MICHAEL C. YIP

Associate Professor of Electrical and Computer Engineering
Director of Advanced Robotics and Controls Laboratory
Director, Medical and Healthcare Robotics Collaboratory, Contextual Robotics Institute
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Short Bio

Michael Yip, Ph.D., is an Associate Professor of Electrical and Computer Engineering at UC San Diego, IEEE Distinguished Lecturer, Hellman Fellow, an elected Senior Member of the National Academy of Inventors and of the IEEE Robotics and Automation Society. His research group at UC San Diego is the Advanced Robotics and Controls Laboratory which operates on a $15M+ research portfolio currently focused on surgical robots, humanoid robots, and robot learning. His research has received several best paper awards and nominations at ICRA, IROS and RA-L, and he has been recognized by the NSF CAREER award and the NIH Trailblazer award. Several of his research projects have led to founded startups, and he was named the Faculty Innovator of the Year at UCSD in 2024. Dr. Yip was previously at Disney Research in 2014 and Amazon Robotics in 2018. He received a B.Sc. in Mechatronics Engineering from the University of Waterloo, an M.S. in Electrical Engineering from the University of British Columbia, and a Ph.D. in Bioengineering from Stanford University.

Key Areas of Expertise and Research

- Robot Manipulation
- Autonomous Robotic Surgery
- Learning Representations for Control and Planning
- Task and Motion Planning
- Reinforcement Learning for Robots
- Mechanical Design of Surgical Robots
- Continuum and Snake-like Robots
- Computer Vision for Image-guided Surgery

Education

- **Ph.D. Bioengineering** 2015
  Stanford University, USA
  Dissertation Topic: Model-less Control for Flexible Robotic Manipulators
- **M.A.Sc. Electrical and Computer Engineering** 2011
  University of British Columbia, Canada
  Dissertation Topic: Ultrasound Registration and Tracking for Robot-Assisted Surgery
- **B.A.Sc. Mechatronics Engineering** 2009
  University of Waterloo, Canada
  Dissertation Topic: A Low-cost 5-DOF Robot for Minimally Invasive Keyhole Surgery

Professional Positions

- **University of California San Diego**
  La Jolla, CA, USA
  - Director, UCSD Collaboratory for Medical and Healthcare Robotics 2020–
  - Director, Advanced Robotics and Controls Laboratory 2016–

- Associate Professor with Tenure, Electrical and Computer Engineering 2021–
- Affiliate Faculty, Computer Science and Engineering 2023–
- Affiliate Faculty, Mechanical and Aerospace Engineering 2016–
- Core Faculty, Contextual Robotics Institute 2016–
- Assistant Professor, Electrical and Computer Engineering 2016–2021

▪ **Channel Robotics, Inc.**
Del Mar, CA, USA

- Co-Founder & Board Director 2023–

▪ **Kato Medical Inc.**
San Diego, CA, USA

- Board Advisor 2023–

▪ **AtmosphereData Corp.**
Rancho Sante Fe, CA, USA

- Co-Founder 2024

▪ **Ronovo Surgical, Inc.**
Shanghai, China

- Board Advisor 2022–2023

▪ **Yip Consulting Services, Inc.**
San Diego, CA

- Founder and Director 2021–

  Consulting services for systems design and expert review of Robotics, Artificial Intelligence (AI), and Medical Devices. Clients from startups to Fortune 100 companies.

▪ **Stanford University**
Stanford, CA, USA

- Visiting Assistant Professor, Mechanical Engineering 2019

▪ **Amazon Robotics**
Seattle, WA, USA

- Expert Consultant, Machine Learning and Computer Vision Research Group 2018

▪ **Stanford University**
Stanford, CA, USA

- BioX Fellow, NSERC Fellow 2011–2016

▪ **Disney Research**
Los Angeles, CA, USA

- Research Associate, Disney Research 2014

▪ **University of British Columbia**
Vancouver, BC, Canada

- Research Assistant, Robotics and Controls Group 2009–2011

▪ **Harvard University**
Cambridge, MA, USA

- Research Assistant, Harvard BioRobotics Lab 2008

▪ **Massachusetts Institute of Technology**
Cambridge, MA, USA

– Research Assistant, Robert S. Langer Lab 2007–2008

- **Harvard Medical School**
  Cambridge, MA, USA
  – Research Assistant, Center for Laryngeal Surgery & Vocal Rehab. 2007
- **Canadian Space Agency**
  Longeuil, QC, Canada
  – Research Assistant, Magnetohydrodynamics Group 2006
- **General Dynamics**
  London, ON, Canada
  – Simulation Development Intern, Vehicle Simulation Group 2005

Teaching

- **University of California San Diego**
  Electrical & Computer Engineering Department
  – Robot Manipulation and Control, ECE276C 2023–Present
  – Fast Prototyping ECE115 2016-2020, 2022–Present
  – Robot Reinforcement Learning ECE276C 2018-2019, 2021-2022
  – Advances in Robot Manipulation ECE285 2017, 2020
- **Stanford University**
  Bioengineering Department, Teaching Assistant
  – Teaching Assistant, Optics and Devices Laboratory (BIOE123) 2014-2015
  – Teaching Assistant, Biodesign Project (BIOE141) 2013-2014
  – Teaching Assistant, Introduction to Bioengineering Research (MED289) 2012-2014
- **University of British Columbia**
  Electrical & Computer Engineering Department, Teaching Assistant
  – Elec. & Comp. Engineering Lab I, EECE280 2010

Awards and Recognitions

- Best Paper Award, Workshop on Deformable Manipulation 2025
  Int. Conf. on Robotics and Automation (ICRA2025)
- Best Paper Finalist in Medical Robotics, Int. Conf. on Robotics and Automation (ICRA2025) 2025
- Selected as UCSD IGE Faculty Innovator of the Year 2024
- Elected Senior Member of the National Academy of Inventors 2024
- Best Paper Award, International Symposium on Medical Robotics (ISMR2024) 2024
- Best Paper Award, Int. Conf. on Robotics and Automation (ICRA2024) 2024
- Best Paper Award in Medical Robotics, Int. Conf. on Robotics and Automation (ICRA2023) 2023
- Best Paper Finalist in Medical Robotics, Int. Conf. on Robotics and Automation (ICRA2023) 2021
- Elected to Senior Member of IEEE 2021
- NSF CAREER Award, Computer and Information Science and Engineering 2020

- NIH Trailblazer Award, National Institute of Biomedical Imaging and Bioengineering 2020
- Best Paper Award, Workshop on Cognitive Robotic Surgery 2020
  Int. Conf. on Intelligent Robotics and Systems (IROS2020)
- Distinguished Lecturer, IEEE Robotics and Automation Society 2019
- Best Paper Finalist, Workshop on Intelligent Robot Interaction with Anatomy 2019
  Int. Conf. on Intelligent Robotics and Systems (IROS2019)
- Outstanding Researcher Award, NIH National Center for Simulation in Rehab. Research 2017
- Hellman Fellowship 2017
- Best Paper Award, IEEE Robotics and Automation Letters (RA-L 2016) 2017
- Best Paper Finalist, Int. Conf. on Robotics and Automation (ICRA2015) 2015
- Best Paper Award, Workshop on Advances in Flexible Robotics for Medical Interventions 2014
  Int. Conf. on Robotics and Automation (ICRA2014)
- Stanford BioX Bowes Fellowship 2013–2016
- NSERC National Post-Graduate Scholarship 2011–2014
- Stanford Bioengineering Fellowship 2011–2013
- Graduate Entrance Scholarship, University of British Columbia 2009
- OEIO Scholarship (held at Harvard University) 2008
- Queen Elizabeth II's Aiming for the Top Scholarship 2004–2009
- Undergraduate Research Assistantship Scholarships 2005, 2006, 2007
- Chandrashekar/Shad Valley Memorial Engineering Scholarship 2004

Funding

More than $15M in funding secured, with more than $11M to PI's research lab. Sponsors include:

- National Science Foundation — NSF CAREER, Emerging Frontiers in Research and Innovation (EFRI), National Robotics Initiative (NRI)
- National Institutes of Health — NIBIB R21, R01 mechanisms, Trailblazer Award
- US Army — US Army Medical Research and Development Command (USAMRDC), Army Research Office (ARO)
- UC San Diego Internal Competitions — AIM grant, Galvanizing Engineering in Medicine (GEM) Grant, CTRI grant
- National Aeronautics and Space Administration (NASA) — Spontaneous Concept Grants
- Society Grants — American Cancer Society
- Industry Grants and Sponsored Research — including Intuitive, Johnson and Johnson (J&J), Brain Corporation, Scania AB, Advanced MedTech, Intrinsic - an Alphabet Company.

