

Curriculum Vitae (September, 2026)

Haijun Su

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APPOINTMENTS

08/2019-present Professor, Department of Mechanical & Aerospace Engineering, The Ohio State University, OH.
07/2015-08/2019 Associate Professor, Department of Mechanical & Aerospace Engineering, The Ohio State University, OH.
09/2011-06/2015 Assistant Professor, Department of Mechanical & Aerospace Engineering, The Ohio State University, OH.
08/2007-08/2011 Assistant Professor, Department of Mechanical Engineering, University of Maryland Baltimore County, Baltimore, MD
11/2004-06/2007 Postdoctoral Associate and Lecturer, Department of Mechanical Engineering, Iowa State University, Ames, IA. Supervisor: Judy Vance

EDUCATION

09/1999-09/2004 University of California Irvine, CA
Ph.D., Mechanical Engineering, Advisor: J. Michael McCarthy
09/1995-04/1998 Beijing University of Posts & Telecommunications Beijing, China
M.S., Mechanical Engineering, Kinematics and Mechanisms, School of Automation.
09/1991-07/1995 Beijing University of Posts & Telecommunications Beijing, China
B.S., Mechanical Engineering, Electronic packaging, School of Automation.

AWARDS AND HONORS

- 2026, **ASME Design Engineering Division (DED) Mechanisms and Robotics Award**, presented at the 2026 ASME International Design Engineering Technical Conferences (IDETC/CIE), Houston, Texas.
- 2026, **ASME Design Engineering Division (DED) Leonardo Da Vinci Award**, presented at the 2026 ASME International Design Engineering Technical Conferences (IDETC/CIE), Houston, Texas.
- 2026, **Best Paper Award, ASME Mechanisms and Robotics Conference**, for the paper titled “Solving Kinematics Problems by Leveraging the Power of Large Language Models”.

- 2024, Journal Spotlight selected by ASME Journal of Mechanisms and Robotics, for the paper titled “A high performance pneumatically actuated soft gripper based on layer jamming”
- 2022, World’s top 2% cited scientists.
- 2022, Distinguished Service Award as Associate Editor (2018-2021), ASME Journal of Mechanical Design, 2022.
- 2021, Outstanding Service Award as Associate Editor (2016-2021), Mechanism and Machine Theory
- 2021 Most Cited Papers for the ASME Journal of Mechanisms and Robotics for the paper titled “*Design and Fabrication of a Soft Robotic Hand with Embedded Actuators and Sensors*”
- 2021 Journal Spotlight (ASME Journal of Mechanical Design) at the 2021 ASME International Design Engineering Technical Conferences (IDETC) for the paper titled “*A comparative study on the effect of mechanical compliance for safe physical human-robot Interaction*”
- 2021 Journal Spotlight (ASME Journal of Mechanisms and Robotics) at the 2021 IDETC & Best Paper Award Honorable Mention for 2020 ASME Journal of Mechanisms and Robotics for the paper titled “*Design and modeling of a Tunable Stiffness Arm for Safe Physical Human-Robot Interaction*”
- 2020, Associate Editor Award, ASME Journal of Mechanical Design, 2021.
- 2018, Finalist for Best Paper in Biomimetics, 2018 IEEE International Conference on Robotics and Biomimetics (ROBIO 2018)
- 2018, Andrew P. Sage Best Transactions Paper Award of IEEE Transactions on Systems, Man and Cybernetics (SMC), 2018.
- 2018, Best Paper Award in Theory in Vibration Technical Committee Invited Session, ASME Dynamics Systems and Control Conference, 2018
- 2018, **Lumley Interdisciplinary Research Award**, College of Engineering, The Ohio State University, 2018.
- 2017, Fellow of American Society of Mechanical Engineers, 2017
- Planetary speaker, Polynomials Kinematics and Robotics Conference, Notre Dame, 2017.
- Invitation to Halcyon Dialogue by S&R Foundation, Washington, DC, 2016.
- National Robotics Initiative Grant, National Science Foundation, 2016
- **Lumley Research Award**, College of Engineering, The Ohio State University, 2015.
- NASA Jet Propulsion Lab Summer Faculty Fellowship, 2015, JPL, Caltech, Pasadena, CA, 2015
- Compliant Mechanism Theory best paper award, ASME DED Mechanisms & Robotics committee, 2014, Buffalo, NY.
- Nomination of a Distinguished Undergraduate Research Mentor Award, Undergraduate Research Office and URO’s Student Advisory Committee, 2014, OSU.
- **Freudenstein/GM Young Investigator award**, ASME DED Mechanisms & Robotics committee, 2010, Montreal, Canada.
- Air Force Summer Faculty Fellowship, 2010, Air Force Research Laboratory, WPAFB, OH
- Compliant Mechanism Theory best paper award, ASME DED Mechanisms & Robotics committee, 2009, San Diego, CA.
- **Faculty Early Career Development (CAREER) Award**, National Science Foundation, 2009.
- Finalist of Best Paper Award, ASME DED Mechanisms & Robotics committee, 2005, Long Beach, CA.

