
- Member, Wu Tsai Human Performance Alliance
- Member, Wu Tsai Neurosciences Institute

HONORS AND AWARDS

- Distinguished Service Award, IEEE Robotics and Automation Society (2019)
- Stanford Fellow, Stanford University (2018-2020)
- Best Student Presentation Award (student author: Sean Sketch), IEEE Haptics Symposium (2018)
- Finalist, Best Paper in Human Robot Interaction, IEEE International Conference on Robotics and Automation (2018)
- Gilbreth Lecturer, National Academy of Engineers (2018)
- Tau Beta Pi Teaching Honor Roll, Stanford University (2018)

- Ten Robotics Technologies of the Year (Soft robot that navigates through growth), Science Robotics (2018)
- ACM CHI Best Paper Award, ACM SIGCHI 2017 conference (2017)
- Society of Scholars, Johns Hopkins University (2017)
- Duca Family University Fellow in Undergraduate Education, Stanford University (2016)
- Best Student Paper Award (student author: Zhan Fan Quek), IEEE Haptics Symposium (2014)
- Robert Bosch Faculty Scholar, Stanford University (2011-2015)
- Gabilan Fellow, Stanford University (2011)
- IEEE Fellow, Institute of Electrical and Electronics Engineers (2010)
- Early Career Award, IEEE Technical Committee on Haptics (2009)
- Alumni Distinguished Scholar, Stanford University (2008)
- Decker Faculty Scholar, Johns Hopkins University (2007-2010)
- Award for Excellence, Outstanding Paper of the Year in Industrial Robot, Literati Club (2005)
- Early Academic Career Award, IEEE Robotics and Automation Society (2005)
- CAREER Award, National Science Foundation (2004-2009)
- Diversity Recognition Award, Johns Hopkins University (2003)

PROFESSIONAL EDUCATION

- BS, University of California, Berkeley , Mechanical Engineering (1994)
- MS, Stanford University , Mechanical Engineering (1996)
- PhD, Stanford University , Mechanical Engineering (2000)

LINKS

- CHARM Lab website: http://charm.stanford.edu
- CHARM Lab YouTube channel: https://www.youtube.com/channel/UC_L3pNslH0J3znNsL3CbFYQ
- Google Scholar page: https://scholar.google.com/citations?user=lD4Yjn4AAAAJ&hl=en&oi=ao
- Personal webpage: http://charm.stanford.edu/Main/AllisonOkamura

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

My research focuses on developing the principles and tools needed to realize advanced robotic and human-machine systems capable of physical interaction. Topics of particular interest are: (1) Teleoperation: Devices, models, and control systems that allow human operators to manipulate environments that are remote in scale and/or distance. (2) Haptic systems: Devices, models, and control systems that enable compelling touch-based interaction with virtual environments, computers, and remote robots. (3) Robotic manipulation: Robots that physically manipulate their environment or their own shape, incorporating novel designs, sensors, and control systems. Application areas include surgery, simulation and training, rehabilitation, prosthetics, neuromechanics, exploration of hazardous and remote environments (e.g. space), design, and education.

CLINICAL TRIALS

- Effects of a Compliant Arm Support on Post-stroke Upper Extremity Range of Motion, Not Recruiting
- Effects of Post-Stroke Upper Extremity Assistance, Not Recruiting
- Passive Tactile Stimulation for Stroke Rehabilitation, Not Recruiting

Teaching

COURSES

2025-26

- Design and Control of Haptic Systems: ME 327 (Spr)
- Dynamic Systems, Vibrations and Control: ME 161 (Aut, Win)
- Perspectives of Women in Engineering: ENGR 311A (Win)

2024-25

- Design and Control of Haptic Systems: ME 327 (Spr)
- Dynamic Systems, Vibrations and Control: ME 161 (Win)
- Perspectives of Women in Engineering: ENGR 311A (Win)

2023-24

- Design and Control of Haptic Systems: ME 327 (Spr)

2022-23

- Design and Control of Haptic Systems: ME 327 (Spr)
- Introduction to Mechanical Engineering: ME 1 (Aut)

STANFORD ADVISEES

Doctoral Dissertation Reader (AC)

Savannah Cofer, Shivani Guptasarma, Eunyoung Kim, Russell Martin, Soham Sinha, Jon Stingel, Olivia Tomassetti

Orals Chair

Jennifer Grannen, Priya Sundaresan

Postdoctoral Faculty Sponsor

Ava Chen

Doctoral Dissertation Advisor (AC)

Megan Coram, Mary Kate Gale, William Heap, Sehui Jeong, Katelyn King, Melissa Klein, Ariane Richard, Brian Vuong

Orals Evaluator

Aliyah Smith

Master's Program Advisor

Sal Amezcua Hernandez, Jonah Bhisitkul, Timber Carey, Marcellina Chang, Sean Fowler, Nathan Hui, Nachiketh Karthik, Zachary Larson, Saimai Lau, Wei Lin Puah, Jonah Simpkins, Sokserey Sun, Olivia Velten-Lomelin, Vakula Venkatesh, Alfonso Vigo

Doctoral Dissertation Co-Advisor (AC)

Elizabeth Childs, Dan Ilyn, Fredrik Samdal Solberg

Doctoral (Program)

Venny Kojouharov, Alex Mallery

Publications

PUBLICATIONS

- **Multi-level mechanical modeling and computational design framework for weft knitted fabrics** *EXTREME MECHANICS LETTERS*
  du Pasquier, C., Jeong, S., Liu, P., Williams, S., Mnejja, N., Okamura, A. M., Tibbits, S., Chen, T.
  2026; 82

- **Self-Wearing Adaptive Garments via Soft Robotic Unfurling** *IEEE ROBOTICS AND AUTOMATION LETTERS*
  Kim, N., Heap, W. E., Qin, Y., Yao, E. B., Ryu, J., Okamura, A. M.
  2026; 11 (1): 802-809

- **Interactive Multi-Robot Flocking with Gesture Responsiveness and Musical Accompaniment** *ACM TRANSACTIONS ON HUMAN-ROBOT INTERACTION*
  Cuan, C., Jeffrey, K., Kleiven, K., Li-Bell, A., Fisher, E., Harrison, M., Holson, B., Okamura, A., Bennice, M.
  2026; 15 (1)

- **Loop closure grasping: Topological transformations enable strong, gentle, and versatile grasps.** *Science advances*
  Barhydt, K., Osele, O. G., Kodali, S., du Pasquier, C., Hartquist, C. M., Asada, H. H., Okamura, A. M.
  2025; 11 (50): eady9581

- **Effects of Wrist-Worn Haptic Feedback on Force Accuracy and Task Speed During a Teleoperated Robotic Surgery Task** *IEEE ROBOTICS AND AUTOMATION LETTERS*
  Vuong, B. B., Davidson, J., Cheon, S., Cho, K., Okamura, A. M.
  2025; 10 (12): 12923-12930

- **Flying Vines: Design, Modeling, and Control of a Soft Aerial Robotic Arm** *IEEE ROBOTICS AND AUTOMATION LETTERS*
  Jitosho, R., Winston, C. E., Yang, S., Li, J., Ahlquist, M., Woehrle, N., Liu, C., Okamura, A. M.
  2025; 10 (10): 10514-10521

- **Cognitive and Physical Activities Impair Perception of Smartphone Vibrations (vol 16, pg 672, 2023)** *IEEE TRANSACTIONS ON HAPTICS*
  Yoshida, K. T., Kiernan, J. X., Adenekan, R. G., Trinh, S. H., Lowber, A. J., Okamura, A. M., Nunez, C. M.
  2025; 18 (4): 1085-1086

- **Fourigami: A 4-Degree-of-Freedom, Force-Controlled, Origami, Finger Pad Haptic Device** *IEEE TRANSACTIONS ON ROBOTICS*
  Winston, C. E., Choi, H., Jitosho, R., Zhakypov, Z., Palmer, J. E., Cutkosky, M. R., Okamura, A. M.
  2025; 41: 4829-4842

- **Haptiknit: Distributed stiffness knitting for wearable haptics.** *Science robotics*
  du Pasquier, C., Tessmer, L., Scholl, I., Tilton, L., Chen, T., Tibbits, S., Okamura, A.
  2024; 9 (97): eado3887

- **Leveraging Haptic Feedback to Improve Data Quality and Quantity for Deep Imitation Learning Models** *IEEE TRANSACTIONS ON HAPTICS*
  Cuan, C., Okamura, A., Khansari, M.
  2024; 17 (4): 984-991

- **A Comparative Analysis of Smartphone and Standard Tools for Touch Perception Assessment Across Multiple Body Sites** *IEEE TRANSACTIONS ON HAPTICS*
  Adenekan, R. A. G., Reyes, A., Yoshida, K. T., Kodali, S., Okamura, A. M., Nunez, C. M.
  2024; 17 (4): 970-977

- **Development and Evaluation of a Learning-Based Model for Real-Time Haptic Texture Rendering** *IEEE TRANSACTIONS ON HAPTICS*
  Heravi, N., Culbertson, H., Okamura, A. M., Bohg, J.
  2024; 17 (4): 705-716

- **Haptic Guidance and Haptic Error Amplification in a Virtual Surgical Robotic Training Environment.** *IEEE transactions on haptics*
  Oquendo, Y. A., Coad, M. M., Wren, S. M., Lendvay, T. S., Nisky, I., Jarc, A. M., Okamura, A. M., Chua, Z.
  2024; 17 (3): 417-428

- **Between-Tactor Display Using Dynamic Tactile Stimuli for Directional Cueing in Vibrating Environments** *IEEE TRANSACTIONS ON HAPTICS*
  Eguchi, R., Vacek, D., Godzinski, C., Okamura, A. M.
  2024; 17 (3): 503-508
- **Design and Evaluation of a 3-DoF Haptic Device for Directional Shear Cues on the Forearm.** *IEEE transactions on haptics*
  Yoshida, K. T., Zook, Z. A., Choi, H., Luo, M., O'Malley, M. K., Okamura, A. M.
  2024; 17 (3): 483-495
- **A Comparison of Pneumatic Actuators for Soft Growing Vine Robots.** *Soft robotics*
  Kübler, A. M., du Pasquier, C., Low, A., Djambazi, B., Aymon, N., Förster, J., Agharese, N., Siegwart, R., Okamura, A. M.
  2024
- **Stiffness Change for Reconfiguration of Inflated Beam Robots.** *Soft robotics*
  Do, B. H., Wu, S., Zhao, R. R., Okamura, A. M.
  2024
- **Reliability of Smartphone-Based Vibration Threshold Measurements**
  Adenekan, R. A. G., Yoshida, K. T., Benyoucef, A., Reyes, A., Adenekan, A. E., Okamura, A. M., Nunez, C. M.
  edited by Kajimoto, H., Birznieks, Bianchi, M.
  IEEE.2024: 25-32
- **Facial Haptic Feedback for Robotic Prostheses**
  Guptasarma, S., Vuong, B. B., Okamura, A. M., Kennedy, M.
  edited by Pons, J. L., Tornero, J., Akay, M.
  SPRINGER INTERNATIONAL PUBLISHING AG.2024: 311-315
- **Tip-Clutching Winch for High Tensile Force Application with Soft Growing Robots**
  Osele, O., Barhydt, K., Cerone, N., Okamura, A. M., Asada, H., IEEE
  IEEE.2024: 9362-9368
- **phloSAR: a Portable, High-Flow Pressure Supply and Regulator Enabling Untethered Operation of Large Pneumatic Soft Robots**
  Ahlquist, M., Jitosho, R., Bao, J., Okamura, A. M., IEEE
  IEEE.2024: 28-33
- **Design and Evaluation of Haptic Guidance in Ultrasound-Based Needle-Insertion Procedures.** *IEEE transactions on bio-medical engineering*
  Raitor, M., Nunez, C. M., Stolka, P. J., Okamura, A. M., Culbertson, H.
  2024; 71 (1): 26-35
- **Haptic Relocation of Virtual Finger Forces via Pneumatic Wrist-Worn Haptic Devices**
  Palmer, J. E., Vuong, B. B., Zhakypov, Z., Qin, Y., Tilton, L., Okamura, A. M.
  edited by Kajimoto, H., Birznieks, Bianchi, M.
  IEEE.2024: 315-320
- **Haptics: The Science of Touch as a Foundational Pathway to Precision Education and Assessment.** *Academic medicine : journal of the Association of American Medical Colleges*
  Perrone, K., Abdelaal, A. E., Pugh, C., Okamura, A.
  2023
- **Shared-Control Teleoperation Paradigms on a Soft-Growing Robot Manipulator** *JOURNAL OF INTELLIGENT & ROBOTIC SYSTEMS*
  Stroppa, F., Selvaggio, M., Agharese, N., Luo, M., Blumenschein, L. H., Hawkes, E. W., Okamura, A. M.
  2023; 109 (2)
- **Modeling and Control of a 5-DOF Parallel Continuum Haptic Device** *IEEE TRANSACTIONS ON ROBOTICS*
  Koehler, M., Bieze, T., Kruszewski, A., Okamura, A. M., Duriez, C.
  2023
- **A Modular 3-Degrees-of-Freedom Force Sensor for Robot-Assisted Minimally Invasive Surgery Research.** *Sensors (Basel, Switzerland)*
  Chua, Z., Okamura, A. M.
  2023; 23 (11)