Refereed Publications

Google Scholar: https://scholar.google.com/citations?user=gSYxbCYAAAAJhl=en

1. **Intra-Operative Laryngoscopic Instrument for Characterizing Vocal Fold Viscoelasticity**
   Mark P Ottensmeyer, Michael Yip, Conor J Walsh, James B Kobler, James T Heaton, Steven M Zeitels
   Frontiers in Biomedical Devices, vol. 42665, pp. 133-134, 2007.

2. **Robotic force stabilization for beating heart intracardiac surgery**
   Shelten G Yuen, Michael C Yip, Nikolay V Vasilyev, Douglas P Perrin, Pedro J Del Nido, Robert D Howe
   Proc. Medical Image Computing and Computer-Assisted Intervention (MICCAI), pp. 26-33, 2009.

3. **3D ultrasound to stereoscopic camera registration through an air-tissue boundary**
   Michael C Yip, Troy K Adebar, Robert N Rohling, Septimiu E Salcudean, Christopher Y Nguan
   Proc. Medical Image Computing and Computer-Assisted Intervention (MICCAI), pp. 626-634, 2010.

4. **A robust uniaxial force sensor for minimally invasive surgery**
   Michael C Yip, Shelten G Yuen, Robert D Howe
   IEEE Transactions on Biomedical Engineering, vol. 57, no. 5, pp. 1008-1011, 2010.

5. **Indirect low-intensity ultrasonic stimulation for tissue engineering**
   Hyoungshin Park, Michael C Yip, Beata Chertok, Joseph Kost, James B Kobler, Robert Langer, Steven M Zeitels
   Journal of Tissue Engineering, vol. 1, no. 1, pp. 973530, 2010.

6. **Performance analysis of a manipulation task in time-delayed teleoperation**
   Michael C Yip, Mahdi Tavakoli, Robert D Howe
   Proc. IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), pp. 5270-5275, 2010.

7. **Performance analysis of a haptic telemanipulation task under time delay**
   Michael C Yip, Mahdi Tavakoli, Robert D Howe
   Advanced Robotics, vol. 25, no. 5, pp. 651-673, 2011.

8. **Real-time methods for long-term tissue feature tracking in endoscopic scenes**
   Michael C Yip, David G Lowe, Septimiu E Salcudean, Robert N Rohling, Christopher Y Nguan
   Proc. Information Processing in Computer-Assisted Interventions (IPCAI), pp. 33-43, 2012.

9. **Registration of 3D ultrasound through an airâ€“tissue boundary**
   Troy K Adebar, Michael C Yip, Septimiu E Salcudean, Robert N Rohling, Christopher Y Nguan, S Larry Goldenberg
   IEEE Transactions on Medical Imaging, vol. 31, no. 11, pp. 2133-2142, 2012.

10. **Tissue tracking and registration for image-guided surgery**
    Michael C Yip, David G Lowe, Septimiu E Salcudean, Robert N Rohling, Christopher Y Nguan
    IEEE Transactions on Medical Imaging, vol. 31, no. 11, pp. 2169-2182, 2012.

11. **Prediction of Human Mild Traumatic Brain Injury in Multiple Dimensions**
    Lyndia Wu, Michael Yip, Fidel Hernandez, Joseph Schooler, Kevin Bui, Bradley Hammoor, Erik Ortega, Gregor Yock, Jaime Lopez, Andrew Hoffman, Gerald Grant, David Camarillo
    7th World Congress of Biomechanics, 2012.

12. **Ultrasound-Based Image Guidance for Robot-Assisted Laparoscopic Radical Prostatectomy: Initial in-vivo Results**
    Omid Mohareri, Caitlin Schneider, Troy K Adebar, Mike C Yip, Peter Black, Christopher Y Nguan, Dale Bergman, Jonathan Seroger, Simon DiMaio, Septimiu E Salcudean
    Proc. Information Processing in Computer-Assisted Interventions (IPCAI), pp. 40-50, 2013.

13. **Finite element simulation of brain deformation from six degree of freedom acceleration measurements of mild traumatic brain injury**
F Hernandez, L Wu, M Yip, A Hoffman, J Lopez, G Grant, S Kleiven, D Camarillo
Anxiety, vol. 2, pp. 33, 2014.

14. **Human Tolerance to Mild Trauma in Multiple Dimensions**
Fidel Hernandez, Lyndia Wu, Michael Yip, Svein Klein, Andrew Hoffman, Jaime Lopez, Kevin Bui, Brad Hammoor, Erik Ortega, Gregor Yock, Gerald Grant, David Camarillo
Journal of Neurotrauma, vol. 31, no. 5, pp. A39-A39, 2014.

15. **Linear and Rotational Measurements of Human Mild Traumatic Brain Injury**
Fidel Hernandez, Lyndia Wu, Michael Yip, Kevin Bui, Bradley Hammoor, Erik Ortega, Gregor Yock, Gerald Grant, Andrew Hoffman, David Camarillo
Brain Injury, vol. 28, no. 45418, pp. 838-838, 2014.

16. **Model-less control of a flexible robotic catheter**
Michael C Yip, Paul J. Wang, David B. Camarillo
Workshop on Advances in Flexible Robots for Surgical Interventions, Proc. IEEE International Conference on Robotics and Automation (ICRA), no. 2014, pp. 45293, 2014. **BEST PAPER AWARD**

17. **Model-Less Feedback Control of Continuum Manipulators in Constrained Environments**
Michael C Yip, David B Camarillo
IEEE Transactions on Robotics, vol. 30, no. 4, pp. 880-889, 2014.

18. **High-Performance Robotic Muscles from Conductive Nylon Sewing Thread**
Michael C. Yip, Gunter Niemeyer
Proc. IEEE International Conference on Robotics and Automation (ICRA), pp. 2313-2318, 2015. **BEST PAPER AWARD NOMINEE**

19. **Six degree-of-freedom measurements of human mild traumatic brain injury**
Fidel Hernandez, Lyndia C Wu, Michael C Yip, Kaveh Laksari, Andrew R Hoffman, Jaime R Lopez, Gerald A Grant, Svein Kleiven, David B Camarillo
Annals of Biomedical Engineering, vol. 43, pp. 1918-1934, 2015.

20. **Woodenhaptics: A starting kit for crafting force-reflecting spatial haptic devices**
Jonas Forsslund, Michael Yip, Eva-Lotta SallnÃ¤s
Proc. International Conference on Tangibles, Embedded and Embodied Interactions, pp. 133-140, 2015.

21. **An instrumented glove for improving spasticity assessment**
Padmaja Jonnalagedda, Fei Deng, Kyle Douglas, Leanne Chukoskie, Michael Yip, Tse Nga Ng, Truong Nguyen, Andrew Skalsky, Harinath Garudadri
Proc. IEEE Healthcare Innovation Point-Of-Care Technologies Conference (HIPOCT), pp. 167-170, 2016.

22. **Model-less hybrid position/force control: a minimalist approach for continuum manipulators in unknown, constrained environments**
Michael Yip, David Camarillo
IEEE Robotics and Automation Letters, vol. 1, no. 2, pp. 844 - 851, 2016. **BEST PAPER AWARD**

23. **Autonomous control of continuum robot manipulators for complex cardiac ablation tasks**
Michael C Yip, Jake A Sganga, David B Camarillo
Journal of Medical Robotics Research, vol. 2, no. 1, pp. 1750002, 2017.