- ASME MSC Software Simulation best paper award, ASME Mechanisms & Robotics committee, 2002, Montreal, Canada.

PROFESSIONAL ACTIVITIES

Editorship

- Co- Editor, ASME Journal of Mechanical Design, 2024-present
- Organizer and Host of ASME Journal of Mechanical Design Webinar on Robot Design, December 2021
- Editorial Board, Chinese Journal of Mechanical Engineering, 2018-present
- Associate Editor, ASME Journal of Mechanical Design, 2018-2021
- Associate Editor, Mechanism and Machine Theory, 2016-2021
- Associate Editor, ASME Journal of Mechanisms and Robotics, 2015-2018
- Co-Editor, Special Issue of 2016 IDETC M&R, ASME Journal of Mechanisms and Robotics.
- Guest Editor, Special Issue on “Advances in Compliant Mechanisms: Theories, Tools and Applications” for Journal of Mechanical Sciences, 2012-2013
- Co-Editor, “Advances in Mechanisms, Robotics and Design Education and Research”. Mechanisms and Machine Science Series Vol.14, Springer. 2012-2013.

Technical Committee Memberships:

- ASME Mechanisms and Robotics Executive Committee, secretary (chair-elect), 2026-present
- ASME Mechanisms and Robotics Executive Committee, treasurer, 2018-2021
- ASME Mechanisms and Robotics Committee, elected member, 2010-2023

Professional Society Membership

- American Society of Mechanical Engineering (ASME), fellow member, since 2000
- Institute of Electrical and Electronics Engineers (IEEE), senior member, since 2002

Advising of student organizations

- Faculty mentor, Battle Bot Club, The Ohio State University
- Faculty mentor, Underwater Robotics Club, The Ohio State University
- Advisor, First Robotics Competition, New Albany High School

Conference Organization:

- Scientific Committee and Session chair, 2024 6th International Conference on Reconfigurable Mechanisms and Robots (ReMAR)
- Session chair, 2018 IEEE International Conference on Robotics and Biomimetics (ROBIO 2018), 2018
- Session chair, the 42nd ASME Mechanisms and Robotics Conference, Charlotte, Laval, Canada, 2018
- Session co-chair, IEEE International Conference on Robotics and Automation (ICRA), Singapore, 2017
- Conference chair, the 40th ASME Mechanisms and Robotics Conference, Charlotte, North Carolina, 2016
- Publication chair, the ASME International Design Engineering Technical Conferences, Buffalo, NY, 2014
- Symposium co-chair and review coordinator of the ASME International Design Engineering Technical Conferences, Portland, OR, 2013