- **Cognitive and Physical Activities Impair Perception of Smartphone Vibrations.** *IEEE transactions on haptics*
  Yoshida, K. T., Kiernan, J. X., Adenekan, R. A., Trinh, S. H., Lowber, A. J., Okamura, A. M., Nunez, C. M.
  2023; PP
- **Daily vibrotactile stimulation from a wearable device exhibits equal or greater spasticity relief than botulinum toxin in stroke.** *Archives of physical medicine and rehabilitation*
  Seim, C., Chen, B., Han, C., Vacek, D., Lowber, A., Lansberg, M., Okamura, A. M.
  2023
- **Evaluation of a Passive Wearable Device for Post-Stroke Shoulder Abduction Support.** *IEEE ... International Conference on Rehabilitation Robotics : [proceedings]*
  Vasquez, E. D., Simpson, C. S., Zhou, G., Lansberg, M., Okamura, A. M.
  2023; 2023: 1-6
- **Reinforcement Learning Enables Real-Time Planning and Control of Agile Maneuvers for Soft Robot Arms**
  Jitosho, R., Lum, T., Okamura, A. M., Liu, C.
  edited by Tan, J., Toussaint, M., Darvish, K.
  JMLR-JOURNAL MACHINE LEARNING RESEARCH.2023
- **Relief of post-stroke spasticity with acute vibrotactile stimulation: controlled crossover study of muscle and skin stimulus methods.** *Frontiers in human neuroscience*
  Seim, C., Chen, B., Han, C., Vacek, D., Wu, L. S., Lansberg, M., Okamura, A.
  2023; 17: 1206027
- **Passive Shape Locking for Multi-Bend Growing Inflated Beam Robots**
  Jitosho, R., Simon-Trench, S., Okamura, A. M., Do, B. H., IEEE
  IEEE.2023
- **A Multi-Segment, Soft Growing Robot with Selective Steering**
  Kubler, A. M., Rivera, S., Raphael, F. B., Forster, J., Siegwart, R., Okamura, A. M., IEEE
  IEEE.2023
- **Exploring Human Response Times to Combinations of Audio, Haptic, and Visual Stimuli from a Mobile Device**
  Yoshida, K. T., Kiernan, J. X., Okamura, A. M., Nunez, C. M.
  edited by Bello, F., Choi, S., Kuchenbecker, K. J., MacLean, K.
  IEEE.2023: 121-127
- **Wearable Sensory Substitution for Proprioception via Deep Pressure**
  Kodali, S., Vuong, B. B., Bulea, T. C., Chesler, A. T., Bonnemann, C. G., Okamura, A. M.
  edited by Bello, F., Choi, S., Kuchenbecker, K. J., MacLean, K.
  IEEE.2023: 286-292
- **Human Perception of Wrist Flexion and Extension Torque During Upper and Lower Extremity Movement.** *IEEE transactions on haptics*
  Welker, C. G., Collins, S. H., Okamura, A. M.
  2022; PP
- **Perceived Intensities of Normal and Shear Skin Stimuli Using a Wearable Haptic Bracelet** *IEEE ROBOTICS AND AUTOMATION LETTERS*
  Sarac, M., Huh, T., Choi, H., Cutkosky, M. R., Di Luca, M., Okamura, A. M.
  2022; 7 (3): 6099-6106
- **Data-Driven Sparse Skin Stimulation Can Convey Social Touch Information to Humans** *IEEE TRANSACTIONS ON HAPTICS*
  Salvato, M., R. Williams, S., M. Nunez, C., Zhu, X., Israr, A., Lau, F., Klumb, K., Abnousi, F., M. Okamura, A., Culbertson, H.
  2022; 15 (2): 392-404
- **A 4-Degree-of-Freedom Parallel Origami Haptic Device for Normal, Shear, and Torsion Feedback** *IEEE ROBOTICS AND AUTOMATION LETTERS*
  Williams, S. R., Suchoski, J. M., Chua, Z., Okamura, A. M.
  2022; 7 (2): 3310-3317
- **Predicting Hand-Object Interaction for Improved Haptic Feedback in Mixed Reality** *IEEE ROBOTICS AND AUTOMATION LETTERS*

Salvato, M., Heravi, N., Okamura, A. M., Bohg, J.
2022; 7 (2): 3851-3857

- **Design of a Wearable Vibrotactile Stimulation Device for Individuals With Upper-Limb Hemiparesis and Spasticity** *IEEE TRANSACTIONS ON NEURAL SYSTEMS AND REHABILITATION ENGINEERING*
  Seim, C. E., Ritter, B., Starner, T. E., Flavin, K., Lansberg, M. G., Okamura, A. M.
  2022; 30: 1277-1287
- **Haptic Feedback Relocation from the Fingertips to the Wrist for Two-Finger Manipulation in Virtual Reality**
  Palmer, J. E., Sarac, M., Garza, A. A., Okamura, A. M., IEEE
  IEEE.2022: 628-633
- **A Large-Area Wearable Soft Haptic Device Using Stacked Pneumatic Pouch Actuation**
  Nunez, C. M., Do, B. H., Low, A. K., Blumenschein, L. H., Yamane, K., Okamura, A. M., IEEE
  IEEE.2022: 591-598
- **Deep Learning Classification of Touch Gestures Using Distributed Normal and Shear Force**
  Choi, H., Brouwer, D., Lin, M. A., Yoshida, K. T., Rognon, C., Stephens-Fripp, B., Okamura, A. M., Cutkosky, M. R., IEEE
  IEEE.2022: 3659-3665
- **FingerPrint: A 3-D Printed Soft Monolithic 4-Degree-of-Freedom Fingertip Haptic Device with Embedded Actuation**
  Zhakypov, Z., Okamura, A. M., IEEE
  IEEE.2022: 938-944
- **A Lightweight, High-Extension, Planar 3-Degree-of-Freedom Manipulator Using Pinched Bistable Tapes**
  Osele, O., Okamura, A. M., Do, B. H., IEEE
  IEEE.2022
- **Between-Tactor Display Using Dynamic Tactile Stimuli**
  Eguchi, R., Vacek, D., Godzinski, C., Curry, S., Evans, M., Okamura, A. M.
  edited by Seifi, H., Kappers, A. M., Schneider, O., Drewing, K., Pacchierotti, C., Abbasimoshaei, A., Huisman, G., Kern, T. A.
  SPRINGER INTERNATIONAL PUBLISHING AG.2022: 379-381
- **Feasibility of Smartphone Vibrations as a Sensory Diagnostic Tool**
  Adenekan, R. A. G., Lowber, A. J., Huerta, B. N., Okamura, A. M., Yoshida, K. T., Nunez, C. M.
  edited by Seifi, H., Kappers, A. M., Schneider, O., Drewing, K., Pacchierotti, C., Abbasimoshaei, A., Huisman, G., Kern, T. A.
  SPRINGER INTERNATIONAL PUBLISHING AG.2022: 337-339
- **Wearable Haptic Device for Individuals with Congenital Absence of Proprioception**
  Kodali, S., Okamura, A. M., Bulea, T. C., Chesler, A. T., Bonnemann, C. G.
  edited by Seifi, H., Kappers, A. M., Schneider, O., Drewing, K., Pacchierotti, C., Abbasimoshaei, A., Huisman, G., Kern, T. A.
  SPRINGER INTERNATIONAL PUBLISHING AG.2022: 433-435
- **Feasibility of Smartphone Vibrations as a Sensory Diagnostic Tool**
  Adenekan, R. A. G., Lowber, A. J., Huerta, B. N., Okamura, A. M., Yoshida, K. T., Nunez, C. M.
  edited by Seifi, H., Kappers, A. M., Schneider, O., Drewing, K., Pacchierotti, C., Abbasimoshaei, A., Huisman, G., Kern, T. A.
  SPRINGER INTERNATIONAL PUBLISHING AG.2022: 337-339
- **Wearable Haptic Device for Individuals with Congenital Absence of Proprioception**
  Kodali, S., Okamura, A. M., Bulea, T. C., Chesler, A. T., Bonnemann, C. G.
  edited by Seifi, H., Kappers, A. M., Schneider, O., Drewing, K., Pacchierotti, C., Abbasimoshaei, A., Huisman, G., Kern, T. A.
  SPRINGER INTERNATIONAL PUBLISHING AG.2022: 433-435
- **Geometric Solutions for General Actuator Routing on Inflated-Beam Soft Growing Robots** *IEEE TRANSACTIONS ON ROBOTICS*
  Blumenschein, L. H., Koehler, M., Usevitch, N. S., Hawkes, E., Rucker, D., Okamura, A. M.
  2021
- **Effects of Peripheral Haptic Feedback on Intracortical Brain-Computer Interface Control and Associated Sensory Responses in Motor Cortex** *IEEE TRANSACTIONS ON HAPTICS*
  Deo, D. R., Rezaii, P., Hochberg, L. R., Okamura, A. M., Shenoy, K., Henderson, J. M.

2021; 14 (4): 762-775

- **Teaching With Hapkit Enabling Online Haptics Courses With Hands-On Laboratories** *IEEE ROBOTICS & AUTOMATION MAGAZINE*
  Morimoto, T. K., Martinez, M., Davis, R. L., Blikstein, P., Okamura, A. M.
  2021; 28 (3): 79-91
- **Body-Mounted Vibrotactile Stimuli: Simultaneous Display of Taps on the Fingertips and Forearm** *IEEE TRANSACTIONS ON HAPTICS*
  Williams, S. R., Okamura, A. M.
  2021; 14 (2): 432-444
- **Affective Ratings of Vibrotactile Signals in Older Adults With and Without History of Stroke**
  Seim, C. E., Ritter, B., Flavin, K. E., Lansberg, M. G., Okamura, A. M., IEEE
  IEEE.2021: 457-462
- **A Dynamics Simulator or Soft Growing Robots**
  Jitosho, R., Agharese, N., Okamura, A., Manchester, Z., IEEE
  IEEE.2021: 11775-11781
- **Macro-Mini Actuation of Pneumatic Pouches for Soft Wearable Haptic Displays**
  Do, B. H., Okamura, A. M., Yamane, K., Blumenschein, L. H., IEEE
  IEEE.2021: 14499-14505
- **Toward Force Estimation in Robot-Assisted Surgery using Deep Learning with Vision and Robot State**
  Chua, Z., Jarc, A. M., Okamura, A. M., IEEE
  IEEE.2021: 12335-12341
- **Augmented Haptic Guidance for Needle Insertion with a 2-DoF Wrist-Worn Haptic Device**
  Sarac, M., Loke, D., Evans, M., Chong, O., Saunders, J., Makled, B., Okamura, A. M., Hallett, K., IEEE
  IEEE.2021: 872
- **Embedded Laser-Cut Constraints for Elastomeric Soft Actuators**
  Winston, C. E., Yoshida, K. T., Williams, S. R., Okamura, A. M., IEEE
  IEEE.2021: 863
- **Human Perception of Wrist Torque Magnitude During Upper and Lower Extremity Movement**
  Welker, C., Collins, S. H., Okamura, A. M., IEEE
  IEEE.2021: 870
- **Augmented Needle Decompression Task with a Wrist-Worn Haptic Device**
  Sarac, M., Hallett, K., Saunders, J., Makled, B., Okamura, A. M., IEEE
  IEEE.2021: 873
- **Design, Modeling, Control, and Application of Everting Vine Robots.** *Frontiers in robotics and AI*
  Blumenschein, L. H., Coad, M. M., Haggerty, D. A., Okamura, A. M., Hawkes, E. W.
  2020; 7: 548266
- **Continuous Closed-Loop 4-Degree-of-Freedom Holdable Haptic Guidance** *IEEE ROBOTICS AND AUTOMATION LETTERS*
  Walker, J. M., Okamura, A. M.
  2020; 5 (4): 6853–60
- **Efficient and Trustworthy Social Navigation via Explicit and Implicit Robot-Human Communication** *IEEE TRANSACTIONS ON ROBOTICS*
  Che, Y., Okamura, A. M., Sadigh, D.
  2020; 36 (3): 692–707
- **Model-Based Design of a Soft 3-D Haptic Shape Display** *IEEE TRANSACTIONS ON ROBOTICS*
  Koehler, M., Usevitch, N. S., Okamura, A. M.
  2020; 36 (3): 613–28
- **3D Electromagnetic Reconfiguration Enabled by Soft Continuum Robots** *IEEE ROBOTICS AND AUTOMATION LETTERS*
  Gan, L. T., Blumenschein, L. H., Huang, Z., Okamura, A. M., Hawkes, E. W., Fan, J. A.

2020; 5 (2): 1704–11

- **Retraction of Soft Growing Robots Without Buckling** *IEEE ROBOTICS AND AUTOMATION LETTERS*
  Coad, M. M., Thomasson, R. P., Blumenschein, L. H., Usevitch, N. S., Hawkes, E. W., Okamura, A. M.
  2020; 5 (2): 2115–22
- **Robust navigation of a soft growing robot by exploiting contact with the environment** *INTERNATIONAL JOURNAL OF ROBOTICS RESEARCH*
  Greer, J. D., Blumenschein, L. H., Alterovitz, R., Hawkes, E. W., Okamura, A. M.
  2020
- **An untethered isoperimetric soft robot.** *Science robotics*
  Usevitch, N. S., Hammond, Z. M., Schwager, M., Okamura, A. M., Hawkes, E. W., Follmer, S.
  2020; 5 (40)
- **An untethered isoperimetric soft robot** *SCIENCE ROBOTICS*
  Usevitch, N. S., Hammond, Z. M., Schwager, M., Okamura, A. M., Hawkes, E. W., Follmer, S.
  2020; 5 (40)
- **Investigating Social Haptic Illusions for Tactile Stroking (SHIFTS)**
  Nunez, C. M., Huerta, B. N., Okamura, A. M., Culbertson, H., IEEE
  IEEE.2020: 629–36
- **Teleoperation of an ankle-foot prosthesis with a wrist exoskeleton.** *IEEE transactions on bio-medical engineering*
  Welker, C. G., Chiu, V. L., Voloshina, A. n., Collins, S. n., Okamura, A. M.
  2020; PP
- **Human Interface for Teleoperated Object Manipulation with a Soft Growing Robot**
  Stroppa, F., Luo, M., Yoshida, K., Coad, M. M., Blumenschein, L. H., Okamura, A. M., IEEE
  IEEE.2020: 726-732
- **Dynamically Reconfigurable Discrete Distributed Stiffness for Inflated Beam Robots**
  Do, B. H., Banashek, V., Okamura, A. M., IEEE
  IEEE.2020: 9050-9056
- **Evaluation of Non-collocated Force Feedback Driven by Signal-independent Noise**
  Chua, Z., Okamura, A. M., Deo, D. R., IEEE
  IEEE.2020: 3686-3692
- **A Tip Mount for Transporting Sensors and Tools using Soft Growing Robots**
  Jeong, S., Coad, M. M., Blumenschein, L. H., Luo, M., Mehmood, U., Kim, J., Okamura, A. M., Ryu, J., IEEE
  IEEE.2020: 8781-8788
- **AFREEs: Active Fiber Reinforced Elastomeric Enclosures**
  Yoshida, K. T., Ren, X., Blumenschein, L. H., Okamura, A. M., Luo, M., IEEE
  IEEE.2020: 305–11
- **Understanding Continuous and Pleasant Linear Sensations on the Forearm From a Sequential Discrete Lateral Skin-Slip Haptic Device** *IEEE TRANSACTIONS ON HAPTICS*
  Nunez, C. M., Williams, S. R., Okamura, A. M., Culbertson, H.
  2019; 12 (4): 414–27
- **Soft Haptic Device to Render the Sensation of Flying Like a Drone** *IEEE ROBOTICS AND AUTOMATION LETTERS*
  Rognone, C., Koehler, M., Duriez, C., Floreano, D., Okamura, A. M.
  2019; 4 (3): 2524–31
- **Resonant Frequency Skin Stretch for Wearable Haptics.** *IEEE transactions on haptics*
  Shull, P. B., Tan, T., Culbertson, H. M., Zhu, X., Okamura, A.
  2019
- **Stiffness Control of Deformable Robots Using Finite Element Modeling** *IEEE ROBOTICS AND AUTOMATION LETTERS*

