

Shenli Yuan

50 E Middlefield Road, Apt 40, Mountain View, California 94043, USA
shenliy@stanford.edu • +1 (765) 637-8908 • <https://yuanshenli.com>

EDUCATION

Stanford University, Stanford, CA, USA

- Ph.D. in Mechanical Engineering (Minor in Computer Science) Mar 2022
 - Adviser: Prof. Kenneth Salisbury
 - Co-Advisers: Prof. Sean Follmer
 - Dissertation: Robot In-Hand Manipulation Using Roller Graspers
 - Stanford Interdisciplinary Graduate Fellowship (2018-2021)
- M.A. in Music, Science and Technology Sep 2019
 - Stanford Center for Computer Research in Music and Acoustics (CCRMA)
- M.S. in Mechanical Engineering Jun 2018
 - Cumulative GPA: 3.95 / 4.00

Purdue University, West Lafayette, IN, USA

- B.S. in Mechanical Engineering May 2015
 - Graduated with Highest Distinction
 - Cumulative GPA: 3.95 / 4.00

Shanghai Jiao Tong University, Shanghai, China

- B.S. in Mechanical Engineering Jul 2015
 - College Graduate Excellence Award of Shanghai, 2015
 - Cumulative GPA: 3.62 / 4.00

PROFESSIONAL EXPERIENCE

SRI International, Menlo Park, CA

- Senior Research Engineer Mar 2023 – Present
- Research Engineer Apr 2022 – Mar 2023
 - Conduct research on robot dexterous manipulation through the development of novel robot hands and algorithms. Specifically, developed a Belt-Augmented Compliant Hand (BACH) utilizing compliant mechanisms and active surfaces to achieve unprecedented manipulation dexterity and robustness.
 - Develop semi-autonomous algorithm for robot-assisted surgery under high network latency. The system was evaluated during a femoral artery shunt procedure in an animal trial.
 - Develop novel actuated soft knee brace to prevent anterior cruciate ligament (ACL) re-injuries.
 - Work on proposals, business development, and internal research and development to identify opportunities and potential clients.

Stanford University, Stanford, CA

- Adjunct Lecturer Sep 2022 – Dec 2022
 - ME223 - Applied Robot Design for Non-Robot-Designers: How to Fix, Modify, Design, and Build Robots.

Alibaba Group Inc., Sunnyvale, CA

- Research Intern Jun 2018 – Sep 2018
 - Development of texture display prototypes that allow users to feel different textures on a surface.
 - Developed hand gestures to manipulate objects displayed in mid air with naked-eye 3-D display (project Refinity).
 - Designed user studies to understand how human interact with 3-D virtual objects in mid air.

Samsung Research America, Velancia, CA

- Digital Signal Processing Intern Jun 2017 – Sep 2017
 - Non linear control of loudspeakers with port or passive radiator.
 - Loudspeaker acoustic measurement.
 - Cinema acoustic simulation using CATT Acoustics.
 - Simulated repeated multitone measurement technique for noise and distortion rejection.

PUBLICATIONS

JOURNALS

- Gruebele, A. M., Lin, M. A., Brouwer, D., Yuan, S., Zerbe, A. C., & Cutkosky, M. R. (2021). A Stretchable Tactile Sleeve for Reaching Into Cluttered Spaces. *IEEE Robotics and Automation Letters*, 6(3), 5308-5315.

- Satija, A., Yuan, S., Naik, S. V., & Lucht, R. P. (2015). Vibrational CARS thermometry and one-dimensional numerical simulations in $CH_4/H_2/air$ partially-premixed flames. *International Journal of Hydrogen Energy*, 40(21), 6959-6969.

CONFERENCES

- Cai, Y., & Yuan, S. (2023). In-Hand Manipulation in Power Grasp: Design of an Adaptive Robot Hand with Active Surfaces. *IEEE International Conference on Robotics and Automation (ICRA) 2023*. (Outstanding Manipulation Paper Award, Finalist of Outstanding Conference Paper Award)
- Yako, C., Yuan, S., & Salisbury, K. (2022). Designing Underactuated Graspers with Dynamically Variable Geometry Using Potential Energy Map Based Analysis. *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS) 2022*.
- Shao, L., You, Y., Yan, M., Yuan, S., Sun, Q., & Bohg, J. (2021). GRAC: Self-Guided and Self-Regularized Actor-Critic. *5th Annual Conference on Robot Learning (CoRL) 2021*.
- Yuan, S., Shao, L., Yako, Connor., & Salisbury, K. (2020). Design and Control of Roller Grasper V2 for In-Hand Manipulation. *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS) 2020*.
- Yuan, S., Epps, A., Nowak, J., & Salisbury, K. (2020). Design of a Roller-Based Dexterous Hand for Object Grasping and Within-Hand Manipulation. In *Proceedings of IEEE International Conference on Robotics and Automation (ICRA) 2020*. (Best Student Paper Award, Best Paper Award in Robot Manipulation, Finalist of Best Paper Award, Finalist of Best Paper Award in Mechanisms and Design)
- Siu, A. F., Gonzalez, E. J., Yuan, S., Ginsberg, J. B., & Follmer, S. (2018). shapeShift: 2D Spatial Manipulation and Self-Actuation of Tabletop Shape Displays for Tangible and Haptic Interaction. In *Proceedings of the 2018 CHI Conference on Human Factors in Computing Systems (CHI '18)*. ACM, New York, NY, USA.
- Brunet, P., Decanio, W., Banka, R., & Yuan, S. (2017, October). Use of Repetitive Multi-Tone Sequences to Estimate Nonlinear Response of a Loudspeaker to Music. In *Audio Engineering Society Convention 143*. Audio Engineering Society.
- Bezzola, A., Brunet, P., & Yuan, S. (2017, October). Variable Fractional Order Analysis of Loudspeaker Transducers: Theory, Simulations, Measurements, and Synthesis. In *Audio Engineering Society Convention 143*. Audio Engineering Society.
- Satija, A., Yuan, S., & Lucht, R. P. (2015). Development of Combined Dual-Pump Vibrational and Pure-Rotational Coherent Anti-Stokes Raman Scattering (DPVCARS and PRCARS) Systems and their Application to Laminar Counter-flow Flames. In *53rd AIAA Aerospace Sciences Meeting* (p. 1694). Chicago