- Member of program committee, The Second ASME/IEEE International Conference on Reconfigurable Mechanisms and Robots (ReMAR 2012), Tianjin, China, July 9-11, 2012
- Symposium co-chair and review coordinator of the ASME International Design Engineering Technical Conferences, Chicago, IL, 2012
- Symposium chair, review coordinator and session chair of the ASME International Design Engineering Technical Conferences, Washington, DC, 2011
- Exhibition and Demonstration Chair, Session Chair and Co-Chairs, the ASME 2010 World Conference on Innovative Virtual Reality (WINVR2010), Ames, Iowa, May 12-14, 2010
- Industry Relation Chair, the 2010 ASME International Design Engineering Technical Conferences, Montreal, Canada, August 15-18, 2010
- Symposium co-organizer of the ASME 34th Mechanisms & Robotics Conference, Montreal, Canada, 2010
- Symposium coordinator of UMBC and NIST Manufacturing Engineering Lab, October, 2009
- Member of ASME Mechanism and Robotics Committee, elected, September 2009
- Member of program committee, ASME/IFTOMM International Conference on Reconfigurable Mechanisms and Robots (ReMAR 2009), King's College of London, London, United Kingdom, June 22-24, 2009
- Symposium co-organizer of the ASME 33rd Mechanisms & Robotics Conference, San Diego, CA, August 30- September 2, 2009
- Session chair, Compliant Mechanism symposium of the ASME 33rd Mechanisms & Robotics Conference, San Diego, CA, August 30- September 2, 2009
- Sponsorship coordinator of the Student Mechanism Design Competition, ASME 33rd Mechanisms & Robotics Conference, San Diego, CA, August 30- September 2, 2009
- Symposium co-organizer of the ASME 32nd Mechanisms & Robotics Conference, New York City, NY, August 3-6, 2008
- Undergraduate coordinator of the Student Mechanism Design Competition, ASME 32nd Mechanisms & Robotics Conference, New York City, NY, August 3-6, 2008
- Judge panel of the Student Mechanism Design Competition, ASME 29th Mechanisms & Robotics Conference, Long Beach, California, September 25-28, 2005.

Internal Services:

- College of Engineering, OSU
 - Undergraduate Robotics and Automation Minor, Coordinator, 2019-present
- Department of Mechanical and Aerospace Engineering, OSU
 - Promotion and Tenure committee, 2019-present
 - Graduate admission committee, chair in Design, Materials and Manufacturing, 2016-2019
 - Mechanical Design search committee, 2016-2017
 - Mechanical Design search committee, 2015-2016
 - Robotics search committee, 2014-2015
 - Robotics search committee, 2016-2017
 - ME Dynamics and kinematics qualifying exam, member, 2022-present
 - ME Dynamics and kinematics qualifying exam, chair, 2013-2022
 - Member of Design & Manufacturing Division, help with preparing syllabus of ME 3670 for Autumn 12.

- Advisor for senior capstone projects.

Outreach and Community Services:

- Advisor for capstone projects for Columbus Metro High School, 2018-present
 - Advise 1-2 project each year
- Advisor/mentor of research interns for high school students in the central Ohio area.
 - Advise 2-3 HS students in research lab.

RESEARCH INTERESTS

The overarching theme of my research interests focuses on Design, Manufacturing and Simulations of mechanical systems ranging from fundamental compliant mechanism and kinematic theories to computer-aided design and engineering and applications of compliant mechanisms to human-safe corobots, soft robots, precision machinery, nanorobots, drug delivery, factory automation and automotive research.

- **Artificial intelligence (AI) applications** in mechanism and machine design, robotics and manufacturing. Leverage Large Language Models (LLM) for solving kinematics and mechanism design problems.
- **AI assisted-design automation of mechanical systems.** Develop AI and LLM based models for end-to-end machine design, automating the pipeline of design process ranging from conceptual design, to dynamic simulation of multi-body systems.
- **Robot design:** soft robots, human-safe corobots, variable and controllable stiffness robotic grippers and arms, transformable wheels, shape memory alloy actuators, origami wheels, adaptive and morphing structures, and precision machinery (nanomanipulator/nanopositioners, flexure joints, force sensors etc.).
- **Applications of learning-based robot control:** Imitation learning for pick and place robotic manipulation for automation in structured and unstructured environments.
- **Compliant Mechanisms:** pseudo-rigid-body models, screw theory-based design method, mobility analysis and synthesis, type synthesis, computer-aided design.
- **Novel manufacturing and prototyping methods:** shape deposition manufacturing, soft material (silicon, urethane etc.) manufacturing, lamination, layer jamming, 3d printing, molding.
- **DNA Origami Mechanisms (DOM):** Design and actuation of nanomechanisms and nanorobots via scaffold DNA origami nanotechnology, design automation and quantification of mechanical characteristics of DOM; application of DOM to drug delivery, precision medicine.
- **Virtual/Augmented Reality Simulations for Robot Control and Manufacturing:** remote control of robots for imitation learning, driving simulations, virtual design and manufacturing, virtual factory automation, 3D immersive visualization, haptics simulation.
- **Kinematics and Synthesis Theories:** kinematic and kinetoelastic synthesis, theoretical kinematics and robotics, polynomial homotopy continuation for solving large scale polynomial systems, algebraic geometry, design optimization.