Koehler, M., Okamura, A. M., Duriez, C.
2019; 4 (2): 469–76

- **Design and Analysis of Pneumatic 2-DoF Soft Haptic Devices for Shear Display** *IEEE ROBOTICS AND AUTOMATION LETTERS*
  Kanjanapas, S., Nunez, C. M., Williams, S. R., Okamura, A. M., Luo, M.
  2019; 4 (2): 1365–71
- **Evaluation of Skin Deformation Tactile Feedback for Teleoperated Surgical Tasks** *IEEE TRANSACTIONS ON HAPTICS*
  Quek, Z., Provancher, W. R., Okamura, A. M.
  2019; 12 (2): 102–13
- **Effects of Different Hand-Grounding Locations on Haptic Performance With a Wearable Kinesthetic Haptic Device** *IEEE ROBOTICS AND AUTOMATION LETTERS*
  Nisar, S., Martinez, M., Endo, T., Matsuno, F., Okamura, A. M.
  2019; 4 (2): 351–58
- **Evolution and Analysis of Hapkit: An Open-Source Haptic Device for Educational Applications.** *IEEE transactions on haptics*
  Orta Martinez, M. n., Nunez, C. M., Liao, T. n., Morimoto, T. K., Okamura, A. n.
  2019
- **Perception of a Wearable Haptic Feedback Device to Render the Sensation of Flight**
  Rognon, C., Koehler, M., Floreano, D., Okamura, A. M., IEEE
  IEEE.2019: 61–66
- **3-DoF Wearable, Pneumatic Haptic Device to Deliver Normal, Shear, Vibration, and Torsion Feedback**
  Yoshida, K. T., Nunez, C. M., Williams, S. R., Okamura, A. M., Luo, M., IEEE
  IEEE.2019: 97–102
- **Holdable Haptic Device for 4-DOF Motion Guidance**
  Walker, J. M., Zemiti, N., Poignet, P., Okamura, A. M., IEEE
  IEEE.2019: 109–14
- **Vine Robots: Design, Teleoperation, and Deployment for Navigation and Exploration** *IEEE Robotics & Automation Magazine*
  Coad, M., Blumenschein, L., Cutler, S., Reyna Zepeda, J., Naclerio, N., ElHussieny, H., Mehmood, U., Ryu, J., Hawkes, E., Okamura, A.
  2019
- **Facilitating Human-Mobile Robot Communication via Haptic Feedback and Gesture Teleoperation** *ACM TRANSACTIONS ON HUMAN-ROBOT INTERACTION*
  Che, Y., Culbertson, H., Tang, C., Aich, S., Okamura, A. M.
  2018; 7 (3)
- **A Soft, Steerable Continuum Robot That Grows via Tip Extension** *SOFT ROBOTICS*
  Greer, J. D., Morimoto, T. K., Okamura, A. M., Hawkes, E. W.
  2019; 6 (1): 95–108
- **Toward the Design of Personalized Continuum Surgical Robots** *ANNALS OF BIOMEDICAL ENGINEERING*
  Morimoto, T. K., Greer, J. D., Hawkes, E. W., Hsieh, M. H., Okamura, A. M.
  2018; 46 (10): 1522–33
- **Toward the Design of Personalized Continuum Surgical Robots.** *Annals of biomedical engineering*
  Morimoto, T. K., Greer, J. D., Hawkes, E. W., Hsieh, M. H., Okamura, A. M.
  2018
- **Haptic Dimensions of Human-Robot Interaction** *ACM TRANSACTIONS ON HUMAN-ROBOT INTERACTION*
  Okamura, A. M.
  2018; 7 (1)
- **A Tip-Extending Soft Robot Enables Reconfigurable and Deployable Antennas** *IEEE ROBOTICS AND AUTOMATION LETTERS*
  Blumenschein, L. H., Gan, L. T., Fan, J. A., Okamura, A. M., Hawkes, E. W.
  2018; 3 (2): 949–56

- **Comparing Proprioceptive Acuity in the Arm between Joint Space and Task Space**
  Sketch, S. M., Bastian, A. J., Okamura, A. M.
  edited by Kuchenbecker, K. J., Gerling, G. J., Visell, Y.
  IEEE.2018: 125–32

- **A Social Haptic Device to Create Continuous Lateral Motion using Sequential Normal Indentation**
  Culbertson, H., Nunez, C. M., Israr, A., Lau, F., Abnousi, F., Okamura, A. M.
  edited by Kuchenbecker, K. J., Gerling, G. J., Visell, Y.
  IEEE.2018: 32–39

- **HapWRAP: Soft Growing Wearable Haptic Device**
  Agharese, N., Cloyd, T., Blumenschein, L. H., Raitor, M., Hawkes, E. W., Culbertson, H., Okamura, A. M., IEEE
  IEEE COMPUTER SOC.2018: 5466–72

- **Scaling Inertial Forces to Alter Weight Perception in Virtual Reality**
  Suchoski, J. M., Martinez, S., Okamura, A. M., IEEE
  IEEE COMPUTER SOC.2018: 484–89

- **Effects of Latency and Refresh Rate on Force Perception via Sensory Substitution by Force-Controlled Skin Deformation Feedback**
  Zook, Z. A., Okamura, A. M., Kamikawa, Y., IEEE
  IEEE COMPUTER SOC.2018: 506–11

- **APAM: Antagonistic Pneumatic Artificial Muscle**
  Usevitch, N. S., Okamura, A. M., Hawkes, E. W., IEEE
  IEEE COMPUTER SOC.2018: 1539–46

- **Avoiding Human-Robot Collisions using Haptic Communication**
  Che, Y., Sun, C. T., Okamura, A. M., IEEE
  IEEE COMPUTER SOC.2018: 5828–34

- **Magnified Force Sensory Substitution for Telemanipulation via Force-Controlled Skin Deformation**
  Kamikawa, Y., Enayati, N., Okamura, A. M., IEEE
  IEEE COMPUTER SOC.2018: 4142–48

- **Robotic Assistance-as-Needed for Enhanced Visuomotor Learning in Surgical Robotics Training: An Experimental Study**
  Enayati, N., Okamura, A. M., Mariani, A., Pellegrini, E., Coad, M. M., Ferrigno, G., De Momi, E., IEEE
  IEEE COMPUTER SOC.2018: 6631–36

- **Development and Evaluation of an Intuitive Flexible Interface for Teleoperating Soft Growing Robots**
  El-Hussieny, H., Mehmood, U., Mehdi, Z., Jeong, S., Usman, M., Hawkes, E. W., Okamura, A. M., Ryu, J., Kosecka, J.
  edited by Maciejewski, A. A., Okamura, A., Bicchi, A., Stachniss, C., Song, D. Z., Lee, D. H., Chaumette, F., Ding, H., Li, J. S., Wen, J., Roberts, J., Masamune, K., Chong, N. Y., Amato, N., Tsagwarakis, N., Rocco, P., Asfour, T., Chung, W. K., Yasuyoshi, Y., Sun, Y., Maciekeski, T., Althoefer, K., AndradeCetto, J., Chung, W. K., Demircan, E., Dias, J., Fraisse, P., Gross, R., Harada, H., Hasegawa, Y., Hayashibe, M., Kiguchi, K., Kim, K., Kroeger, T., Li, Y., Ma, S., Mochiyama, H., Monje, C. A., Rekleitis, Roberts, R., Stulp, F., Tsai, C. H., Zollo, L.
  IEEE.2018: 4995–5002

- **Gaussian Process Dynamic Programming for Optimizing Ungrounded Haptic Guidance**
  Walker, J. M., Okamura, A. M., Kochenderfer, M. J., Kosecka, J.
  edited by Maciejewski, A. A., Okamura, A., Bicchi, A., Stachniss, C., Song, D. Z., Lee, D. H., Chaumette, F., Ding, H., Li, J. S., Wen, J., Roberts, J., Masamune, K., Chong, N. Y., Amato, N., Tsagwarakis, N., Rocco, P., Asfour, T., Chung, W. K., Yasuyoshi, Y., Sun, Y., Maciekeski, T., Althoefer, K., AndradeCetto, J., Chung, W. K., Demircan, E., Dias, J., Fraisse, P., Gross, R., Harada, H., Hasegawa, Y., Hayashibe, M., Kiguchi, K., Kim, K., Kroeger, T., Li, Y., Ma, S., Mochiyama, H., Monje, C. A., Rekleitis, Roberts, R., Stulp, F., Tsai, C. H., Zollo, L.
  IEEE.2018: 8758–64

- **Haptics: The Present and Future of Artificial Touch Sensation** *ANNUAL REVIEW OF CONTROL, ROBOTICS, AND AUTONOMOUS SYSTEMS, VOL 1*
  Culbertson, H., Schorr, S. B., Okamura, A. M.
  edited by Leonard, N. E.
  2018; 1: 385–409

- **A Social Haptic Device to Create Continuous Lateral Motion using Sequential Normal Indentation**
  Culbertson, H., Nunez, C. M., Israr, A., Lau, F., Abnousi, F., Okamura, A. M.
  edited by Kuchenbecker, K. J., Gerling, G. J., Visell, Y.
  IEEE.2018: 32–39
- **A soft robot that navigates its environment through growth.** *Science robotics*
  Hawkes, E. W., Blumenschein, L. H., Greer, J. D., Okamura, A. M.
  2017; 2 (8)
- **Highly Articulated Robotic Needle Achieves Distributed Ablation of Liver Tissue.** *IEEE robotics and automation letters*
  Gerboni, G., Greer, J. D., Laeseke, P. F., Hwang, G. L., Okamura, A. M.
  2017; 2 (3): 1367-1374
- **Design of a Compact Actuation and Control System for Flexible Medical Robots.** *IEEE robotics and automation letters*
  Morimoto, T. K., Hawkes, E. W., Okamura, A. M.
  2017; 2 (3): 1579-1585
- **Series Pneumatic Artificial Muscles (sPAMs) and Application to a Soft Continuum Robot.** *IEEE International Conference on Robotics and Automation : ICRA : [proceedings]. IEEE International Conference on Robotics and Automation*
  Greer, J. D., Morimoto, T. K., Okamura, A. M., Hawkes, E. W.
  2017; 2017: 5503–10
- **Three-dimensional skin deformation as force substitution: Wearable device design and performance during haptic exploration of virtual environments.** *IEEE transactions on haptics*
  Schorr, S. B., Okamura, A.
  2017
- **Deformable Model-Based Methods for Shape Control of a Haptic Jamming Surface.** *IEEE transactions on visualization and computer graphics*
  Stanley, A. A., Okamura, A. M.
  2017; 23 (2): 1029-1041
- **Perception of force and stiffness in the presence of low-frequency haptic noise.** *PloS one*
  Gurari, N., Okamura, A. M., Kuchenbecker, K. J.
  2017; 12 (6)
- **Haptic Orientation Guidance Using Two Parallel Double-Gimbal Control Moment Gyroscopes.** *IEEE transactions on haptics*
  Walker, J. n., Culbertson, H. n., Raitor, M. n., Okamura, A. n.
  2017
- **Open Source, Modular, Customizable, 3-D Printed Kinesthetic Haptic Devices**
  Martinez, M., Campion, J., Gholami, T., Rittikaidachar, M. K., Barron, A. C., Okamura, A. M., Gerling, G.
  edited by Otaduy, M. A., Ryu, J. H.
  IEEE.2017: 142–47
- **Design of Patient-Specific Concentric Tube Robots Using Path Planning from 3-D Ultrasound**
  Morimoto, T. K., Cerrolaza, J. J., Hsieh, M. H., Cleary, K., Okamura, A. M., Linguraru, M., IEEE
  IEEE.2017: 165–68
- **Simulating the impact of sensorimotor deficits on reaching performance**
  Sketch, S. M., Simpson, C. S., Crevecoeur, F., Okamura, A. M.
  edited by Amirabdollahian, F., Burdet, E., Masia, L.
  IEEE.2017: 31–37
- **Fingertip Tactile Devices for Virtual Object Manipulation and Exploration**
  Schorr, S. B., Okamura, A. M., ACM
  ASSOC COMPUTING MACHINERY.2017: 3115–19
- **WAVES: A Wearable Asymmetric Vibration Excitation System for Presenting Three-Dimensional Translation and Rotation Cues**
  Culbertson, H., Walker, J. M., Raitor, M., Okamura, A. M., ACM
  ASSOC COMPUTING MACHINERY.2017: 4972–82