24. **Designing Muscle-powered Robotics with Super Coiled Polymers**
Jun Zhang, Michael C Yip
Robotics: Science and Systems Workshop, pp. 1-4, 2017.

25. **Fastron: A Learning-Based Configuration Space Model for Rapid Collision Detection for Gross Motion Planning in Changing Environments**
Nikhil Das, Naman Gupta, Michael Yip
Proc. Robotics: Science and Systems Workshop on (Empirically) Data-Driven Manipulation, 2017.

26. **Fastron: An Online Learning-Based Model and Active Learning Strategy for Proxy Collision Detection**
Nikhil Das, Naman Gupta, Michael Yip
Proc. Conference on Robot Learning (CoRL), vol. 78, pp. 496-504, 2017.

27. **Modeling and inverse compensation of hysteresis in supercoiled polymer artificial muscles**
Jun Zhang, Kaushik Iyer, Anthony Simeonov, Michael C Yip
IEEE Robotics and Automation Letters, vol. 2, no. 2, pp. 773-780, 2017.

28. **On the control and properties of supercoiled polymer artificial muscles**
Michael C Yip, Gunter Niemeyer
IEEE Transactions on Robotics, vol. 33, no. 3, pp. 689-699, 2017.

29. **Robot Autonomy for Surgery**
Michael Yip, Nikhil Das
The Encyclopedia of Medical Robotics, vol. 1, pp. 12055, 2017.[arXiv]

30. **Spurring innovation in spatial haptics: how open-source hardware can turn creativity loose**
Michael C Yip, Jonas Forsslund
IEEE Robotics & Automation Magazine, vol. 24, no. 1, pp. 65-76, 2017.

31. **Three-Dimensional Hysteresis Modeling of Robotic Artificial Muscles with Application to Shape Memory Alloy Actuators**
Jun Zhang, Michael C Yip
Robotics: Science and Systems, pp. 1-10, 2017.

32. **Adversarial imitation via variational inverse reinforcement learning**
Ahmed H Qureshi, Byron Boots, Michael C Yip
Proc. International Conference on Learning Representations (ICLR), pp. 45305, 2018.[arXiv]

33. **Bundled super-coiled polymer artificial muscles: Design, characterization, and modeling**
Anthony Simeonov, Taylor Henderson, Zixuan Lan, Guhan Sundar, Adam Factor, Jun Zhang, Michael Yip
IEEE Robotics and Automation Letters, vol. 3, no. 3, pp. 1671-1678, 2018.

34. **Deeply informed neural sampling for robot motion planning**
Ahmed H Qureshi, Michael C Yip
Proc. IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), pp. 6582-6588, 2018.[arXiv]

35. **Three-dimensional hysteresis compensation enhances accuracy of robotic artificial muscles**
Jun Zhang, Anthony Simeonov, Michael C Yip
Smart Materials and Structures, vol. 27, no. 3, pp. 35002, 2018.

36. **Vision-based force feedback estimation for robot-assisted surgery using instrument-constrained biomechanical three-dimensional maps**
Nazim Haouchine, Winnie Kuang, Stephane Cotin, Michael Yip
IEEE Robotics and Automation Letters, vol. 3, no. 3, pp. 2160-2165, 2018.

37. **An open-source 7-axis, robotic platform to enable dexterous procedures within CT scanners**
Dimitri A Schreiber, Daniel B Shak, Alexander M Norbash, Michael C Yip

Proc. IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), pp. 386-393, 2019.

38. **ARCSnake: An Archimedes' Screw-Propelled, Reconfigurable Robot Snake for Complex Environments**
Dimitri A Schreiber, Florian Richter, Andrew Bilan, Peter V Gavrilov, Casey H Price, Kalind C Carpenter, Michael C Yip
Proc. IEEE International Conference on Robotics and Automation (ICRA), pp. 7029-7034, 2019.[arXiv]

39. **Augmented reality predictive displays to help mitigate the effects of delayed telesurgery**
Florian Richter, Yifei Zhang, Yuheng Zhi, Ryan K Orosco, Michael C Yip
Proc. IEEE International Conference on Robotics and Automation (ICRA), pp. 444-450, 2019.[arXiv]

40. **CRANE: A highly dexterous needle placement robot for evaluation of interventional radiology procedures**
Dimitri A Schreiber, Hanpeng Jiang, Guosong Li, Julie Yu, Zhaowei Yu, Renjie Zhu, Alexander M Norbash, Michael C Yip
C4 Workshop at IEEE/RSJ International Conference on Robotics and Automation, pp. 45293, 2019.[arXiv]
BEST PAPER AWARD

41. **Forward Kinematics Kernel for Improved Proxy Collision Checking**
Nikhil Das, Michael C Yip
IEEE Robotics and Automation Letters, vol. 5, no. 2, pp. 2349 - 2356, 2019.[arXiv]

42. **Model-free Visual Control for Continuum Robot Manipulators via Orientation Adaptation**
Mrinal Verghese, Florian Richter, Aaron Gunn, Phil Weissbrod, Michael Yip
Proc. International Symposium on Robotics Research (ISRR), pp. arXiv:1909.00450, 2019.

43. **Motion planning networks**
Ahmed H Qureshi, Anthony Simeonov, Mayur J Bency, Michael C Yip
Proc. IEEE International Conference on Robotics and Automation (ICRA), pp. 2118-2124, 2019.[arXiv]

44. **Motion scaling solutions for improved performance in high delay surgical teleoperation**
Florian Richter, Ryan K Orosco, Michael C Yip
Proc. IEEE International Conference on Robotics and Automation (ICRA), pp. 1590-1595, 2019.[arXiv]

45. **Neural path planning: Fixed time, near-optimal path generation via oracle imitation**
Mayur J Bency, Ahmed H Qureshi, Michael C Yip
Proc. IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), pp. 3965-3972, 2019.

46. **Open-sourced reinforcement learning environments for surgical robotics**
Florian Richter, Ryan K Orosco, Michael C Yip
arXiv preprint arXiv:1903.02090, pp. 45299, 2019.[arXiv]

47. **Robotic artificial muscles: Current progress and future perspectives**
Jun Zhang, Jun Sheng, Ciaran O'Neill, Conor J Walsh, Robert J Wood, Jee-Hwan Ryu, Jaydev P Desai, Michael C Yip
IEEE Transactions on Robotics, vol. 35, no. 3, pp. 761-781, 2019.

48. **A 2D surgical simulation framework for tool-tissue interaction**
Yunhai Han, Fei Liu, Michael C Yip
arXiv preprint arXiv:2010.13936, pp. 1-2, 2020.[arXiv]

49. **Active continual learning for planning and navigation**
Ahmed H Qureshi, Yinglong Miao, Michael C Yip
Proc. ICML Workshop on Real World Experiment Design and Active Learning, pp. 1-7, 2020.

50. **ARCSnake: An Archimedes' screw-propelled, reconfigurable serpentine robot for complex environments**
Dimitri A Schreiber, Florian Richter, Andrew Bilan, Peter V Gavrilov, Hoi Man Lam, Casey H Price, Kalind C Carpenter, Michael C Yip
Proc. IEEE International Conference on Robotics and Automation (ICRA), pp. 7029-7034, 2020.

51. **Artemis: Mixed-reality environment for immersive surgical telementoring**
Nadir Weibel, Danilo Gasques, Janet Johnson, Thomas Sharkey, Zhuoqun Robin Xu, Xinming Zhang, Enrique Zavala, Michael Yip, Konrad Davis
Proc. Conference on Human Factors in Computing Systems (CHI), pp. 1-4, 2020.

52. **Autonomous navigation in unknown environments using sparse kernel-based occupancy mapping**
Thai Duong, Nikhil Das, Michael Yip, Nikolay Atanasov
Proc. IEEE International Conference on Robotics and Automation (ICRA), pp. 9666-9672, 2020.