Pending Proposals

- 05/2026 – 04/2029, “A Human-AI Collaborative Framework for End-to-End Machine Design”, National Science Foundation, single **PI**, total \$491k.
- 06/2026 – 05/2029, “A Variable Stiffness Soft Anthropomorphic Robotic Hand for Dexterous Manipulation”, National Science Foundation, **PI**, Co-PI (Hereid) total \$749k.

- 06/2026 – 05/2029, “Artificial Kinematic Intelligence (AKI): an LLM-Driven Generative Design Framework for Robotic Systems”, National Science Foundation, single **PI**, total \$532k.

GRANTS

- 08/01/2020 - 07/31/2024, “Variable stiffness compliant mechanisms and robots based on layer jamming”, National Science Foundation, **PI**, total \$478k.
- 08/15/2020 - 07/31/2023, “PFI-TT: A robotic gripper with a tunable stiffness for grasping versatile objects”, National Science Foundation, **PI**, total \$200k + \$12k REU supplement.
- 08/15/2020 - 07/31/2023, “(I-Corps) PFI-TT: A robotic gripper with a tunable stiffness for grasping versatile objects”, National Science Foundation, I-Corps, **PI**, total \$50k.
- 08/15/2020 - 07/31/2021, REU supplements, National Science Foundation, PFI, **PI**, total \$16k.
- 08/1/2020 - 07/31/2021, REU supplements, National Science Foundation, CMMI, **PI**, total \$8k.
- 05/01/2020-12/31/2020, “A Novel Variable Stiffness Robotic Gripper”, I-Corps@Ohio, **PI**, total \$25K.
- 9/01/2016-8/31/2019, “NRI: Shape Morphing Arm Robotic (SMART) Manipulators for Simultaneous Safe Human-Robot Interaction and High Performance in Manufacturing,” National Science Foundation, **PI**, total \$977K + \$10K REU supplement.
- 10/01/2016-9/30/2019, “CPS: Synergy: Cyber-Human Vehicle Systems for Driving Safety Enhancement,” National Science Foundation, co-**PI**, total \$800K, my own budget \$250K.
- 9/01/2015-8/31/2018, “Robust Design of Compliant DNA Origami Mechanisms,” National Science Foundation, **PI**, total \$404K + \$5K REU supplement.
- 3/1/2014-9/1/2014, “Prototype testing of a climbing robot” NASA Jet Propulsion Lab, **PI**, total \$5K. Percent Effort: 100%. [single investigator]
- 8/15/2012-8/14/2015, “DNA Origami Mechanisms and Machines,” National Science Foundation, **Co-PI**, PI: Carlos Castro, total \$400K with fee authorization from OSU. Percent Effort: 48%. My own budget is \$195K.
- 9/1/2012-08/31/2015, “Syncretizing Science and Art Into Ultra-Precision Machine Design,” National Science Foundation, **PI**, \$303K + \$10k REU supplement. [single investigator]
- 4/1/2012 - 3/30/2015. A Compliant Mechanism Synthesis Theory for Fostering Innovation of Micro Air Vehicles, AFOSR. \$360K, Research Grant. **PI**: Su, HJ [single investigator]
- 5/1/2009 - 4/1/2014. CAREER: A Theoretical Framework for the Conceptual Design of Compliant Systems. National Science Foundation. (\$400K+\$10K REU supplement, Total Award) Research Grant. **PI**: Su, HJ [single investigator]
- 6/1/2009 - 5/1/2012. Collaborative Research: Variational Kinematic Geometry and Task Driven Mechanism Design in VR Environment. National Science Foundation. (\$142393+\$5K REU supplement, Total Award) Research Grant. **PI**: Su, HJ [single investigator]
- 8/1/2008 - 7/1/2009. A Hybrid Method for Synthesizing Compliant Mechanisms. University of Maryland Baltimore County, DRIF. (\$13342 , Total Award) Research Grant. **PI**: Su, HJ [single investigator]
- 2009 - 2010. Integrating Entrepreneurial Concepts into ENME 489T Kinematics and Mechanism Design. University of Maryland, Baltimore County. (\$5000 , Total Award) Training Grant. **PI**: Su, HJ [single investigator]