- **Design of a Soft Catheter for Low-Force and Constrained Surgery**
  Slade, P., Gruebele, A., Hammond, Z., Raitor, M., Okamura, A. M., Hawkes, E. W.
  edited by Bicchi, A., Okamura, A.
  IEEE.2017: 174–80
- **Analysis of Effective Impedance Transmitted to the Operator in Position-Exchange Bilateral Teleoperation**
  Colonnese, N., Okamura, A. M., Gerling, G.
  edited by Otaduy, M. A., Ryu, J. H.
  IEEE.2017: 328–33
- **Propagation of Joint Space Quantization Error to Operational Space Coordinates and Their Derivatives**
  Colonnese, N., Okamura, A. M.
  edited by Bicchi, A., Okamura, A.
  IEEE.2017: 2054–61
- **Training in Divergent and Convergent Force Fields During 6-DOF Teleoperation with a Robot-Assisted Surgical System**
  Coad, M. M., Okamura, A. M., Wren, S., Mintz, Y., Lendvay, T. S., Jarc, A. M., Nisky, I., Gerling, G.
  edited by Otaduy, M. A., Ryu, J. H.
  IEEE.2017: 195–200
- **Design of 3-D Printed Concentric Tube Robots** *IEEE TRANSACTIONS ON ROBOTICS*
  Morimoto, T. K., Okamura, A. M.
  2016; 32 (6): 1419-1430
- **Design of 3-D Printed Concentric Tube Robots.** *IEEE transactions on robotics : a publication of the IEEE Robotics and Automation Society*
  Morimoto, T. K., Okamura, A. M.
  2016; 32 (6): 1419-1430
- **Stability and quantization-error analysis of haptic rendering of virtual stiffness and damping** *INTERNATIONAL JOURNAL OF ROBOTICS RESEARCH*
  Colonnese, N., Okamura, A.
  2016; 35 (9): 1103-1120
- **Methods for Improving the Curvature of Steerable Needles in Biological Tissue** *IEEE TRANSACTIONS ON BIOMEDICAL ENGINEERING*
  Adebar, T. K., Greer, J. D., Laeseke, P. F., Hwang, G. L., Okamura, A. M.
  2016; 63 (6): 1167-1177
- **Surgeon Design Interface for Patient-Specific Concentric Tube Robots.** *Proceedings of the ... IEEE/RAS-EMBS International Conference on Biomedical Robotics and Biomechatronics. IEEE/RAS-EMBS International Conference on Biomedical Robotics and Biomechatronics*
  Morimoto, T. K., Greer, J. D., Hsieh, M. H., Okamura, A. M.
  2016; 2016: 41-48
- **A Framework for Multilateral Manipulation in Surgical Tasks** *IEEE TRANSACTIONS ON AUTOMATION SCIENCE AND ENGINEERING*
  Nichols, K. A., Okamura, A. M.
  2016; 13 (1): 68-77
- **Motor learning affects car-to-driver handover in automated vehicles.** *Science robotics*
  Russell, H. E., Harbott, L. K., Nisky, I. n., Pan, S. n., Okamura, A. M., Gerdes, J. C.
  2016; 1 (1)
- **Tactor-Induced Skin Stretch as a Sensory Substitution Method in Teleoperated Palpation** *IEEE TRANSACTIONS ON HUMAN-MACHINE SYSTEMS*
  Schorr, S. B., Quek, Z. F., Nisky, I., Provancher, W. R., Okamura, A. M.
  2015; 45 (6): 714-726
- **Rendered and Characterized Closed-Loop Accuracy of Impedance-Type Haptic Displays** *IEEE TRANSACTIONS ON HAPTICS*
  Colonnese, N., Siu, A. F., Abbott, C. M., Okamura, A. M.
  2015; 8 (4): 434-446
- **M-Width: Stability, noise characterization, and accuracy of rendering virtual mass** *INTERNATIONAL JOURNAL OF ROBOTICS RESEARCH*

Colonnese, N., Okamura, A. M.
2015; 34 (6): 781-798

- **Remote Electromagnetic Vibration of Steerable Needles for Imaging in Power Doppler Ultrasound.** *IEEE International Conference on Robotics and Automation : ICRA : [proceedings]. IEEE International Conference on Robotics and Automation*
  Cabreros, S. S., Jimenez, N. M., Greer, J. D., Adebar, T. K., Okamura, A. M.
  2015; 2015: 2244-2249
- **Sensory Substitution and Augmentation Using 3-Degree-of-Freedom Skin Deformation Feedback** *IEEE TRANSACTIONS ON HAPTICS*
  Quek, Z. F., Schorr, S. B., Nisky, I., Provancher, W. R., Okamura, A. M.
  2015; 8 (2): 209-221
- **Methods to Segment Hard Inclusions in Soft Tissue During Autonomous Robotic Palpation** *IEEE TRANSACTIONS ON ROBOTICS*
  Nichols, K. A., Okamura, A. M.
  2015; 31 (2): 344-354
- **Artificial Tactile Sensing of Position and Slip Speed by Exploiting Geometrical Features** *IEEE-ASME TRANSACTIONS ON MECHATRONICS*
  Damian, D. D., Newton, T. H., Pfeifer, R., Okamura, A. M.
  2015; 20 (1): 263-274
- **Uncontrolled Manifold Analysis of Arm Joint Angle Variability During Robotic Teleoperation and Freehand Movement of Surgeons and Novices** *IEEE TRANSACTIONS ON BIOMEDICAL ENGINEERING*
  Nisky, I., Hsieh, M. H., Okamura, A. M.
  2014; 61 (12): 2869-2881
- **Testing models of cerebellar ataxia via dynamic simulation.** *Robotica*
  Grow, D., Bastian, A. J., Okamura, A. M.
  2014; 32 (8): 1383-1397
- **3-D ultrasound-guided robotic needle steering in biological tissue.** *IEEE transactions on bio-medical engineering*
  Adebar, T. K., Fletcher, A. E., Okamura, A. M.
  2014; 61 (12): 2899-2910
- **Uncontrolled manifold analysis of arm joint angle variability during robotic teleoperation and freehand movement of surgeons and novices.** *IEEE transactions on bio-medical engineering*
  Nisky, I., Hsieh, M. H., Okamura, A. M.
  2014; 61 (12): 2869-2881
- **Testing models of cerebellar ataxia via dynamic simulation** *ROBOTICA*
  Grow, D., Bastian, A. J., Okamura, A. M.
  2014; 32 (8): 1383-1397
- **3-D Ultrasound-Guided Robotic Needle Steering in Biological Tissue** *IEEE TRANSACTIONS ON BIOMEDICAL ENGINEERING*
  Adebar, T. K., Fletcher, A. E., Okamura, A. M.
  2014; 61 (12): 2899-2910
- **Augmentation Of Stiffness Perception With a 1-Degree-of-Freedom Skin Stretch Device** *IEEE TRANSACTIONS ON HUMAN-MACHINE SYSTEMS*
  Quek, Z. F., Schorr, S. B., Nisky, I., Okamura, A. M., Provancher, W. R.
  2014; 44 (6): 731-742
- **Torsional Dynamics of Steerable Needles: Modeling and Fluoroscopic Guidance** *IEEE TRANSACTIONS ON BIOMEDICAL ENGINEERING*
  Swensen, J. P., Lin, M., Okamura, A. M., Cowan, N. J.
  2014; 61 (11): 2707-2717
- **Torsional dynamics of steerable needles: modeling and fluoroscopic guidance.** *IEEE transactions on bio-medical engineering*
  Swensen, J. P., Lin, M., Okamura, A. M., Cowan, N. J.
  2014; 61 (11): 2707-2717
- **Neural coding of passive lump detection in compliant artificial tissue.** *Journal of neurophysiology*
  Gwilliam, J. C., Yoshioka, T., Okamura, A. M., Hsiao, S. S.

2014; 112 (5): 1131-1141

- **Effects of robotic manipulators on movements of novices and surgeons** *SURGICAL ENDOSCOPY AND OTHER INTERVENTIONAL TECHNIQUES*
  Nisky, I., Okamura, A. M., Hsieh, M. H.
  2014; 28 (7): 2145-2158
- **Predicting and correcting ataxia using a model of cerebellar function** *BRAIN*
  Bhanpuri, N. H., Okamura, A. M., Bastian, A. J.
  2014; 137: 1931-1944
- **Predicting and correcting ataxia using a model of cerebellar function.** *Brain*
  Bhanpuri, N. H., Okamura, A. M., Bastian, A. J.
  2014; 137: 1931-1944
- **Task-dependent impedance and implications for upper-limb prosthesis control** *INTERNATIONAL JOURNAL OF ROBOTICS RESEARCH*
  Blank, A. A., Okamura, A. M., Whitcomb, L. L.
  2014; 33 (6): 827-846
- **Grip Force Control during Virtual ObjectInteraction: Effect of Force Feedback,Accuracy Demands, and Training.** *IEEE transactions on haptics*
  Gibo, T. L., Bastian, A. J., Okamura, A. M.
  2014; 7 (1): 37-47
- **Haptic feedback enhances rhythmic motor control by reducing variability, not improving convergence rate.** *Journal of neurophysiology*
  Ankarali, M. M., Tutkun Sen, H., De, A., Okamura, A. M., Cowan, N. J.
  2014; 111 (6): 1286-1299
- **Effects of robotic manipulators on movements of novices and surgeons.** *Surgical endoscopy*
  Nisky, I., Okamura, A. M., Hsieh, M. H.
  2014
- **Mapping stiffness perception in the brain with an fMRI-compatible particle-jamming haptic interface.** *Conference proceedings : ... Annual International Conference of the IEEE Engineering in Medicine and Biology Society. IEEE Engineering in Medicine and Biology Society. Annual Conference*
  Menon, S., Stanley, A. A., Zhu, J., Okamura, A. M., Khatib, O.
  2014; 2014: 2051-2056
- **Real-Time 3D Curved Needle Segmentation Using Combined B-Mode and Power Doppler Ultrasound** *17th International Conference on Medical Image Computing and Computer-Assisted Intervention (MICCAI)*
  Greer, J. D., Adebar, T. K., Hwang, G. L., Okamura, A. M.
  SPRINGER-VERLAG BERLIN.2014: 381–388
- **Real-time 3D curved needle segmentation using combined B-mode and power Doppler ultrasound.** *Medical image computing and computer-assisted intervention : MICCAI ... International Conference on Medical Image Computing and Computer-Assisted Intervention*
  Greer, J. D., Adebar, T. K., Hwang, G. L., Okamura, A. M.
  2014; 17: 381-388
- **Integration of a Particle Jamming Tactile Display with a Cable-Driven Parallel Robot** *9th International Conference of the EuroHaptics on Neuroscience, Devices, Modeling, and Applications*
  Stanley, A. A., Mayhew, D., Irwin, R., Okamura, A. M.
  SPRINGER-VERLAG BERLIN.2014: 258–265
- **Recursive Estimation of Needle Pose for Control of 3D-Ultrasound-Guided Robotic Needle Steering** *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*
  Adebar, T. K., Okamura, A. M.
  IEEE.2014: 4303–4308
- **Cerebellar ataxia impairs modulation of arm stiffness during postural maintenance** *JOURNAL OF NEUROPHYSIOLOGY*
  Gibo, T. L., Bastian, A. J., Okamura, A. M.
  2013; 110 (7): 1611-1620

- **Predictive modeling by the cerebellum improves proprioception.** *journal of neuroscience*
  Bhanpuri, N. H., Okamura, A. M., Bastian, A. J.
  2013; 33 (36): 14301-14306
- **Cerebellar motor learning: are environment dynamics more important than error size?** *JOURNAL OF NEUROPHYSIOLOGY*
  Gibo, T. L., Criscimagna-Hemminger, S. E., Okamura, A. M., Bastian, A. J.
  2013; 110 (2): 322-333
- **Novel algorithm for real-time onset detection of surface electromyography in step-tracking wrist movements.** *Conference proceedings : ... Annual International Conference of the IEEE Engineering in Medicine and Biology Society. IEEE Engineering in Medicine and Biology Society. Conference*
  Kuroda, Y., Nisky, I., Uranishi, Y., Imura, M., Okamura, A. M., Oshiro, O.
  2013; 2013: 2056-2059
- **The effect of a robot-assisted surgical system on the kinematics of user movements.** *Conference proceedings : ... Annual International Conference of the IEEE Engineering in Medicine and Biology Society. IEEE Engineering in Medicine and Biology Society. Conference*
  Nisky, I., Hsieh, M. H., Okamura, A. M.
  2013; 2013: 6257-6260
- **Adaptation to visuomotor rotation in isometric reaching is similar to movement adaptation.** *IEEE ... International Conference on Rehabilitation Robotics : [proceedings]*
  Rotella, M. F., Koehler, M., Nisky, I., Bastian, A. J., Okamura, A. M.
  2013; 2013: 1-6
- **Effect of age on stiffness modulation during postural maintenance of the arm.** *IEEE ... International Conference on Rehabilitation Robotics : [proceedings]*
  Gibo, T. L., Bastian, A. J., Okamura, A. M.
  2013; 2013: 1-6
- **Characterization and Psychophysical Studies of an Air-Jet Lump Display** *IEEE TRANSACTIONS ON HAPTICS*
  Gwilliam, J. C., Bianchi, M., Su, L. K., Okamura, A. M.
  2013; 6 (2): 156-166
- **Characterization and psychophysical studies of an air-jet lump display.** *IEEE transactions on haptics*
  Gwilliam, J. C., Bianchi, M., Su, L. K., Okamura, A. M.
  2013; 6 (2): 156-166
- **Does a basic deficit in force control underlie cerebellar ataxia?** *JOURNAL OF NEUROPHYSIOLOGY*
  Charles, S. K., Okamura, A. M., Bastian, A. J.
  2013; 109 (4): 1107-1116
- **Coaxial Needle Insertion Assistant With Enhanced Force Feedback** *IEEE TRANSACTIONS ON BIOMEDICAL ENGINEERING*
  De Lorenzo, D., Koseki, Y., De Momi, E., Chinzei, K., Okamura, A. M.
  2013; 60 (2): 379-389
- **Kinematic analysis of motor performance in robot-assisted surgery: a preliminary study.** *Studies in health technology and informatics*
  Nisky, I., Patil, S., Hsieh, M. H., Okamura, A. M.
  2013; 184: 302-308
- **Sensory Substitution via Cutaneous Skin Stretch Feedback** *IEEE International Conference on Robotics and Automation (ICRA)*
  Schorr, S. B., Quek, Z. F., Romano, R. Y., Nisky, I., Provancher, W. R., Okamura, A. M.
  IEEE.2013: 2341–2346
- **Sensorimotor Performance in Robot Assisted Surgery.**
  Nisky, I., Hsieh, M., H., Okamura, A., M.
  2013
- **Arm Stiffness in Patients with Cerebellar Ataxia: Modulation during Postural Maintenance and its Subsequent Effects on Movement.**
  Gibo, T., L., Bastian, A., J., Okamura, A., M.
  2013