53. **Composing ensembles of policies with deep reinforcement learning**
Ahmed Hussain Qureshi, Jacob J Johnson, Yuzhe Qin, Byron Boots, Michael C Yip
Proc. International Conference on Learning Representations (ICLR) (ICLR), pp. 45307, 2020.[arXiv]

54. **Dynamically constrained motion planning networks for non-holonomic robots**
Jacob J Johnson, Linjun Li, Fei Liu, Ahmed H Qureshi, Michael C Yip
Proc. IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), pp. 6937-6943, 2020.

55. **Learning-based proxy collision detection for robot motion planning applications**
Nikhil Das, Michael Yip
IEEE Transactions on Robotics, vol. 36, no. 4, pp. 1096-1114, 2020.

56. **Motion planning networks: Bridging the gap between learning-based and classical motion planners**
Ahmed Hussain Qureshi, Yinglong Miao, Anthony Simeonov, Michael C Yip
IEEE Transactions on Robotics, vol. 37, no. 1, pp. 48-66, 2020.

57. **Neural manipulation planning on constraint manifolds**
Ahmed H Qureshi, Jiangeng Dong, Austin Choe, Michael C Yip
IEEE Robotics and Automation Letters, vol. 5, no. 4, pp. 6089-6096, 2020.[arXiv]

58. **Scalable tactile sensor arrays on flexible substrates with high spatiotemporal resolution enabling slip and grip for closed-loop robotics**
Hongseok Oh, Gyu-Chul Yi, Michael Yip, Shadi A Dayeh
Science Advances, vol. 6, no. 46, pp. eabd7795, 2020.

59. **SOLAR-GP: Sparse online locally adaptive regression using Gaussian processes for Bayesian robot model learning and control**
Brian Wilcox, Michael C Yip
IEEE Robotics and Automation Letters, vol. 5, no. 2, pp. 2832-2839, 2020.

60. **Stochastic modeling of distance to collision for robot manipulators**
Nikhil Das, Michael C Yip
IEEE Robotics and Automation Letters, vol. 6, no. 1, pp. 207-214, 2020.[arXiv]

61. **SuPer: A Surgical Perception Framework for Endoscopic Tissue Manipulation with Surgical Robotics**
Yang Li, Florian Richter, Jingpei Lu, Emily Funk, Ryan Orosco, Jianke Zhu, Michael C Yip
IEEE Robotics and Automation Letters, vol. 5, no. 2, pp. 2294 - 2301, 2020.[arXiv]

62. **Vibration-based multi-axis force sensing: Design, characterization, and modeling**
Winnie Kuang, Michael Yip, Jun Zhang
IEEE Robotics and Automation Letters, vol. 5, no. 2, pp. 3082-3089, 2020.

63. **Arcsnake: Reconfigurable snakelike robot with archimedean screw propulsion for multidomain mobility**
Florian Richter, Peter V Gavrilov, Hoi Man Lam, Amir Degani, Michael C Yip
IEEE Transactions on Robotics, vol. 38, no. 2, pp. 797-809, 2021.

64. **Artemis: A collaborative mixed-reality system for immersive surgical telementoring**
Danilo Gasques, Janet G Johnson, Tommy Sharkey, Yuanyuan Feng, Ru Wang, Zhuoqun Robin Xu, Enrique Zavala, Yifei Zhang, Wanze Xie, Xinming Zhang, Konrad Davis, Michael Yip, Nadir Weibel
Proc. Conference on Human Factors in Computing Systems (CHI), no. 662, pp. 1-14, 2021.

65. **Artifacts mitigation in sensors for spasticity assessment**
Cagri Yalcin, Mathew Sam, Yifeng Bu, Moran Amit, Andrew J Skalsky, Michael Yip, Tse Nga Ng, Harinath Garudadri
Advanced Intelligent Systems, vol. 3, no. 3, pp. 2000106, 2021.

66. **Autonomous robotic suction to clear the surgical field for hemostasis using image-based blood flow detection**
Florian Richter, Shihao Shen, Fei Liu, Jingbin Huang, Emily K Funk, Ryan K Orosco, Michael C Yip
IEEE Robotics and Automation Letters, vol. 6, no. 2, pp. 1383-1390, 2021.

67. **Bimanual regrasping for suture needles using reinforcement learning for rapid motion planning**
Zih-Yun Chiu, Florian Richter, Emily K Funk, Ryan K Orosco, Michael C Yip
Proc. IEEE International Conference on Robotics and Automation (ICRA), pp. 7737-7743, 2021.[arXiv]

68. **Chance-constrained motion planning using modeled distance-to-collision functions**
Jacob J Johnson, Michael C Yip
Proc. IEEE International Conference on Automation Science and Engineering (CASE), pp. 1582-1589, 2021.

69. **Compensatory motion scaling for time-delayed robotic surgery**
Ryan K Orosco, Benjamin Lurie, Tokio Matsuzaki, Emily K Funk, Vasu Divi, F Christopher Holsinger, Steven Hong, Florian Richter, Nikhil Das, Michael Yip
Surgical Endoscopy, vol. 35, pp. 2613-2618, 2021.

70. **Constrained motion planning networks x**
Ahmed Hussain Qureshi, Jiangeng Dong, Asfiya Baig, Michael C Yip
IEEE Transactions on Robotics, vol. 38, no. 2, pp. 868-886, 2021.[arXiv]

71. **Data-driven actuator selection for artificial muscle-powered robots**
Taylor West Henderson, Yuheng Zhi, Angela Liu, Michael C Yip
Proc. IEEE International Conference on Robotics and Automation (ICRA), pp. 1783-1789, 2021.

72. **Exobiology Extant Life Surveyor (EELS)**
Kalind Carpenter, Andrew Thoesen, Darwin Mick, Justin Martia, Morgan Cable, Karl Mitchell, Sarah Hovsepian, Jay Jasper, Nikola Georgiev, Rohan Thakker, Ara Kourchians, Brian Wilcox, Michael Yip, Hamid Marvi
Earth and Space, pp. 328-338, 2021.

73. **Exobiology Extant Life Surveyor (EELS)**
Hamid Marvi, Michael Yip, Brian Wilcox, Ara Kourchians, Rohan Thakker, Nikola Georgiev, Jay Jasper, Sarah Hovsepian, Karl Mitchell, Morgan Cable, Darwin Mick Justin Martia, Andrew Thoesen, Kalind Carpenter
Pasadena, CA: Jet Propulsion Laboratory, National Aeronautics and Space Administration, 2021.

74. **From bench to bedside: The first live robotic surgery on the dVRK to enable remote telesurgery with motion scaling**
Florian Richter, Emily K Funk, Won Seo Park, Ryan K Orosco, Michael C Yip
Proc. IEEE International Symposium on Medical Robotics (ISMR), pp. 45298, 2021.[arXiv]

75. **Model-predictive control of blood suction for surgical hemostasis using differentiable fluid simulations**
Jingbin Huang, Fei Liu, Florian Richter, Michael C Yip
Proc. IEEE International Conference on Robotics and Automation (ICRA), pp. 12380-12386, 2021.
BEST PAPER AWARD NOMINEE

76. **Motion planning transformers: A motion planning framework for mobile robots**
Jacob J Johnson, Uday S Kalra, Ankit Bhatia, Linjun Li, Ahmed H Qureshi, Michael C Yip
arXiv preprint arXiv:2106.02791, pp. 1-8, 2021.[arXiv]

77. **Motion planning transformers: One model to plan them all**
Jacob John Johnson, Linjun Li, Ahmed Qureshi, Michael C Yip
Open Review, pp. 1-19, 2021.

78. **MPC-MPNet: Model-predictive motion planning networks for fast, near-optimal planning under kinodynamic constraints**
Linjun Li, Yinglong Miao, Ahmed H Qureshi, Michael C Yip
IEEE Robotics and Automation Letters, vol. 6, no. 3, pp. 4496-4503, 2021.