BOOK CHAPTERS

- Siu, A. F., Yuan, S., Pham, H., Gonzalez, E., Kim, L. H., Le Goc, M., & Follmer, S. (2018). Investigating Tangible Collaboration for Design Towards Augmented Physical Telepresence. In *Design Thinking Research* (pp. 131-145). Springer, Cham.

POSTERS AND DEMONSTRATIONS

- Siu, A. F., Gonzalez, E. J., Yuan, S., Ginsberg, J., Zhao, A., & Follmer, S. (2018). shapeShift: A Mobile Tabletop Shape Display for Tangible and Haptic Interaction. *IEEE Haptics Symposium (HS '18)*, San Francisco, CA.
- Siu, A. F., Gonzalez, E. J., Yuan, S., Ginsberg, J., Zhao, A., & Follmer, S. (2017, October). shapeShift: A Mobile Tabletop Shape Display for Tangible and Haptic Interaction. In *Adjunct Publication of the 30th Annual ACM Symposium on User Interface Software and Technology* (pp. 77-79). ACM. (Best Demo Honorable Mention)

COMPETITIONS ▪ Second place in Real Robot Challenge: Learn Dexterous Manipulation on a Real Robot Dec 2020

INVITED TALKS **Contemporary Amperex Technology Co., Limited (CATL)**
 ▪ How Robot In-Hand Manipulation influences industrial automation. May 2022
SRI International Artificial Intelligence Center
 ▪ Robot In-Hand Manipulation Using Roller Graspers May 2022

	Google ATAP		
	▪ Robot In-Hand Manipulation Using Roller Graspers		April 2022
	MIT Computational Sensorimotor Learning (CSL) Seminar		
	▪ Robot In-Hand Manipulation Using Roller Graspers		Feb 2022
TEACHING EXPERIENCE	Course Instructor, Stanford University		
	▪ ME223 - Applied Robot Design for Non-Robot-Designers: How to Fix, Modify, Design, and Build Robots		Fall 2022
	Course Assistant, Stanford University		
	▪ CS223A/ME320 - Introduction to Robotics		Winter 2021 & Winter 2022
	▪ ME216M - Introduction to the Design of Smart Products		Spring 2017 & Spring 2018
	Teaching Assistant, Purdue University		
	▪ ME263 - Mechanical Engineering Design, Innovation & Entrepreneurship		Fall 2014 & Spring 2015
RESEARCH ADVISED	PhD Students		
	▪ Connor Yako, Mechanical Engineering, Stanford University		2019 – 2022
	▪ Jerome Nowak, Mechanical Engineering, Stanford University		2018 – 2020
	Masters Students		
	▪ Yilin Cai, Robotics Institute, Carnegie Mellon University		2022 – 2023
	▪ Jiatong Sun, Mechanical Engineering & Computer Science, University of Pennsylvania		2020 – 2021
	▪ Teng Xue, Mechanical Engineering, Shanghai Jiao Tong University		2020 – 2021
	▪ Delara Mohtasham, Mechanical Engineering, Stanford University		2018 – 2019
	Undergraduate Students		
	▪ Charles Pan, Computer Science, Stanford University		2019
	▪ Jason Ah Chuen, Computer Science, Stanford University		2019
	▪ Hieu Minh Pham, Art & Art History, Stanford University		2016
ACADEMIC SERVICE	Editor		
	▪ International Journal of Artificial Intelligence and Robotics Research		
	Associate Editor		
	▪ The International Journal of Robotics Research		
	▪ IEEE International Conference on Robotics and Automation (ICRA) 2023		
	Reviewer		
	▪ Mechanism and Machine Theory		
	▪ IEEE Robotics and Automation Letters (RA-L)		
	▪ IEEE International Conference on Robotics and Automation (ICRA)		
	▪ IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)		
	▪ Conference on Neural Information Processing Systems (NeurIPS)		
AWARDS & SCHOLARSHIPS	▪ Outstanding Manipulation Paper Award, ICRA 2023		2023
	▪ Best Student Paper Award, ICRA 2020		2020
	▪ Best Paper Award in Robot Manipulation, ICRA 2020		2020
	▪ Stanford Interdisciplinary Graduate Fellowship		2018-2021
	▪ College Graduate Excellence Award of Shanghai		2015
	▪ Perry Undergraduate Research Scholarship, Purdue University		Spring 2015
	▪ Summer Undergraduate Research Fellowship, Purdue University		Summer 2014
	▪ William H. and E. Jean Pfaff Scholarship, Purdue University		2014
	▪ Dean's List & Semester Honors for Outstanding Scholastic Performance, Purdue University 2013, 2014		
	▪ Liu Gong Academic Excellence Scholarship, Shanghai Jiao Tong University		2013
	▪ Excellent Student Leader, Shanghai Jiao Tong University		2013
	▪ First-class Academic Excellence Scholarship, Shanghai Jiao Tong University		2012
	▪ Jin Sheng Academic Excellence Scholarship, Shanghai Jiao Tong University		2012
SELECTED MEDIA COVERAGE	IEEE Spectrum		
	▪ We Can Do Better Than Human-Like Hands for Robots		June 2020