- **Sensory Substitution via Cutaneous Skin Stretch Feedback.**
  Schorr, S., B., Quek, Z., F., Romano, R., Y., Nisky, I., Provancher, W., R., Okamura, A., M.
  2013
- **A Haptic System for Educational Games: Design and Application-Specific Kinematic Optimization.**
  Kessler, J., A., Lovelace, R., C., Okamura, A., M.
  2013
- **A Framework for Analysis of Surgeon Arm Posture Variability in Robot-Assisted Surgery.**
  Nisky, I., Hsieh, M., H., Okamura, A., M.
  2013
- **Haptic Jamming: A Deformable Geometry, Variable Stiffness Tactile Display using Pneumatics and Particle Jamming** *IEEE World Haptics Conference (WHC)*
  Stanley, A. A., Gwilliam, J. C., Okamura, A. M.
  IEEE.2013: 25–30
- **Sensory Augmentation of Stiffness using Fingerpad Skin Stretch** *IEEE World Haptics Conference (WHC)*
  Quek, Z. F., Schorr, S. B., Nisky, I., Okamura, A. M., Provancher, W. R.
  IEEE.2013: 467–472
- **Cartesian and Joint Space Teleoperation for Nonholonomic Steerable Needles** *IEEE World Haptics Conference (WHC)*
  Majewicz, A., Okamura, A. M.
  IEEE.2013: 395–400
- **Novel Algorithm for Real-Time Onset Detection of Surface Electromyography in Step-Tracking Wrist Movements.**
  Kuroda, Y., Nisky, I., Uranishi, Y., Imura, M., Okamura, A., M., Oshiro, O.
  2013
- **Cerebellar Ataxia Impairs Modulation of Arm Stiffness during Postural Maintenance.** *Journal of Neurophysiology*
  Gibo, T., L., Bastian, A., J., Okamura, A., M.
  2013; 7 (110): 1611-1620
- **A Haptic Display for Medical Simulation Using Particle Jamming.** *Medicine Meets Virtual Reality (Studies in Health Technology and Information).*
  Stanley, A., Gwilliam, J., C., Okamura, A., M.
  2013
- **3D Segmentation of Curved Needles using Doppler Ultrasound and Vibration.** *Information Processing in Computer-Assisted Interventions*
  Adebar, T., K., Okamura, A., M.
  2013: 61-70
- **Kinematic Analysis of Motor Performance in Robot-Assisted Surgery: Implications for Robot Design and Surgical Training.**
  Nisky, I., Patil, S., Hsieh, M., H., Okamura, A., M.
  2013
- **Robot-Guided Sheaths (RoGS) for Percutaneous Access to the Pedatric Kidney: Patient-Specific Design and Preliminary Results.**
  Morimoto, T., K., Hsieh, M., H., Okamura, A., M.
  2013
- **Effect of Age on Stiffness Modulation during Postural Maintenance of the Arm.**
  Gibo, T., L., Bastian, A., J., Okamura, A., M.
  2013
- **Autonomous Robotic Palpation: Machine Learning Techniques to Identify Hard Inclusions in Soft Tissues.**
  Nichols, K., A., Okamura, A., M.
  2013
- **Adaptation to Visuomotor Rotation in Isometric Virtual Reaching Parallels Learning in Movement.**
  Rotella, M., F., Koehler, M., Nisky, I., Bastian, A., J., Okamura, A., M.
  2013

- **3D Segmentation of Curved Needles using Doppler Ultrasound and Vibration.** *Information Processing in Computer-Assisted Interventions*
  Adebar, T., K., Okamura, A., M.
  2013: 61-70
- **Transfer of isometric motor learning depends on the mapping of force input to cursor movement.**
  Rotella, M., F., Koehler, M., Nisky, I., Bastian, A., J., Okamura, A., M.
  2013
- **Tissue Fixation by Suction Increases the Accuracy of Robotic Needle Insertion.**
  Wedlick, T., R., Lin, D., J., Okamura, A., M.
  2013
- **Model-Mediated Teleoperation with Predictive Models and Relative Tracking.**
  Wedlick, R., C., Okamura, A., M.
  2013
- **Grip Force Control During Virtual Object Interaction: Effect of Force Feedback, Accuracy Demands, and Training.** *IEEE Transactions on Haptics*
  Gibo, T., L., Bastian, A., J., Okamura, A., M.
  2013
- **Perception of Springs With Visual and Proprioceptive Motion Cues: Implications for Prosthetics** *IEEE TRANSACTIONS ON HUMAN-MACHINE SYSTEMS*
  Gurari, N., Kuchenbecker, K. J., Okamura, A. M.
  2013; 43 (1): 102-114
- **3D Segmentation of Curved Needles using Doppler Ultrasound and Vibration.** *Information Processing in Computer-Assisted Interventions*
  Adebar, T., K., Okamura, A., M.
  2013: 61-70
- **Transfer of isometric motor learning depends on the mapping of force input to cursor movement.**
  Rotella, M., F., Koehler, M., Nisky, I., Bastian, A., J., Okamura, A., M.
  2013
- **Tissue Fixation by Suction Increases the Accuracy of Robotic Needle Insertion.**
  Wedlick, T., R., Lin, D., J., Okamura, A., M.
  2013
- **Model-Mediated Teleoperation with Predictive Models and Relative Tracking.**
  Wedlick, R., C., Okamura, A., M.
  2013
- **Grip Force Control During Virtual Object Interaction: Effect of Force Feedback, Accuracy Demands, and Training.** *IEEE Transactions on Haptics*
  Gibo, T., L., Bastian, A., J., Okamura, A., M.
  2013
- **Perception of Springs With Visual and Proprioceptive Motion Cues: Implications for Prosthetics** *IEEE TRANSACTIONS ON HUMAN-MACHINE SYSTEMS*
  Gurari, N., Kuchenbecker, K. J., Okamura, A. M.
  2013; 43 (1): 102-114
- **Behavior of Tip-Steerable Needles in Ex Vivo and In Vivo Tissue** *IEEE TRANSACTIONS ON BIOMEDICAL ENGINEERING*
  Majewicz, A., Marra, S. P., van Vledder, M. G., Lin, M., Choti, M. A., Song, D. Y., Okamura, A. M.
  2012; 59 (10): 2705-2715
- **Active force perception depends on cerebellar function** *JOURNAL OF NEUROPHYSIOLOGY*
  Bhanpuri, N. H., Okamura, A. M., Bastian, A. J.
  2012; 107 (6): 1612-1620

- **Augmented reality and haptic interfaces for robot-assisted surgery** *INTERNATIONAL JOURNAL OF MEDICAL ROBOTICS AND COMPUTER ASSISTED SURGERY*
  Yamamoto, T., Abolhassani, N., Jung, S., Okamura, A. M., Judkins, T. N.
  2012; 8 (1): 45-56
- **User comprehension of task performance with varying impedance in a virtual prosthetic arm: A pilot study** *4th IEEE RAS and EMBS International Conference on Biomedical Robotics and Biomechatronics (BioRob) / Symposium on Surgical Robotics*
  Blank, A., Okamura, A. M., Whitcomb, L. L.
  IEEE.2012: 500–507
- **Haptic Footstep Display.**
  Jayakumar, R., P., Mishra, S., K., Dannenhoffer, J., F., Okamura, A., M.
  2012
- **Development of the KineSys MedSim: A Novel Hands-Free Haptic Robot for Medical Simulation.** *Medicine Meets Virtual Reality (Studies in Health Technology and Information).*
  Judkins, T., N., Stevenson, M., Mayhew, D., Okamura, A., M.
  2012
- **Haptic feedback enhances rhythmic motor control performance.**
  Ankarali, M., Mert, Sen, H., Tutkun, Okamura, Allison, M., Cowan, Noah, J.
  2012
- **Predicting and correcting human ataxia using a model of cerebellar function.**
  Bhanpuri, N., Okamura, A., M., Bastian, A., J.
  2012
- **HAPI Bands: A Haptic Augmented Posture Interface.**
  Rotella, M., F., Guerin, K., He, X., Okamura, A., M.
  2012
- **Design and Control of an Air-Jet Lump Display.**
  Gwilliam, J., C., Degirmenci, A., Bianchi, M., Okamura, A., M.
  2012
- **Conveying the Configuration of a Virtual Human Hand Using Vibrotactile Feedback.**
  Cheng, A., Nichols, K., A., Weeks, H., M., Gurari, N., Okamura, A., M.
  2012
- **M-Width: Stability and Accuracy of Haptic Rendering of Virtual Mass.** *In Robotics: Science and Systems.*
  Colonnese, N., Okamura, A., M.
  2012
- **Discrimination of Springs with Vision, Proprioception, and Artificial Skin Stretch Cues.**
  Gurari, N., Wheeler, J., Shelton, A., Okamura, A., M.
  2012
- **Augmented Reality and Haptic Interfaces for Robot-Assisted Surgery.** *International Journal of Medical Robotics and Computer Assisted Surgery*
  Yamamoto, T., Abolhassani, N., Jung, S., Okamura, A., M., Judkins, T., N.
  2012; 1 (8): 45-46
- **Characterization of Robotic Needle Insertion and Rotation in Artificial and Ex Vivo Tissues** *4th IEEE RAS and EMBS International Conference on Biomedical Robotics and Biomechatronics (BioRob) / Symposium on Surgical Robotics*
  Wedlick, T. R., Okamura, A. M.
  IEEE.2012: 62–68
- **Wearable Haptic Device for Cutaneous Force and Slip Speed Display** *IEEE International Conference on Robotics and Automation (ICRA)*
  Damian, D. D., Ludersdorfer, M., Kim, Y., Arieta, A. H., Pfeifer, R., Okamura, A. M.
  IEEE.2012: 1038–1043

- **Robot-Assisted Needle Steering** *IEEE ROBOTICS & AUTOMATION MAGAZINE*
  Reed, K. B., Majewicz, A., Kallem, V., Alterovitz, R., Goldberg, K., Cowan, N. J., Okamura, A. M.
  2011; 18 (4): 35-46
- **Haptics in Medicine and Clinical Skill Acquisition** *IEEE TRANSACTIONS ON HAPTICS*
  Okamura, A. M., Basdogan, C., Baillie, S., Harwin, W. S.
  2011; 4 (3): 153-154
- **Experimental evaluation of a coaxial needle insertion assistant with enhanced force feedback** *33rd Annual International Conference of the IEEE Engineering-in-Medicine-and-Biology-Society (EMBS)*
  De Lorenzo, D., Koseki, Y., De Momi, E., Chinzei, K., Okamura, A. M.
  IEEE.2011: 3447–3450
- **Robotic Needle Steering: Design, Modeling, Planning, and Image Guidance.** *In Surgical Robotics - Systems, Applications, and Visions.*
  Cowan, N., J., Goldberg, K., Chirikjian, G., S., Fichtinger, G., Alterovitz, R., Reed, K., B., Okamura, A. M.
  edited by Rosen, J., Hannaford, B., Satava, R.
  Springer.2011: 557–582
- **Task-Dependent Impedance Improves User Performance with a Virtual Prosthetic Arm** *IEEE International Conference on Robotics and Automation (ICRA)*
  Blank, A., Okamura, A. M., Whitcomb, L. L.
  IEEE.2011: 2235–2242
- **Characterization of an Air Jet Haptic Lump Display** *33rd Annual International Conference of the IEEE Engineering-in-Medicine-and-Biology-Society (EMBS)*
  Bianchi, M., Gwilliam, J. C., Degirmenci, A., Okamura, A. M.
  IEEE.2011: 3467–3470
- **Assessing the Quality of Force Feedback in Soft Tissue Simulation** *33rd Annual International Conference of the IEEE Engineering-in-Medicine-and-Biology-Society (EMBS)*
  Basafa, E., Sefati, S., Okamura, A. M.
  IEEE.2011: 3451–3454
- **Gradual anisometric-isometric transition for human-machine interfaces** *33rd Annual International Conference of the IEEE Engineering-in-Medicine-and-Biology-Society (EMBS)*
  Gibo, T. L., Rotella, M. F., Bastian, A. J., Okamura, A. M.
  IEEE.2011: 4507–4510
- **Robot-Assisted Steerable Needles: Prototype Development and Feasibility Studies in an Animal Model.**
  Vledder, Mark, G. Van, Majewicz, A., Marra, Steven, P., Song, Danny, Y., Okamura, Allison, M., Choti, M. A.
  2011
- **Do Cerebellar Patients Generalize after Abrupt or Gradual Motor Learning?**
  Gibo, T., L., Okamura, A., M., Bastian, A., J.
  2011
- **Cerebellar predictions underlie the improvement of proprioceptive precision in active versus passive movements.**
  Bhanpuri, N., Okamura, A., M., Bastian, A., J.
  2011
- **Task-Dependent Impedance Improves User Performance with a Virtual Prosthetic Arm.**
  Blank, A., Okamura, A., M., Whitcomb, L., L.
  2011
- **Characterization of an Air Jet Haptic Lump Display.**
  Bianchi, M., Gwilliam, J., C., Degirmenci, A., Okamura, A., M.
  2011
- **Cutaneous Force Display via Shaped Contacts.**
  Ludersdorfer, M., Damian, D., D., Arieta, A., Hernandez, Pfeifer, R., Okamura, A., M.