79. **NeRP: Neural rearrangement planning for unknown objects**
Ahmed H Qureshi, Arsalan Mousavian, Chris Paxton, Michael C Yip, Dieter Fox
Robotics: Science and Systems (RSS), pp. 45301, 2021.[arXiv]

80. **Optimal multi-manipulator arm placement for maximal dexterity during robotics surgery**
Mingwei Xu, James Di, Nikhil Das, Michael C Yip
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US Patent 10,434,644, 2019.

5. **Steerable catheter flexible robotic system for use with endoscopes**
Aaron Gunn, Michael Yip, Philip Weissbrod
US Patent App. 16/652,968, 2020.

6. **Handheld flexible robotic catheter for endoscopic instrumentation**
Michael Yip, Phil Weissbrod
US Patent App. 17/307,649, 2021.

7. **Hypertonicity measuring device and method**
Harinath Garudadri, Andrew Skalsky, Tse Nga Ng, Michael Yip, Leanne Chukoskie
US Patent 17/472,734, 2021.

8. **Hypertonicity measuring device and method**
   Harinath Garudadri, Andrew Skalsky, Tse Nga Ng, Michael Yip, Leanne Chukoskie
   US Patent App. 17/472,734, 2021.

9. **Cable driven hydraulic rolling diaphragm transmission and servo-system**
   Michael Yip, Dimitri Schreiber, Alex Grant
   US Patent 11,391,303, 2022.

10. **Surgical robotic platform for operating within the constrained space of an imaging scanner**
    Dimitrious A Schreiber, Michael Yip
    US Patent App. 17/744,390, 2022.

11. **System and method for robust and low-cost multi-axis force sensor**
    Michael Yip, Jun Zhang, Alex Tran, Winnie Kuang
    US Patent 11,504,194, 2022.

12. **Collaborative mixed-reality system for immersive surgical telementoring**
    Nadir Weibel, Michael Yip, Danilo Gasques Rodrigues, Thomas Sharkey, Janet Johnson, Konrad Davis
    US Patent App. 17/980,438, 2023.

13. **Multi-catheter flexible robotic system**
    Aaron Gunn, Philip Weissbrod, Michael Yip
    US Patent 11,547,509, 2023.

14. **Real-to-simulation matching of deformable soft tissue and other objects with position-based dynamics for robot control**
    Fei Liu, Michael C Yip, Florian Richter
    US Patent App. 18/281,472, 2024.

15. **Surgical perception framework for robotic tissue manipulation**
    Florian Richter, Michael Yip, Yang Li
    US Patent App. 18/273,819, 2024.

16. **Multi-catheter flexible robotic system**
    Aaron Gunn, Philip Weissbrod, Michael Yip
    US Patent 12,011,246, 2024.

Invited Talks

1. **Stanford University**, Stanford Robotics Seminar, Stanford, CA. May 3, 2013.

2. **Stanford School of Medicine**, Research in Bioengineering Seminar, Stanford, CA. Nov 14, 2013.

3. **Auris Surgical Robotics**, Redwood City, CA. Nov 22, 2013.

4. **Disney Research**, Walt Disney Imagineering, Glendale, CA. Apr 10, 2014.

5. **U.C. Berkeley**, Berkeley Robotics Group, Berkeley, CA. host: Dr. Pieter Abbeel. Sep 10, 2014.

6. **Stanford University**, Stanford Robotics Seminar, Stanford, CA. Oct 24, 2014.

7. **Stanford School of Medicine**, Research in Bioengineering Seminar, Stanford, CA. host: Dr. Paul Wang. Dec 3, 2014.

8. **Carnegie Mellon University**, Pittsburgh, PA. host: Mechanical Engineering Department. Feb 5, 2015.

9. **Tesla Motors**, Palo Alto, CA. Feb 9, 2015.

10. **Princeton University**, Princeton, NJ. host: Mech. & Aerospace Engineering Department. Feb 11, 2015.

11. **Massachusetts Institute of Technology**, Cambridge, MA. co-hosts: Mechanical Engineering Department and Institute for Medical Engineering and Sciences. Feb 18, 2015.

12. **McGill University**, Montreal, Canada. host: Mechanical Engineering Department. Mar 16, 2015.

13. **U.C. San Diego**, San Diego, CA. host: Electrical & Computer Engineering Department. Mar 25, 2015.

14. **Biomimetics, Artificial Muscle, and Nano-bio (BAMN2015)**, Vancouver, BC, Canada. Aug. 24-26, 2015.

15. **Qualcomm Research**, San Diego, CA. Surgical Robotics, Visual Computation, and Artificial Muscles. Dec. 14, 2015.

16. **RSS Workshop on Robot Makers: The future of digital rapid design and fabrication of robots**. Ann-Arbor, Michigan. Jun 19, 2016.

17. **Disney Research**, Los Angeles, CA. Artificial Muscles. Jun. 27, 2016.

18. **Intuitive Surgical Inc.**, Sunnyvale, CA. Surgical Robotics. Oct. 06, 2016.

19. **BOSCH**. Palo Alto, CA. Visual Computation and Augmented Reality. Oct. 10, 2016.

20. **Think Surgical**. Fremont, CA. Surgical Robotics. Oct. 11, 2016.

21. **SRI**. Menlo Park, CA. Surgical Robotics, Visual Computation and Artificial Muscles. Oct. 25, 2016.

22. **NASA Jet Propulsion Lab Distinguished Lecturer Seminar Series**. Pasedena, CA. Surgical Robotics, Visual Computation and Artificial Muscles. Nov. 17, 2016.

23. **UCSD Institute of Neural Computing**. San Diego, CA. Autonomous Surgery. Mar 03, 2017.

24. **UC Riverside Bioengineering Colloquium**. Riverside, CA. Surgical Robotics, Visual Computation and Artificial Muscles. Apr. 26, 2017.

25. **UCSD Bioengineering Seminar**. San Diego, CA. Surgical Robotics, Visual Computation and Artificial Muscles. May 4, 2017.

26. **UC Robotic Surgery Symposium**. San Diego, CA. Surgical Robotics and Augmented Reality for Surgery. May 19, 2017.

27. **UCSD Cymer Dynamics and Controls Seminar**. Surgical Robotic. Jun 9, 2017.

28. **IROS 2017, Workshop on Medical Imaging Robotics and Image-guided Robots in Medicine**. Sep 28, 2017.

29. **IROS 2017 Workshop on Continuum Robots in Medicine: Design, Integration, and Applications**. Sep 24, 2017.

30. **Revelle College Faculty Seminar Series**. San Diego, CA. Robotics and Machine Learning. Oct. 23, 2017

31. **Osher Lifelong Learning Institute**. San Diego, CA. Autonomous Surgery, Nov. 21, 2017. UCSD Artificial Intelligence Seminar. Learning Robot Manipulation. Nov. 20, 2017

32. **Qualcomm Research**. Machine Learning for Scalable Robot Control and Motion Planning. Dec 18, 2018

33. **UCSD Translational Medicine Day**. Flexible Robotics for Surgery. Feb. 23, 2018.

34. **International Symposium on Medical Robotics**. Atlanta, GA. Learning in Surgical Robotics. Mar 3, 2018.

35. **Amazon Robotics**, Seattle, WA. Learning Model-free Representations for Fast, Adaptive Robot Control and Motion Planning. May 21, 2018.

36. **Tech San Diego**, San Diego, CA. Learning for Robot Control and Motion Planning for Industrial Applications. May 29, 2018.

37. **Stanford University**, Stanford, CA. Learning Model-free Representations for Fast, Adaptive Robot Control and Motion Planning. Stanford Robotics and Autonomous Systems Seminar. Oct 26, 2018.

38. **Vanderbilt University**, Nashville, TN. Learning Model-free Representations for Fast, Adaptive Robot Control and Motion Planning. Mechanical Engineering Departmental Seminar, Nov. 11-12, 2018.

39. **Contextual Robotics Forum**, San Diego, CA. Towards Autonomous Surgical Robots. Nov. 8, 2018.