2011

- **Force Feedback and Sensory Substitution for Robot-Assisted Surgery.** *Surgical Robotics - Systems, Applications, and Visions*
  Okamura, A., M., Verner, L., N., Yamamoto, T., Gwilliam, J., C., Griffiths, P., G.
  2011: 419-448

- **Coaxial Needle Insertion Assistant for Epidural Puncture** *IEEE/RSJ International Conference on Intelligent Robots and Systems*
  Koseki, Y., De Lorenzo, D., Chinzei, K., Okamura, A. M.
  IEEE.2011

- **Design and Evaluation of a Multi-Modal Haptic Skin Stimulation Apparatus** *33rd Annual International Conference of the IEEE Engineering-in-Medicine-and-Biology-Society (EMBS)*
  Damian, D. D., Arieta, A. H., Okamura, A. M.
  IEEE.2011: 3455–3458

- **Mechanics of Flexible Needles Robotically Steered through Soft Tissue** *INTERNATIONAL JOURNAL OF ROBOTICS RESEARCH*
  Misra, S., REED, K. B., Schafer, B. W., Ramesh, K. T., Okamura, A. M.
  2010; 29 (13): 1640-1660

- **Identifying the Role of Proprioception in Upper-Limb Prosthesis Control: Studies on Targeted Motion** *ACM TRANSACTIONS ON APPLIED PERCEPTION*
  Blank, A., Okamura, A. M., Kuchenbecker, K. J.
  2010; 7 (3)

- **Plugfest 2009: Global Interoperability in Telerobotics and Telemedicine.** *IEEE International Conference on Robotics and Automation : ICRA : [proceedings]. IEEE International Conference on Robotics and Automation*
  King, H. H., Hannaford, B., Kwok, K. W., Yang, G. Z., Griffiths, P., Okamura, A., Farkhatdinov, I., Ryu, J. H., Sankaranarayanan, G., Arikatla, V., Tadano, K., Kawashima, K., Peer, et al
  2010; 2010: 1733-1738

- **Evaluation of Robotic Needle Steering in ex vivo Tissue.** *IEEE International Conference on Robotics and Automation : ICRA : [proceedings]. IEEE International Conference on Robotics and Automation*
  Majewicz, A., Wedlick, T. R., Reed, K. B., Okamura, A. M.
  2010; 2010: 2068-2073

- **Evaluation of Robotic Needle Steering in ex vivo Tissue** *IEEE International Conference on Robotics and Automation (ICRA)*
  Majewicz, A., Wedlick, T. R., Reed, K. B., Okamura, A. M.
  IEEE.2010: 2068–2073

- **Medical and Healthcare Robotics: Achievements and Opportunities** *IEEE Robotics and Automation Magazine*
  Okamura, A., M., Mataric, M., J., Christensen, H., I.
  2010; 3 (17): 26-37

- **Neural coding of lump detection in soft tissue.**
  Gwilliam, J., C., Yoshioka, T., Okamura, A., M., Hsiao, S., S.
  2010

- **Plugfest 2009: Global Interoperability in Telerobotics and Telemedicine.**
  King, H., H., Hannaford, B., Kwok, K., W., Yang, G., Z., Griffiths, P., G., Okamura, A., M.
  2010

- **Modeling of Nonlinear Elastic Tissues for Surgical Simulation.** *Computer Methods in Biomechanics and Biomedical Engineering*
  Misra, S., Ramesh, K., T., Okamura, A., M.
  2010; 6 (13): 811-818

- **Haptics for Robot-Assisted Minimally Invasive Surgery** *13th International Symposium on Robotics Research (ISSR)*
  Okamura, A. M., Verner, L. N., Reiley, C. E., Mahvash, M.
  SPRINGER-VERLAG BERLIN.2010: 361–372

- **Haptic Feedback: Technology and Medical Applications.** *Handbook of Touch.*
  Okamura, A., M.

2010

- **A Proposed Method for Correcting Coordination Deficits: Models and Simulation.**
  Grow, D., I., Bhanpuri, N., H., Charles, S., K., Bastian, A., J., Okamura, A., M.
  2010
- **Defining Performance Tradeoffs for Multi-Degree-of-Freedom Bilateral Teleoperators with LQG Control** *49th IEEE Conference on Decision and Control (CDC)*
  Griffiths, P. G., Okamura, A. M.
  IEEE.2010: 3542–3547
- **Modelling of non-linear elastic tissues for surgical simulation** *COMPUTER METHODS IN BIOMECHANICS AND BIOMEDICAL ENGINEERING*
  Misra, S., Ramesh, K. T., Okamura, A. M.
  2010; 13 (6): 811-818
- **The Cerebellum Contributes to Constant and Dynamic Load Perception but not Position Perception.**
  Bhanpuri, N., H., Okamura, A., M., Bastian, A., J.
  2010
- **Defining Performance Tradeoffs for Multi-Degree-of-Freedom Bilateral Teleoperators with LQG Control.**
  Griffiths, P., G., Okamura, A., M.
  2010
- **Medical and Healthcare Robotics: Achievements and Opportunities** *IEEE Robotics and Automation Magazine*
  Okamura, A., M., Mataric, M., J., Christensen, H., I.
  2010; 3 (17): 26-37
- **Neural coding of lump detection in soft tissue.**
  Gwilliam, J., C., Yoshioka, T., Okamura, A., M., Hsiao, S., S.
  2010
- **Plugfest 2009: Global Interoperability in Telerobotics and Telemedicine.**
  King, H., H., Hannaford, B., Kwok, K., W., Yang, G., Z., Griffiths, P., G., Okamura, A., M.
  2010
- **Modeling of Nonlinear Elastic Tissues for Surgical Simulation.** *Computer Methods in Biomechanics and Biomedical Engineering*
  Misra, S., Ramesh, K., T., Okamura, A., M.
  2010; 6 (13): 811-818
- **Haptics for Robot-Assisted Minimally Invasive Surgery** *13th International Symposium on Robotics Research (ISSR)*
  Okamura, A. M., Verner, L. N., Reiley, C. E., Mahvash, M.
  SPRINGER-VERLAG BERLIN.2010: 361–372
- **Haptic Feedback: Technology and Medical Applications.** *Handbook of Touch.*
  Okamura, A., M.
  2010
- **Modeling and Control of Needles With Torsional Friction** *IEEE TRANSACTIONS ON BIOMEDICAL ENGINEERING*
  Reed, K. B., Okamura, A. M., Cowan, N. J.
  2009; 56 (12): 2905-2916
- **Feedback Control for Steering Needles Through 3D Deformable Tissue Using Helical Paths.** *Robotics science and systems : online proceedings*
  Hauser, K., Alterovitz, R., Chentanez, N., Okamura, A., Goldberg, K.
  2009; V: 37-?
- **Controlling a Robotically Steered Needle in the Presence of Torsional Friction.** *IEEE International Conference on Robotics and Automation : ICRA : [proceedings]. IEEE International Conference on Robotics and Automation*
  Reed, K. B., Okamura, A. M., Cowan, N. J.
  2009: 3476-3481

- **The importance of organ geometry and boundary constraints for planning of medical interventions** *MEDICAL ENGINEERING & PHYSICS*
  Misra, S., Macura, K. J., Ramesh, K. T., Okamura, A. M.
  2009; 31 (2): 195-206
- **Stiffness Discrimination with Visual and Proprioceptive Cues** *3rd Joint EuroHaptics Conference Symposium on Haptic Interfaces for Virtual Environment and Teleoperator Systems*
  Gurari, N., Kuchenbecker, K. J., Okamura, A. M.
  IEEE.2009: 121–126
- **Observations and Models for Needle-Tissue Interactions** *IEEE International Conference on Robotics and Automation*
  Misra, S., Reed, K. B., Schafer, B. W., Ramesh, K. T., Okamura, A. M.
  IEEE.2009: 3423–3428
- **Quantifying Perception of Nonlinear Elastic Tissue Models using Multidimensional Scaling** *3rd Joint EuroHaptics Conference Symposium on Haptic Interfaces for Virtual Environment and Teleoperator Systems*
  Misra, S., Fuernstahl, P., Ramesh, K. T., Okamura, A. M., Harders, M.
  IEEE.2009: 570–575
- **Force & Torque Feedback vs Force Only Feedback** *3rd Joint EuroHaptics Conference Symposium on Haptic Interfaces for Virtual Environment and Teleoperator Systems*
  Verner, L. N., Okamura, A. M.
  IEEE.2009: 406–410
- **Haptic feedback in robot-assisted minimally invasive surgery** *CURRENT OPINION IN UROLOGY*
  Okamura, A. M.
  2009; 19 (1): 102-107
- **Feedback Control for Steering Needles through 3D Deformable Tissue using Helical Paths.** *Robotics: Science and Systems.*
  Hauser, K., Alterovitz, R., Chentanez, N., Okamura, A., Goldberg, K.
  2009
- **Observations of Needle-Tissue Interactions** *Annual International Conference of the IEEE-Engineering-in-Medicine-and-Biology-Society*
  Misra, S., Reed, K. B., Ramesh, K. T., Okamura, A. M.
  IEEE.2009: 262–265
- **Design Considerations and Human-Machine Performance of Moving Virtual Fixtures** *IEEE International Conference on Robotics and Automation*
  Gibo, T. L., Verner, L. N., Yuh, D. D., Okamura, A. M.
  IEEE.2009: 2958–2963
- **Haptics as an Aid to Copying for People with Williams Syndrome** *3rd Joint EuroHaptics Conference Symposium on Haptic Interfaces for Virtual Environment and Teleoperator Systems*
  Lee, J., Okamura, A. M., Landau, B.
  IEEE.2009: 356–361
- **Stiffness Discrimination with Visual and Proprioceptive Cues.**
  Gurari, N., Kuchenbecker, K., J., Okamura, A., M.
  2009
- **Can Cerebellar Dysmetria be Explained by an Incorrect Internal Model of Limb Dynamics?**
  Bhanpuri, N., H., Grow, D., I., Okamura, A., M., Bastian, A., J.
  2009
- **Modeling and Control of Needles with Torsional Friction.** *IEEE Transactions on Biomedical Engineering*
  Reed, K., B., Okamura, A., M., Cowan, N., J.
  2009; 12 (56): 2905-2916
- **Controlling a Robotically Steered Needle in the Presence of Torsional Friction** *IEEE International Conference on Robotics and Automation*
  Reed, K. B., Okamura, A. M., Cowan, N. J.
  IEEE.2009: 3598–3603

- **Environment Discrimination with Vibration Feedback to the Foot, Arm, and Fingertip** *11th IEEE International Conference on Rehabilitation Robotics*
  Gurari, N., Smith, K., Madhav, M., Okamura, A. M.
  IEEE.2009: 398–403
- **Tissue Property Estimation and Graphical Display for Teleoperated Robot-Assisted Surgery** *IEEE International Conference on Robotics and Automation*
  Yamamoto, T., Vagvolgyi, B., Balaji, K., Whitcomb, L. L., Okamura, A. M.
  IEEE.2009: 3117–3123
- **Effects of Haptic and Graphical Force Feedback on Teleoperated Palpation** *IEEE International Conference on Robotics and Automation*
  Gwilliam, J. C., Mahvash, M., Vagvolgyi, B., Vacharat, A., Yuh, D. D., Okamura, A. M.
  IEEE.2009: 3315–3320
- **Quantification and Reproduction of Human Hand Skin Stretch and its Effects on Proprioception.**
  Greenwald, E., Pompe, J., Hsiao, S., Okamura, A.
  2009
- **Characterization of Pre-Curved Needles for Steering in Tissue** *Annual International Conference of the IEEE-Engineering-in-Medicine-and-Biology-Society*
  Wedlick, T. R., Okamura, A. M.
  IEEE.2009: 1200–1203
- **Surgical and Interventional Robotics: Part III Surgical Assistance Systems** *IEEE ROBOTICS & AUTOMATION MAGAZINE*
  Hager, G. D., Okamura, A. M., Kazanzides, P., Whitcomb, L. L., Fichtinger, G., Taylor, R. H.
  2008; 15 (4): 84-93
- **Integrated Planning and Image-Guided Control for Planar Needle Steering.** *Proceedings of the ... IEEE/RAS-EMBS International Conference on Biomedical Robotics and Biomechatronics. IEEE/RAS-EMBS International Conference on Biomedical Robotics and Biomechatronics*
  Reed, K. B., Kallem, V., Alterovitz, R., Goldberg, K., Okamura, A. M., Cowan, N. J.
  2008; 2008: 819-824
- **Modeling of tool-tissue interactions for computer-based surgical simulation: A literature review** *PRESENCE-TELEOPERATORS AND VIRTUAL ENVIRONMENTS*
  Misra, S., Ramesh, K. T., Okamura, A. M.
  2008; 17 (5): 463-491
- **Modeling of Tool-Tissue Interactions for Computer-Based Surgical Simulation: A Literature Review.** *Presence (Cambridge, Mass.)*
  Misra, S., Ramesh, K. T., Okamura, A. M.
  2008; 17 (5): 463
- **Surgical and interventional robotics: Part II - Surgical CAD-CAM systems** *IEEE ROBOTICS & AUTOMATION MAGAZINE*
  Fichtinger, G., Kazanzides, P., Okamura, A. M., Hager, G. D., Whitcomb, L. L., Taylor, R. H.
  2008; 15 (3): 94-102
- **Surgical and interventional robotics - Core concepts, technology, and design** *IEEE ROBOTICS & AUTOMATION MAGAZINE*
  Kazanzides, P., Fichtinger, G., Hager, G. D., Okamura, A. M., Whitcomb, L. L., Taylor, R. H.
  2008; 15 (2): 122-130
- **Modeling the forces of cutting with scissors** *IEEE TRANSACTIONS ON BIOMEDICAL ENGINEERING*
  Mahvash, M., Voo, L. M., Kim, D., Jeung, K., Wainer, J., Okamura, A. M.
  2008; 55 (3): 848-856
- **Integrated Planning and Image-Guided Control for Planar Needle Steering** *2nd Biennial IEEE RAS-EMBS International Conference on Biomedical Robotics and Biomechatronics (BioRob 2008)*
  Reed, K. B., Kallem, V., Alterovitz, R., Goldberg, K., Okamura, A. M., Cowan, N. J.
  IEEE.2008: 907–912
- **Haptic simulation of elbow joint spasticity** *16th Symposium on Haptics Interfaces for Virtual Environment and Teleoperator Systems*
  Grow, D. I., Wu, M. (., Locastro, M. J., Arora, S. K., Bastian, A. J., Okamura, A. M.

IEEE COMPUTER SOC.2008: 475–476

- **Effects of proprioceptive motion feedback on sighted and non-sighted control of a virtual hand prosthesis** *16th Symposium on Haptics Interfaces for Virtual Environment and Teleoperator Systems*
  Blank, A., Okamura, A. M., Kuchenbecker, K. J.
  IEEE COMPUTER SOC.2008: 141–142
- **Modeling realistic tool-tissue interactions with haptic feedback: A learning-based method** *16th Symposium on Haptics Interfaces for Virtual Environment and Teleoperator Systems*
  Pezzernenti, Z., Ursu, D., Misra, S., Okamura, A. M.
  IEEE COMPUTER SOC.2008: 209–215
- **Compensating for Torsion Windup in Steerable Needles.**
  Okamura, A., M., Reed, K., B.
  2008
- **The Touch Thimble: Providing Fingertip Contact Feedback During Point-Force Haptic Interaction.**
  Kuchenbecker, K., J., Ferguson, D., Kutzer, M., Moses, M., Okamura, A., M.
  2008
- **Telemanipulators with Sensor/Actuator Asymmetries Fail the Robustness Criterion.**
  Verner, L., N., Okamura, A., M.
  2008
- **Multi-Estimator Technique for Environment Parameter Estimation During Telemanipulation.**
  Yamamoto, T., Bernhardt, M., Peer, A., Buss, M., Okamura, A., M.
  2008
- **Physically Valid Surgical Simulators: Linear Versus Nonlinear Tissue Models** *16th Conference on Medicine Meets Virtual Reality*
  Misra, S., Ramesh, K. T., Okamura, A. M.
  I O S PRESS.2008: 293–295
- **Control Methods for Guidance Virtual Fixtures in Compliant Human-Machine Interfaces.**
  Marayong, P., Hager, G., D., Okamura, A., M.
  2008
- **Techniques for Environment Parameter Estimation During Telemanipulation** *2nd Biennial IEEE RAS-EMBS International Conference on Biomedical Robotics and Biomechatronics (BioRob 2008)*
  Yamamoto, T., Bernhardt, M., Peer, A., Buss, M., Okamura, A. M.
  IEEE.2008: 217–223
- **Haptic simulation of elbow joint spasticity** *16th Symposium on Haptics Interfaces for Virtual Environment and Teleoperator Systems*
  Grow, D. I., Wu, M. (., Locastro, M. J., Arora, S. K., Bastian, A. J., Okamura, A. M.
  IEEE COMPUTER SOC.2008: 475–476

- **Effects of proprioceptive motion feedback on sighted and non-sighted control of a virtual hand prosthesis** *16th Symposium on Haptics Interfaces for Virtual Environment and Teleoperator Systems*
  Blank, A., Okamura, A. M., Kuchenbecker, K. J.
  IEEE COMPUTER SOC.2008: 141–142
- **Modeling realistic tool-tissue interactions with haptic feedback: A learning-based method** *16th Symposium on Haptics Interfaces for Virtual Environment and Teleoperator Systems*
  Pezzernenti, Z., Ursu, D., Misra, S., Okamura, A. M.
  IEEE COMPUTER SOC.2008: 209–215
- **Compensating for Torsion Windup in Steerable Needles.**
  Okamura, A., M., Reed, K., B.
  2008
- **The Touch Thimble: Providing Fingertip Contact Feedback During Point-Force Haptic Interaction.**
  Kuchenbecker, K., J., Ferguson, D., Kutzer, M., Moses, M., Okamura, A., M.

2008

- **Telemanipulators with Sensor/Actuator Asymmetries Fail the Robustness Criterion.**
  Verner, L., N., Okamura, A., M.
  2008
- **Multi-Estimator Technique for Environment Parameter Estimation During Telemanipulation.**
  Yamamoto, T., Bernhardt, M., Peer, A., Buss, M., Okamura, A., M.
  2008
- **Physically Valid Surgical Simulators: Linear Versus Nonlinear Tissue Models** *16th Conference on Medicine Meets Virtual Reality*
  Misra, S., Ramesh, K. T., Okamura, A. M.
  I O S PRESS.2008: 293–295
- **Control Methods for Guidance Virtual Fixtures in Compliant Human-Machine Interfaces.**
  Marayong, P., Hager, G., D., Okamura, A., M.
  2008
- **Friction compensation for enhancing transparency of a teleoperator with compliant transmission** *IEEE TRANSACTIONS ON ROBOTICS*
  Mahvash, M., Okamura, A.
  2007; 23 (6): 1240-1246
- **Friction Compensation for Enhancing Transparency of a Teleoperator with Compliant Transmission.** *IEEE transactions on robotics : a publication of the IEEE Robotics and Automation Society*
  Mahvash, M., Okamura, A.
  2007; 23 (6): 1240-1246
- **Pseudo-admittance bilateral telemanipulation with guidance virtual fixtures** *INTERNATIONAL JOURNAL OF ROBOTICS RESEARCH*
  Abbott, J. J., Okamura, A. M.
  2007; 26 (8): 865-884
- **Human performance in a knob-turning task** *2nd Joint EuroHaptics Conference and Symposium on Haptic Interfaces for Virtual Environment and Teleoperator Systems*
  Gurari, N., Okamura, A. M.
  IEEE COMPUTER SOC.2007: 96–101
- **Teleoperation of steerable needles** *IEEE International Conference on Robotics and Automation*
  Romano, J. M., Webster, R. J., Okamura, A. M.
  IEEE.2007: 934–939
- **Force feedback is noticeably different for linear versus nonlinear elastic tissue models** *2nd Joint EuroHaptics Conference and Symposium on Haptic Interfaces for Virtual Environment and Teleoperator Systems*
  Misra, S., Okamura, A. M., Ramesh, K. T.
  IEEE COMPUTER SOC.2007: 519–524
- **Dynamic guidance with pseudoadmittance virtual fixtures** *IEEE International Conference on Robotics and Automation*
  Pezzementi, Z., Okamura, A. M., Hager, G. D.
  IEEE.2007: 1761–1767
- **Virtual fixture control for compliant human-machine interfaces** *IEEE International Conference on Robotics and Automation*
  Marayong, P., Na, H. S., Okamura, A. M.
  IEEE.2007: 4018–4024
- **Effects of translational and gripping force feedback are decoupled in a 4-degree-of-freedom telemanipulator** *2nd Joint EuroHaptics Conference and Symposium on Haptic Interfaces for Virtual Environment and Teleoperator Systems*
  Verner, L. N., Okamura, A. M.
  IEEE COMPUTER SOC.2007: 286–291
- **Enhancing transparency of a posit ion-exchange teleoperator** *2nd Joint EuroHaptics Conference and Symposium on Haptic Interfaces for Virtual Environment and Teleoperator Systems*
  Mahvash, M., Okamura, A. M.

IEEE COMPUTER SOC.2007: 470–475

- **Evaluation of human performance with kinematic and haptic errors** *2nd Joint EuroHaptics Conference and Symposium on Haptic Interfaces for Virtual Environment and Teleoperator Systems*
  Yamamoto, T., Okamura, A. M.
  IEEE COMPUTER SOC.2007: 78–83
- **Haptic virtual fixtures for robot-assisted manipulation** *12th International Symposium on Robotics Research (ISRR)*
  Abbott, J. J., Marayong, P., Okamura, A. M.
  SPRINGER-VERLAG BERLIN.2007: 49–64
- **Design of a Pill-Sized 12-legged Endoscopic Capsule Robot.**
  Okamura, A., M., Quirini, M., Webster III, R., J., Menciassi, A., Dario, P.
  2007
- **Force Sensing in Robot-Assisted Surgery: Which Degrees of Freedom are Most Important?** *Medicine Meets Virtual Reality (MMVR) 15.*
  Saha, S., Mahvash, M., Verner, L., N., Okamura, A., M.
  2007
- **Educational Haptics.**
  Grow, D., I., Verner, L., N., Okamura, A., M.
  2007
- **Electrolytic Silicone Bourdon Tube Microactuator for Reconfigurable Surgical Robots.**
  Okamura, A., M., Pak, N., Ng, Webster III, R., J., Menciassi, A., Dario, P.
  2007
- **Friction Compensation for Enhancing Transparency of a Teleoperator with Compliant Transmission.** *IEEE Transactions on Robotics*
  Mahvash, M., Okamura, A., M.
  2007; 6 (23): 1240-1246
- **Quantifying the value of visual and haptic position feedback during force-based motion control** *2nd Joint EuroHaptics Conference and Symposium on Haptic Interfaces for Virtual Environment and Teleoperator Systems*
  Kuchenbecker, K. J., Gurari, N., Okamura, A. M.
  IEEE COMPUTER SOC.2007: 561–562
- **Effects of visual and proprioceptive motion feedback on human control of targeted movement** *10th IEEE International Conference on Rehabilitation Robotics*
  Kuchenbecker, K. J., Gurari, N., Okamura, A. M.
  IEEE.2007: 513–524
- **Nonholonomic modeling of needle steering** *9th International Symposium on Experimental Robotics (ISER)*
  Webster, R. J., Kim, J. S., Cowan, N. J., Chirikjian, G. S., Okamura, A. M.
  SAGE PUBLICATIONS LTD.2006: 509–25
- **Stable forbidden-region virtual fixtures for bilateral telemanipulation** *JOURNAL OF DYNAMIC SYSTEMS MEASUREMENT AND CONTROL-TRANSACTIONS OF THE ASME*
  Abbott, J. J., Okamura, A. M.
  2006; 128 (1): 53-64
- **Nonholonomic modeling of needle steering** *9th International Symposium on Experimental Robotics (ISER)*
  Iii, R. J., Cowan, N. J., Chirikjian, G., Okamura, A. M.
  SPRINGER-VERLAG BERLIN.2006: 35–44
- **Dynamic augmented reality for sensory substitution in robot-assisted surgical systems.** *Conference proceedings : ... Annual International Conference of the IEEE Engineering in Medicine and Biology Society. IEEE Engineering in Medicine and Biology Society. Conference*
  Akinbiyi, T., Reiley, C. E., Saha, S., Burschka, D., Hasser, C. J., Yuh, D. D., Okamura, A. M.
  2006; 1: 567-570
- **Effect of hand dynamics on virtual fixtures for compliant human-machine interfaces*** *14th Symposium on Haptics Interfaces for Virtual Environment and Teleoperator Systems*

Marayong, P., Hager, G. D., Okamura, A. M.
IEEE COMPUTER SOC.2006: 109–115

- **Portability and applicability of virtual fixtures across medical and manufacturing tasks** *IEEE International Conference on Robotics and Automation (ICRA)*
  Lin, H. C., Mills, K., Kazanzides, P., Hager, G. D., Marayong, P., Okamura, A. M., Karam, R.
  IEEE.2006: 225–230
- **Object Capture With a Camera-Mobile Robot System: An Introductory Robotics Project.** *IEEE Robotics and Automation Magazine*
  Okamura, A., M., Webster III, R., J.
  2006; 1 (13): 85-88
- **Pseudo-admittance bilateral telemanipulation with guidance virtual fixtures** *14th Symposium on Haptics Interfaces for Virtual Environment and Teleoperator Systems*
  Abbott, J. J., Okamura, A. M.
  IEEE COMPUTER SOC.2006: 169–175
- **Sensor/Actuator asymmetries in telemanipulators: Implications of partial force feedback** *14th Symposium on Haptics Interfaces for Virtual Environment and Teleoperator Systems*
  Verner, L. N., Okamura, A. M.
  IEEE COMPUTER SOC.2006: 309–314
- **Toward active cannulas: Miniature snake-like surgical robots** *IEEE/RSJ International Conference on Intelligent Robots and Systems*
  Webster, R. J., Okamura, A. M., Cowan, N. J.
  IEEE.2006: 2857–2863
- **Dynamic augmented reality for sensory substitution in robot-assisted surgical systems** *28th Annual International Conference of the IEEE-Engineering-in-Medicine-and-Biology-Society*
  Akinbiyi, T., Reiley, C. E., Saha, S., Burschka, D., Hasser, C. J., Yuh, D. D., Okamura, A. M.
  IEEE.2006: 3090–3093
- **Friction compensation for a force-feedback telerobotic system** *IEEE International Conference on Robotics and Automation (ICRA)*
  Mahvash, M., Okamura, A. M.
  IEEE.2006: 3268–3273
- **Friction compensation for a force-feedback teleoperator with compliant transmission** *45th IEEE Conference on Decision and Control*
  Mahvash, M., Okamura, A. M.
  IEEE.2006: 4508–4513
- **Effects of Haptic Feedback on Exploration.**
  Wu, M., Okamura, A., M.
  2006
- **Environment parameter estimation during bilateral telemanipulation** *14th Symposium on Haptics Interfaces for Virtual Environment and Teleoperator Systems*
  Misra, S., Okamura, A. M.
  IEEE COMPUTER SOC.2006: 301–307
- **Effects of position quantization and sampling rate on virtual-wall passivity** *ASME International Mechanical Engineering Congress*
  Abbott, J. J., Okamura, A. M.
  IEEE-INST ELECTRICAL ELECTRONICS ENGINEERS INC.2005: 952–64
- **Human-machine collaborative systems for microsurgical applications** *11th International Symposium on Robotics Research*
  Kragic, D., Marayong, P., Li, M., Okamura, A. M., Hager, G. A.
  SAGE PUBLICATIONS LTD.2005: 731–41
- **Transrectal fiducial carrier for radiographic image registration in prostate Brachytherapy** *47th Annual Meeting of the American-Association-of-Physicists-in-Medicine*
  Kemper, J., Burkholder, A., Jain, A., Mustufa, T., Wyrobek, K., Burdette, C., Song, D., Okamura, A., Fichtinger, G.
  AMER ASSOC PHYSICISTS MEDICINE AMER INST PHYSICS.2005: 2108–