40. **Intuitive Surgical, Inc.**, Sunnyvale, CA. Learning Policies for Endoscope Control. Jan. 1, 2019.

41. **Stanford University**, Stanford, CA. Towards Autonomous Surgical Robots. Feb. 8, 2019.

42. **University of Washington**, Seattle, WA. Learning Model-free Representations for Fast, Adaptive Robot Control and Motion Planning. Feb 22, 2019

43. **US-Japan Workshop on Eng in Med & Biology @ UC San Diego**. Towards Autonomous Surgical Robots. Mar 13, 2019

44. **Financial Times Symposium on Artificial Intelligence in Digital Surgery**. San Francisco, CA. Mar. 21, 2019.

45. **UCSD Advisory Board Meeting**, San Diego, CA. Machine Learning Applications for Robot Control and Planning. Jun. 5, 2019.

46. **NASA Ames Research Center**, Mountain View, CA. From Autonomous Surgical Robots to Space Robotics. Jun 18, 2019.

47. **Autodesk** AI for Engineering Summer School, Toronto, Canada. Machine Learning Applications for Robot Control and Planning. Aug. 22, 2019.

48. **University of Toronto**, Toronto, Canada. Learning Model-free Representations for Fast, Adaptive Robot Control and Motion Planning. Aug 23, 2019.

49. **Jet Propulsion Laboratory**, Pasedena, CA. EELS Screw Locomotion. Oct 29, 2019.

50. **IROS 2019 Intelligent Robot Interactions with Autonomy Workshop**. dVRL: daVinci Reinforcement Learning Framework for learning Transferable Surgical Skills. Nov. 8, 2019.

51. **IROS 2019 Learning Representations for Planning and Control Workshop**. Motion Planning Networks. Nov. 8, 2019.

52. **Google Brain**, Mountain View, CA. Model-free Representations for Robot Control and Planning in Complex Environments. Jan 29, 2020.

53. **Intuitive Surgical**, Sunnyvale, CA. Optimal da-Vinci Arm Positioning for Minimal Self- and Environment Collisions. Jan 31, 2020.

54. **Southern California Robotics Symposium**, UCLA, Los Angeles, CA. Model-free Representations for Robot Control and Motion Planning. Apr 17, 2020. (canceled)

55. **International Symposium for Medical Robotics 2020**, SuPer: An Integrated Surgical Perception Framework for Endoscopic Image-guided Minimally Invasive Surgery. In Data-driven Methods for Robotic Minimally Invasive Surgery Workshop. Apr 22, 2020. (postponed)

56. **IROS2020 Trends and Advances in Machine Learning and Automated Reasoning for Intelligent Robots and Systems Workshop**. Accelerated Control and Motion Planning by Learning Kernel Maps of Robot Configuration Spaces. Oct 29, 2020

57. **IROS2020 Cognitive Robotic Surgery**. Perception in Robotic Surgery: Challenges and New Opportunities. Nov 6, 2020.

58. **BiomedDigital**. (virtual) Boston, MA. Learning to Control and Plan Surgical Robots within the Body. Mar 9, 2021

59. **FAH Virtual Salon**. (virtual) UC San Diego, La Jolla, CA. Robots as Medical Force Multipliers. Jun 18, 2021.

60. **Ronovo Surgical**. (virtual) Surgical Robotics at UCSD. Aug 25, 2021.

61. **University of Utah**. (virtual) Salt Lake City, UT. Learning to Control and Plan Surgical Robots within the Body. Dec 2, 2021

62. **Jet Propulsion Laboratory**. Pasedena, CA. Towards Increasingly Dexterous Robots in Uncertain Environments: A Mixed Approach of Novel Representation Learning, Parallel Computation, and New Robot Platforms. Jun 10, 2022.

63. **Hamlyn Symposium**. (virtual) London UK. Towards Versatile and Seamless Surgical Technologies Workshop. Keynote. Practical Machine Learning for Autonomous Surgery: the Real-to-Sim-to-Real Paradigm. London, UK. Jun 29, 2022.

64. **MIRIN XR Symposium**. (virtual) Houston TX. Engineering Robotic Situational Awareness for Surgery at UCSD. Oct 4, 2022.

65. [**Keynote**] **AIM2023, Advanced Intelligent Machines 2023**. Seattle, WA. The New Age of Learning-based Robot Motion Planning. Jun 29, 2023.

66. **Nvidia Research**. Seattle, WA. Towards Learnable Representations for Faster and More Optimized Robot Task and Motion Planning. Jun 29, 2023.

67. **IROS2023, Data vs Model in Medical Robotics**. Detroit, MI. Visual-Motor Learning for surgical robot autonomy. Oct 5, 2023.

68. **University of Southern California**. Los Angeles, CA. Teaching a robot to perform surgery: from 3D Image Understanding to Deformable Manipulation. Oct 11, 2023.

69. **Case Western Reserve University**. Cleveland, OH. Teaching a robot to perform surgery: from 3D Image Understanding to Deformable Manipulation. Dec 5, 2023.

70. **Carnegie Mellon University**, Pittsburgh, PA. Teaching a robot to perform surgery: from 3D Image Understanding to Deformable Manipulation. Pittsburgh, PA. Feb 15, 2024.

71. **Chinese University of Hong Kong**, Hong Kong. Teaching a robot to perform surgery: from 3D Image Understanding to Deformable Manipulation. Feb 27, 2024.

72. **ICRA2024. Translational Research in Medical Robotics. Yokohama, Japan.** Achieving Contextual Understanding and Autmation in Surgery with the daVinci Research Kit. May 17, 2024.

73. **ICRA2024, 4th Workshop on Representing and Manipulating Deformable Objects.** Yokohama, Japan. Deformable Manipulation for Autonomous Surgical Robots. May 17, 2024.

74. **Contextual Robotics Institute, UCSD.** The Language of Robot Motion Planning. La Jolla, CA. Sep 19, 2024.

75. **University of Arizona.** Teaching a robot to perform surgery: from 3D Image Understanding to Deformable Manipulation. Tuscon, AZ. Nov 7, 2024.

76. **Quebec Artificial Intelligence Institute (MILA)**. The Language of Robot Motion Planning. Montreal, QC. Nov 14, 2024.

77. **Google X, Intrinsic**. Robot Planning and Control in a Complex World. Mountain View, CA. Jan 21, 2025.

78. **IGE HealthLink**. La Jolla, CA. A journey through surgical robotics: from academia to startup. Apr. 4, 2025.

79. **ICRA2025, Emerging Landscape of Surgical Robotics (ELSR)**. Atlanta, GA. Untitled Talk and Panelist. May 21, 2025.

80. **ICRA2025, 3rd Workshop on Robot-Assisted Medical Imaging (RAMI)**. Atlanta, GA. Surgical Robotic Visual Servoing in the Age of Differentiable Rendering and Real-time Simulation. May 21, 2025.

81. **Medical Robotics Symposium (MRS-MRC)**. Hong Kong, HK. Humanoid Robots and the Future of Robot-Assisted Surgery. May 31, 2025.

82. **Toronto Robotics Symposium**. Toronto, ON, Canada. Achieving Fine Manipulation in a Complex Dynamic World. July 16, 2025.

83. **CASE2025, The Future of Work in the Age of Robotics and AI Workshop**. Los Angeles, CA. Robotics, AI, and Healthcare: Why we need Autonmoous Robots and what the Future May Look Like. Aug. 21, 2025.

84. **Osher Lifelong Institute**. San Diego, CA. Robotics, AI, and Healthcare: Where we are Today, and What the Future May Look Like. Aug. 26, 2025.

85. **SAE International**. Virtual. Medical & Healthcare Robotics Summit. Humanoid Robots and the Future of Robot-Assisted Surgery. Sep. 15, 2025.

86. **META Reality Labs**. Redmond, WA. Teaching Robots the Human Touch: Fine Manipulation in Real, Dynamic Environments. Sep. 22, 2025.

87. **Humanoid Robotics Forum**. Seattle, WA. Humanoids in Hospitals: A First Glimpse of Robots as Physicians. Sep. 23, 2025.

88. **Advanced Micro Devices (AMD)**. Santa Clara, CA. How Representation Learning & Parallel Computing are Bringing Robotics into the Real World. Oct. 1, 2025.

89. **Berkeley AI Robotics (BAIR)**. Berkeley, CA. Closing the Last Millimeter: Fine Manipulation for Robots in an Unstructured an Dynamic World. Oct. 5, 2025.

90. **RoboBusiness**. Santa Clara, CA. From Teleop to Autonomy: A Framework for Humanoid Surgical Robots. Oct. 15, 2025.

91. **IROS2025, AI-Driven Surgical Autonomy Workshop**. Hangzhou, China. Feedback Matters: Augmented Autonomous Dissection with Visual and Topological Feedback. Oct. 18, 2025.

92. **Stanford Digital Health Symposium**. Stanford, CA. Humanoids in Hospitals: A First Glimpse of Robots as Physicians. Oct. 23, 2025.

93. **Contextual Robotics Institute Forum**. La Jolla, CA. Dr. Robot will See You Now: A First Glimpse of Robots as Physicians. Nov. 5, 2025.

94. **Johns Hopkins University**. Baltimore, MA. Closing the Last Millimeter: Fine Manipulation for Robots in an Unstructured and Dynamic World. Dec. 17, 2025.

95. **San Diego Wireless Summit**. La Jolla, CA. Physical Intelligence in an AI-centric World. Jan. 23, 2026.

96. **Society of American Gastrointestinal and Endoscopic Surgeons (SAGES) Annual Meeting**. Tampa, FL. Space-Traveling Humanoid Robot Surgeons. Mar 25, 2026.

97. **National Academy of Sciences (NAS), Distinctive Voices**. Irvine, CA. The Next Generation of Surgery: From Automated Surgery to Humanoid Robot Surgeons. Apr 8, 2026.

Service

University Service

- ECE MS/PhD Admissions Committee, SIP/ISRC Group Member, ECE Department 2015–2016
- ECE Robotics Faculty Hiring Committee 2015–2016
- ECE Maker Space 2015–2016
  lead in ground-up development, fitting of equipment and resources, implementation
- ECE190 Mentor 2016
- ECE Faculty Affairs Committee 2016
- FISP Review Committee for UCSD (30/180 applications reviewed) 2016
- Summer Training Academy for Research Success (STARS) program 2016–2017
- ECE Maker Space Hiring Committee 2017
- COSMOS Summer Program, Coordination & Teaching Faculty 2017
- Journal Paper Equivalent Conferences Committee 2018
- Design Lab Faculty Search Committee 2018
- Contextual Robotics Forum Steering Committee 2018
- ECE191 Senior Design Project Mentor 2018
- ECE Excellence Hiring Committee 2019
- Design Lab Faculty Search Committee 2019
- ECE191 Senior Design Project Mentor 2016, 2019, 2024–
- ECE Machine Learning / Data Science (MLDS) Curriculum Advisor 2018–2022
- ECE Graduate Affairs Committee 2019–2021
- BIOE187A,B,C,D Senior Design Project Mentor 2019–
- MAE156A,B Senior Design Project Mentor 2019–
- Director, Healthcare Robotics Collaboratory, UCSD Contextual Robotics Institute 2020–
- ENLACE Mentor (Latin America High School Exchange Program) 2022–
- ABET Committee on ECE Working Group, 2021 2024–
- System Engineering Extended Search Committee 2024–
- ECE Diversity & Inclusion Committee 2024–

Editorship

- IEEE International Conference on Robotics and Automation (ICRA), Associate Editor 2015–2021
- IEEE Robotics and Automation Letters (RA-L), Associate Editor 2016–2021
- IEEE Int. Conference on Biomedical Robotics and Biomechatronics (BioRob), Editor 2025–

Reviewer

- IEEE Transactions on Biomedical Engineering 2011–2012
- IEEE Conference on Biomedical Robotics and Biomechatronics 2013
- Advanced Robotics 2014–2015
- International Journal of Computer Assisted Radiology and Surgery (IJCARS) 2015
- Bioinspiration and Biomimetics 2015
- Soft Robotics (SoRo) 2015
- Conference on Robot Learning (CoRL) 2017
- Human Robot Interaction (HRI) 2017
- ASME Journal of Mechanisms and Robotics 2011, 2020
- IEEE/RSJ Int. Conf. on Intelligent Robots and Systems, IROS 2011–
- IEEE Transactions on Robotics 2011–
- IEEE Int. Conf. on Robotics and Automation, ICRA 2011–
- International Journal of Robotics Research (IJRR) 2015–
- IEEE Robotics and Automation Letters (RA-L) 2016–

Panel Reviews

- NSF National Robotics Initiative 2.0 2017
- NSF Information and Intelligent Systems (IIS) Robust Intelligence Core Program 2020
- NIH National Institute of Biomedical Imaging and Bioengineering (NIBIB) Panelist 2022

Professional Society Committees

- Chair for Technical Committee Surgical Robotics 2022–
  With 4 other TC chairs, organize research events, outreach, publications, public relations, etc. for the largest robotics organization worldwide.

Program Committee:

- Robotics, Science, and Systems (RSS), Primary Area Chair 2017, 2018
- International Symposium on Medical Robotics, Program Committee 2017, 2018
- Contextual Robotics Forum, Co-Chair 2018, 2024
- IEEE Haptics Symposium, Sponsorship Chair 2018
- IEEE Int. Conference on Robotics and Systems (ICRA), Session Chair 2019, 2023–2025
- IEEE Int. Conference on Robotics and Systems (IROS), Session Chair 2019, 2020, 2023, 2025
- IEEE Int. Conference on Robotics and Systems (IROS), 2026 Steering Committee 2025–

- IEEE Int. Conf. Biomedical Robotics and Biomechatronics (BioRob), 2026 Program Committee 2025–

Workshop Chairman:

- *Continuum Robots in Medicine–Design, Integration, and Applications.* 2017
  IROS2017 full-day workshop
- *C4 Surgical Robots: Compliant, Continuum, Cognitive, and Collaborative* 2017
  ICRA2017 full-day workshop
- *Learning Representations for Planning and Control* 2019
  IROS2019 full-day workshop
- *Intelligent Robot Interactions with the Anatomy: Sensing, Modeling, Control, and Learning* 2019
  IROS2019 full-day workshop
- *Cognitive Robotic Surgery* 2020
  IROS2020 full-day workshop
- *Machine Learning in Planning and Control* 2020
  ICRA2020 full-day workshop
- *Data-driven Methods for Robotic Minimally Invasive Surgery* 2020
  ISMR2020 International Symposium on Medical Robotics full-day workshop
- *Machine Learning for Motion Planning* 2021
  ICRA2021 full-day workshop
- *1st Workshop on the Evolving Landscape of Surgical Robotics (ELSR)* 2025
  ICRA2025 full-day workshop

Notable Memberships

- IEEE, Senior Member 2021
- National Academy of Inventors, Senior Member 2024

Mentorship

***Faculty Graduates from my Lab**

1. Jun Zhang, **now faculty at University of Nevada, Reno**
2. Yang Li (visiting PhD student), **now faculty at Zhejiang University**
3. Ahmed Qureshi, **now faculty at Purdue University**
4. Fei Liu, **now faculty at University of Tennessee, Knoxville**
5. Shan Lin, **now faculty at Arizona State University**
6. Zih-Yun Chiu, **now faculty at Johns Hopkins University**

Postdocs

1. Jun Zhang, Ph.D. 2016–2018
   Topic: Artificial Muscles
2. Fei Liu, Ph.D. 2020–2024
   Topic: Surgical Robot Autonomy

3. Shan Lin, Ph.D. 2020–2024
Topic: Surgical Robot Autonomy and 3D Computer Vision

Medical Fellows

1. Emily Funk, M.D. (co-supervised by Drs. R. Orosco, P. Weissbrod) 2019–2020
Topic: Surgical Robot Autonomy

2. Ben Ostrander, M.D. (co-supervised by P. Weissbrod) 2022–2023
Topic: Surgical Robot Autonomy and Continuum Robots

PhD Thesis Advisor

1. Nikhil Das, Ph.D. **now at Lytx, San Diego** 2015–2020
Topic: Machine Learning for Robot Collision Detection, Control and Planning