- **Effect of sensory substitution on suture-manipulation forces for robotic surgical systems** *JOURNAL OF THORACIC AND CARDIOVASCULAR SURGERY*
  Kitagawa, M., Dokko, D., Okamura, A. M., Yuh, D. D.
  2005; 129 (1): 151-158
- **The snaptic paddle: A modular haptic device** *1st Joint Eurohaptics Conference/Symposium on Haptic Interfaces for Virtual Environment and Teleoperator Systems*
  Wong, C. E., Okamura, A. M.
  IEEE COMPUTER SOC.2005: 537–538
- **Automatic detection and segmentation of robot-assisted surgical motions** *8th International Conference on Medical Image Computing and Computer-Assisted Intervention*
  Lin, H. C., Shafran, I., Murphy, T. E., Okamura, A. M., Yuh, D. D., Hager, G. D.
  SPRINGER-VERLAG BERLIN.2005: 802–810
- **Planning for steerable bevel-tip needle insertion through 2D soft tissue with obstacles** *IEEE International Conference on Robotics and Automation (ICRA)*
  Alterovitz, R., Goldberg, K., Okamura, A.
  IEEE.2005: 1640–1645
- **Automatic detection and segmentation of robot-assisted surgical motions.** *Medical image computing and computer-assisted intervention : MICCAI ... International Conference on Medical Image Computing and Computer-Assisted Intervention*
  Lin, H. C., Shafran, I., Murphy, T. E., Okamura, A. M., Yuh, D. D., Hager, G. D.
  2005; 8: 802-810
- **A fracture mechanics approach to haptic synthesis of tissue cutting with scissors** *1st Joint Eurohaptics Conference/Symposium on Haptic Interfaces for Virtual Environment and Teleoperator Systems*
  Mahvash, M., Okamura, A. M.
  IEEE COMPUTER SOC.2005: 356–362
- **Steering flexible needles under Markov motion uncertainty** *IEEE/RSJ International Conference on Intelligent Robots and Systems*
  Alterovitz, R., Lim, A., Goldberg, K., Chirikjian, G. S., Okamura, A. M.
  IEEE.2005: 120–125
- **Design considerations for robotic needle steering** *IEEE International Conference on Robotics and Automation (ICRA)*
  Webster, R. J., Memisevic, J., Okamura, A. M.
  IEEE.2005: 3588–3594
- **Effects of velocity on human force control** *1st Joint Eurohaptics Conference/Symposium on Haptic Interfaces for Virtual Environment and Teleoperator Systems*
  Wu, M., Abbott, J. J., Okamura, A. M.
  IEEE COMPUTER SOC.2005: 73–79
- **A velocity-dependent model for needle insertion in soft tissue** *8th International Conference on Medical Image Computing and Computer-Assisted Intervention*
  Crouch, J. R., Schneider, C. M., Wainer, J., Okamura, A. M.
  SPRINGER-VERLAG BERLIN.2005: 624–632
- **Diffusion-based motion planning for a nonholonomic flexible needle model** *IEEE International Conference on Robotics and Automation (ICRA)*
  Park, W., Kim, J. S., Zhou, Y., Cowan, N. J., Okamura, A. M., Chirikjian, G. S.
  IEEE.2005: 4600–4605
- **Effects of gripping and translational forces on teleoperation** *Workshop on Multi-Point Interaction with Real and Virtual Objects*
  Verner, L. N., Jeung, K. A., Okamura, A. M.
  WORLD SCIENTIFIC PUBL CO PTE LTD.2005: 231–241
- **The snaptic paddle: A modular haptic device** *1st Joint Eurohaptics Conference/Symposium on Haptic Interfaces for Virtual Environment and Teleoperator Systems*
  Wong, C. E., Okamura, A. M.
  IEEE COMPUTER SOC.2005: 537–538

- **Automatic detection and segmentation of robot-assisted surgical motions** *8th International Conference on Medical Image Computing and Computer-Assisted Intervention*
  Lin, H. C., Shafran, I., Murphy, T. E., Okamura, A. M., Yuh, D. D., Hager, G. D.
  SPRINGER-VERLAG BERLIN.2005: 802–810
- **Vision-assisted control for manipulation using virtual fixtures** *IEEE TRANSACTIONS ON ROBOTICS AND AUTOMATION*
  Bettini, A., Marayong, P., Lang, S., Okamura, A. M., Hager, G. D.
  2004; 20 (6): 953-966
- **Force modeling for needle insertion into soft tissue** *IEEE TRANSACTIONS ON BIOMEDICAL ENGINEERING*
  Okamura, A. M., Simone, C., O'Leary, M. D.
  2004; 51 (10): 1707-1716
- **Speed-accuracy characteristics of human-machine cooperative manipulation using virtual fixtures with variable admittance** *HUMAN FACTORS*
  Marayong, P., Okamura, A. M.
  2004; 46 (3): 518-532
- **Application of haptic feedback to robotic surgery** *JOURNAL OF LAPAROENDOSCOPIC & ADVANCED SURGICAL TECHNIQUES-PART A*
  Bethea, B. T., Okamura, A. M., Kitagawa, M., Fitton, T. P., Cattaneo, S. M., Gott, V. L., Baumgartner, W. A., Yuh, D. D.
  2004; 14 (3): 191-195
- **Teleoperation with sensor/actuator asymmetry: Task performance with partial force feedback** *12th International Symposium on Haptic Interfaces for Virtual Environment and Teleoperator Systems (HAPTICS 2004)*
  Semere, W., Kitagawa, M., Okamura, A. M.
  IEEE COMPUTER SOC.2004: 121–127
- **Haptic rendering of tissue cutting with scissors** *12th Conference on Medicine Meets Virtual Reality*
  Weiss, D. J., Okamura, A. M.
  I O S PRESS.2004: 407–409
- **The effect of visual and haptic feedback on computer-assisted needle insertion.** *Computer aided surgery*
  Gerovich, O., Marayong, P., Okamura, A. M.
  2004; 9 (6): 243-249
- **Performance analysis of steady-hand teleoperation versus cooperative manipulation** *12th International Symposium on Haptic Interfaces for Virtual Environment and Teleoperator Systems (HAPTICS 2004)*
  Emeagwali, I., Marayong, P., Abbott, J. J., Okamura, A. M.
  IEEE COMPUTER SOC.2004: 316–322
- **Vision-based assistance for ophthalmic micro-surgery** *7th International Conference on Medical Image Computing and Computer-Assisted Intervention (MICCAI 2004)*
  Dewan, M., Marayong, P., Okamura, A. M., Hager, G. D.
  SPRINGER-VERLAG BERLIN.2004: 49–57
- **Effect of sensory substitution on suture manipulation forces for surgical teleoperation** *12th Conference on Medicine Meets Virtual Reality*
  Kitagawa, M., Dokko, D., Okamura, A. M., Bethea, B. T., Yuh, D. D.
  I O S PRESS.2004: 157–163
- **Methods for haptic feedback in teleoperated robot-assisted surgery** *INDUSTRIAL ROBOT-AN INTERNATIONAL JOURNAL*
  Okamura, A. M.
  2004; 31 (6): 499-508
- **Virtual remote center of motion control for needle placement robots.** *Computer aided surgery*
  Boctor, E. M., Webster, R. J., Mathieu, H., Okamura, A. M., Fichtinger, G.
  2004; 9 (5): 175-183
- **A modular 2-DOF force-sensing instrument for laparoscopic surgery** *6th International Conference on Medical Image Computing and Computer-Assisted Intervention*
  Prasad, S. K., Kitagawa, M., Fischer, G. S., Zand, J., Talamini, M. A., Taylor, R. H., Okamura, A. M.

SPRINGER-VERLAG BERLIN.2003: 279–286

- **Recognition of operator motions for real-time assistance using virtual fixtures** *11th International Symposium on Haptic Interfaces for Virtual Environment and Teleoperator Systems*
  Ming, L., Okamura, A. M.
  IEEE COMPUTER SOC.2003: 125–131
- **The Haptic Scissors: Cutting in virtual environments** *20th IEEE International Conference on Robotics and Automation (ICRA)*
  Okamura, A. M., Webster, R. J., Nolin, J. T., Johnson, K. W., Jafry, H.
  IEEE.2003: 828–833
- **Virtual fixture architectures for telemanipulation** *20th IEEE International Conference on Robotics and Automation (ICRA)*
  Abbott, J. J., Okamura, A. M.
  IEEE.2003: 2798–2805
- **Uniting haptic exploration and display** *10th International Symposium on Robotics Research (ISRR 2001)*
  Okamura, A. M.
  SPRINGER-VERLAG BERLIN.2003: 225–238
- **Robotic needle insertion: Effects of friction and needle geometry** *20th IEEE International Conference on Robotics and Automation (ICRA)*
  O'Leary, M. D., Simone, C., Washio, T., Yoshinaka, K., Okamura, A. M.
  IEEE.2003: 1774–1780
- **Steady-hand teleoperation with virtual fixtures** *12th IEEE International Workshop on Robot and Human Interactive Communication*
  Abbott, J. J., Hager, G. D., Okamura, A. M.
  IEEE.2003: 145–151
- **Methods for intelligent localization and mapping during haptic exploration** *IEEE International Conference on Systems, Man and Cybernetics (SMC 03)*
  Schaeffer, M. A., Okamura, A. M.
  IEEE.2003: 3438–3445
- **Virtual remote center of motion control for needle placement robots** *6th International Conference on Medical Image Computing and Computer-Assisted Intervention*
  Boctor, E. M., Webster, R. J., Mathieu, H., Okamura, A. M., Fichtinger, G.
  SPRINGER-VERLAG BERLIN.2003: 157–164
- **Activation cues and force scaling methods for virtual fixtures** *11th International Symposium on Haptic Interfaces for Virtual Environment and Teleoperator Systems*
  Nolin, J. T., Stemniski, P. M., Okamura, A. M.
  IEEE COMPUTER SOC.2003: 404–409
- **Analysis of virtual fixture contact stability for telemanipulation** *IEEE/RSJ International Conference on Intelligent Robots and Systems*
  Abbott, J. J., Okamura, A. M.
  IEEE.2003: 2699–2706
- **Spatial motion constraints: Theory and demonstrations for robot guidance using virtual fixtures** *20th IEEE International Conference on Robotics and Automation (ICRA)*
  Marayong, P., Li, M., Okamura, A. M., Hager, G. D.
  IEEE.2003: 1954–1959
- **Measurement, analysis, and display of haptic signals during surgical cutting** *PRESENCE-TELEOPERATORS AND VIRTUAL ENVIRONMENTS*
  Greenish, S., Hayward, V., Chial, V., Okamura, A., Steffen, T.
  2002; 11 (6): 626-651
- **The effect of visual and haptic feedback on manual and teleoperated needle insertion** *5th International Conference on Medical Image Computing and Computer-Assisted Intervention*
  Gerovichev, O., Marayong, P., Okamura, A. M.
  SPRINGER-VERLAG BERLIN.2002: 147–154

- **On the display of haptic recordings for cutting biological tissues** *10th Symposium on Haptic Interfaces for Virtual Environment and Teleoperator Systems (HAPTICS 2002)*
  Chial, V. B., Greenish, S., Okamura, A. M.
  IEEE COMPUTER SOC.2002: 80–87
- **Vision assisted control for manipulation using virtual fixtures: Experiments at macro and micro scales** *19th IEEE International Conference on Robotics and Automation (ICRA)*
  Bettini, A., Lang, S., Okamura, A., Hager, G.
  IEEE.2002: 3354–3361
- **Effect of virtual fixture compliance on human-machine cooperative manipulation** *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2002)*
  Marayong, P., Bettini, A., Okamura, A.
  IEEE.2002: 1089–1095
- **Measurement of the tip and friction force acting on a needle during penetration** *5th International Conference on Medical Image Computing and Computer-Assisted Intervention*
  Kataoka, H., Washio, T., Chinzei, K., Mizuhara, K., Simone, C., Okamura, A. M.
  SPRINGER-VERLAG BERLIN.2002: 216–223
- **Modeling of needle insertion forces for robot-assisted percutaneous therapy** *19th IEEE International Conference on Robotics and Automation (ICRA)*
  Simone, C., Okamura, A. M.
  IEEE.2002: 2085–2091
- **Building a task language for segmentation and recognition of user input to cooperative manipulation systems** *10th Symposium on Haptic Interfaces for Virtual Environment and Teleoperator Systems (HAPTICS 2002)*
  Hundtofte, C. S., Hager, G. D., Okamura, A. M.
  IEEE COMPUTER SOC.2002: 225–230
- **Analysis of suture manipulation forces for teleoperation with force feedback** *5th International Conference on Medical Image Computing and Computer-Assisted Intervention*
  Kitagawa, M., Okamura, A. M., Bethea, B. T., Gott, V. L., Baumgartner, W. A.
  SPRINGER-VERLAG BERLIN.2002: 155–162
- **Feature detection for haptic exploration with robotic fingers** *INTERNATIONAL JOURNAL OF ROBOTICS RESEARCH*
  Okamura, A. M., Cutkosky, M. R.
  2001; 20 (12): 925-938
- **Reality-based models for vibration feedback in virtual environments** *IEEE-ASME TRANSACTIONS ON MECHATRONICS*
  Okamura, A. M., Cutkosky, M. R., Dennerlein, J. T.
  2001; 6 (3): 245-252
- **Feature-guided exploration with a robotic finger** *IEEE International Conference on Robotics and Automation*
  Okamura, A. M., Cutkosky, M. R.
  IEEE.2001: 589–596
- **Vision assisted control for manipulation using virtual fixtures** *IEEE Conference on Intelligent Robots and Systems (IROS 2001)*
  Bettini, A., Lang, S., Okamura, A., Hager, G.
  IEEE.2001: 1171–1176
- **Haptic surface exploration** *6th International Symposium on Experimental Robotics*
  Okamura, A. M., Costa, M. A., Turner, M. L.
  SPRINGER-VERLAG LONDON LTD.2000: 423–432
- **Haptic exploration of fine surface features** *International Conference on Robotics and Automation (ICRA '99)*
  Okamura, A. M., Cutkosky, M. R.
  IEEE.1999: 2930–2936
- **Vibration feedback models for virtual environments** *IEEE International Conference on Robotics and Automation*
  Okamura, A. M., Dennerlein, J. T., Howe, R. D.

IEEE.1998: 674–679

- **Haptic exploration of objects with rolling and sliding** *1997 IEEE International Conference on Robotics and Automation (ICRA97) - Teaming to Make an Impact*
  Okamura, A. M., Turner, M. L., Cutkosky, M. R.
  IEEE.1997: 2485–2490