2. Dimitri Schreiber, Ph.D. **Startup founder based on PhD Thesis.** 2017–2023
Topic: Medical Image Guided Surgical Robots

3. Florian Richter, Ph.D. **Startup founder based on PhD Thesis.** 2017–2022
Topic: Robot Learning and 3D Computer Vision for Robotic Surgery

4. Ahmed Qureshi, Ph.D. **accepted tenure-track faculty at Purdue University** 2017–2021
Topic: Neural Motion Planning

5. Jacob Johnson, Ph.D. **now at Berkshire Grey.** 2017–2023
Topic: Neural Motion Planning

6. Jingpei Lu, Ph.D. **now at Intuitive Surgical** 2018–2024
Topic: Robot Learning and 3D Computer Vision for Robotic Surgery

7. Zih-Yun Chui, Ph.D. **accepted tenure-track faculty at Johns Hopkins University** 2018–2024
Topic: Robot Learning for Surgical Robots

8. Nikhil Shinde, (co-advised with Sylvia Herbert in MAE) 2019–
Topic: Robot Learning for Safe Manipulation

9. Yuheng Zhi 2020–
Topic: Robot Learning for Motion Planning and Control

10. Elizabeth Peiros 2022–
Topic: Biomechnically Aware Physical Human Robot Interaction

11. Xiao Liang 2022–
Topic: Model Learning for Surgical Autonomy

12. Soofiyan Atar 2024–
Topic: Humanoid Robotics for Fine Manipulation

13. Lucas Liang 2024–
Topic: Humanoid Robots for Surgical Robot Autonomy

Masters Student Mentorship as Thesis Advisor

1. Yi Luo, **now at TuSimple, Research Division** 2016–2017

2. Dmitrii Votintcev, **now at Google – Research and Machine Intelligence Group** 2016–2017

3. Brian Wilcox, **now at Intel – Self-Driving Vehicles** 2017–2020

4. Mayur Bency, **now at Oracle – Machine Learning Group** 2017–2018

5. Andrew Saad, **now at Qualcomm – Robotics Group** 2017–2018
6. Sammie Wang, **now at Northrop Grumman** 2017–2018
7. Yinglong Miao, **now at Rutgers University** 2018–2020
8. Taylor Henderson, **now at Northrop Grumman** 2018–2020
9. Harleen Singh, **now at Dexcom** 2019–2021
10. Jason Lim **now at Cor Medical Ventures** 2022–2023
11. Alexander Luke, **now at Intuitive Surgical** 2022–2023

BS/MS Research Advisor

2015–2016 Academic Quarter:
Aaron Gunn, Kaushik Iyer, Winnie Kuang, Josiah Wong, Alex Tran, Kevin Cheng

2016–2017 Academic Quarter:
Winnie Kuang, Josiah Wong, Alex Tran, Kevin Cheng, Zixuan Lan, Guhan Sundar, Wesly Wang, Adam Factor, Ojash Neopane, Julie Yu, Anthony Simeonov, Taylor West, Yuqi Zhang, Naman Gupta (visitor, BITS Pilani), QiYuan Fu, ME (visitor, Tsinghua University)

2017–2018 Academic Quarter:
Jonathan Leung, Guhan Sundar, Adam Factor, Anthony Simeonov, Aaron Gunn, Winnie Kuang, Brian Henriquez, Kevin Cheng, Yifei Zhang, Taylor West, Donald Dean, Guangyan Shen, Ojash Neopane, Jacob Johnson, Xinran Li, Daniel Shak, Xiaoyu Zhou, Dimitri Schreiber

2018–2019 Academic Quarter:
Anusha Kopparam, Fangyi Li, Yuzhe Qin, Yubai Di, Yi Peng, Zhixian Ye, Mingwei Xu, Xinran Li, Thai Duong, Daniel Shak, Quan Vuong, Yinglong Miao, Duke Lin, Yuheng Zhi (visitor, Shanghai Jiaotong University)

2019–2020 Academic Quarter:
Yinglong Miao, Soumyaraj Bose, Haiyue Chang, Zihyun Chiu, Shilong Dai, Jiangeng Dong, Yahsiu Hsieh, Linjun Li, Zihan Li, Hejin Liu, Jingpei Lu, Saurabh Mirani, Harleen Singh, Ambareesh Sreekumaran Nair Jayakumari, Austin Choe, Ayon Biswas, Asfiya Baig, Venkatesh Venkataramanan, Hanpeng Jiang, Ruoqi Zhang, Xinmin Zhang, Guosong Li, Taylor Henderson, Renjie Zhu, Peter Gavrilov, Lucas Jonasch, Kevin Hoi Man Lam, Brandon, Casey Price, Kelvin Shen, Anastasiia Makhniaieva

2020–2021 Academic Quarter:
Patrick Yeh, Anastasiia Makhniaieva, Ayon Biswas, Haiyue Chang, Jiangeng Dong, Reilly Jensen, Saurabh Mirani, Derek Chen, Daniel George, Neelay Joglekar, Albert Liao, Chong He, Mingen Li, Saikiran Komatineni, Kyle Hu, Jonathan Zamora, Xiaoye Zuo, Venkatesh Venkataramanan

2021–2022 Academic Quarter:
Xiao Liang, Shunkai Yu, Ziheng Huang, Neelay Joglekar, Chengjing Yuan, Harinaath Chelva Sriman, Sanchit Gupta, Jason Lim, Wangyi Liu, Parth Netekar, Haaris Rahman, Evan Smith, Shanmukha Vellamcheti, Zhaowei Yu, Scott Miller, Chong He, Isabella Kemp, Hoi Man Lam, Alexander Luke, Siddhant Salvi, Calvin Joyce, Shunkai Yu, Entong Su, Saikiran Komatineni, Nathan Newbury, Chengjing Yuan

2022–2023 Academic Quarter:
Neelay Joglekar, Mandy Cheung, Shreya Saha, Kaiyuan Wang, Yutong Wang, Alexander Luke, Calvin Joyce, Shunkai Yu, Sanchit Guptra,Xiao Liang, Mingwei Yeoh, Sumadhu Rubaiyat, Albert Miao,

2023–2024 Academic Quarter:
Venz Burgos, Mandy Cheung, Yijie He, Sharvari Deshmukh, Yun-Jie Ho, Anlun Huang, Neelay Joglekar, Lucas Liang, Sumadhu Rubaiyat, Shreya Saha, Chung-Pang Wang, Kaiyuan Wang, Xipeng Zhang, Youcheng Zhang, Yutong Zhang

2024–2025 Academic Quarter:
Changwei Chen, Tung-Yen Chiang, Sharvari Deshmukh, Ishan Duriseti, Connor Guzikowski, Yun-Jie Ho, Anlun Huang, Emma Huang, Yao-Ting Huang, Haixin Jin, Neelay Joglekar, Sujen Kancherla, Borui Li, Jiajun Li, Lucas Liang, Pradhit Ongole, Sumadhu Rubaiyat, Anushka Sinha, Syler Sylvester, Chung-Pang Wang, Kevin Wang, Zhenyu Wu, Peihan Zhang, Xipeng Zhang

Visiting Faculty

1. Blake Hannaford, University of Washington 2026
2. Jessica Burgner-Kahrs, University of Toronto 2026
3. Lueder Kahrs, University of Toronto 2026
4. Amir Degani, Technion University 2018–2019

Local Outreach

- San Diego Maker Faire at Balboa Park, ECE115 Fast Prototyping Course Demos 2016
- Faculty Mentor, US First Robotics Team, Clairemont High School 2016

Personal

Maker, Hockey Player, Musician, Parent