- 2008 - 2009. Student Travel Support for 2008 ASME Student Mechanism Design Competition. National Science Foundation. (\$10000 , Total Award) Training Grant. **PI:** Su, HJ [single investigator]

Doctoral Student (Advisor) (three are in academic position)

2009 - 2013	Cong Yue. University of Maryland, Baltimore County. Major: Mechanical Engineering. Title: “Synthesis and Design Automation of Rigid Body and Compliant Mechanisms” Graduated in 05/2013, Current Position: industry
2010 - 2013	Hongliang Shi. The Ohio State University, Columbus, OH. Major: Mechanical Engineering. Title: “Modeling and Analysis of Compliant Mechanisms for Designing Nanopositioners,” Graduated in 12/2013. Current Position: Research Engineer, Stanford University
2012 - 2016	Venkatasubramanian Kalpathy Venkiteswaran. The Ohio State University, Columbus, OH. Major: Mechanical Engineering. Title: “Development of a Design Framework for Compliant Mechanisms using Pseudo-Rigid-Body Models,” Graduated in 12/2016, Current Position: Assistant Professor, University of Twente, Netherlands.
2012 - 2016	Scott C. Schnelle. Co-advisor with Junmin Wang. The Ohio State University, Columbus, OH. Major: Mechanical Engineering. Graduated in 12/2016, Current Position: Research Engineer, Automotive Research Center, Ohio.
2012 - 2017	Lifeng Zhou. The Ohio State University, Columbus, OH. Major: Mechanical Engineering, Graduated in May/2017, Current Position: Postdoc Associate, University at Illinois, IL. An Associate Professor at Peking University/Southern University of Science and Technology , China.
2013 - 2017	Omer Anil Turkkan. The Ohio State University, Columbus, OH. Major: Mechanical Engineering, Current Position: Industry, Graduated in 12/2017
2014 - 2018	Ye She. The Ohio State University, Columbus, OH. Major: Mechanical Engineering, Current Position: Assistant Professor at Purdue University. Graduation date: 10/2018
2014 - 2020	Chao-Min Huang. The Ohio State University, Columbus, OH. Major: Mechanical Engineering, Graduated: 5/2020. Current Position: TSMC
2017 - 2021	Tyler Morrison. The Ohio State University, Columbus, OH. Major: Mechanical Engineering, Graduated in December, 2021. Current Position: Agility Inc.
2017 - 2022	Xianpai Zeng. The Ohio State University, Columbus, OH. Major: Mechanical Engineering, Graduated in May, 2022. Current Position: R&D Fanuc Inc..
2021 - 2024	Yi Jin. The Ohio State University, Columbus, OH. Major: Mechanical Engineering, Current Position: Postdoc Associate, Case Western University.
2025 - present	Ben Servey. The Ohio State University, Columbus, OH. Major: Mechanical Engineering.

Masters Student (MS Advisees)

2008-2009	Juan C. Alvarez, Thesis title: “Virtual Reality Environment for the Conceptual Design of Mechanisms.” University of Maryland Baltimore County. Graduated: 2009. Current Position: Research Engineer at GE.
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2010-2011	Dominic Devaud, Thesis title: “Design of a Wing Mechanism for a Perching MAV.” University of Maryland Baltimore County. Graduated:2011. Current Position: Research Engineer at SEACorp (RI).
2008-2011	Hafez Tari. Thesis title: “Kinetostatic Synthesis of Compliant Mechanisms with Numerical Continuation.” University of Maryland Baltimore County. Graduated:2011. Current Position: a postdoc researcher at OSU.
2011-2012	Mark Ryan. Thesis title: “Design Optimization and Classification of Compliant Mechanisms for Flapping Wing Micro Air Vehicles.” The Ohio State University, Columbus, OH. Current Position: industry. Graduation date: 8/2012.
2012 - 2014	Jonny Cleary. “Design Modeling of Compliant Mechanisms for Mobile Robots”. The Ohio State University, Columbus, OH. Current Position: industry. Graduation: 12/2014
2015-2016	Benjamin Rhoads. Major: Mechanical Engineering. Title: “Design & Fabrication of a 3D Printed Origami Wheel”, Graduated: 5/2016.
2015-2017	Junxiao Cui. MS program. Course option. Major: Mechanical Engineering, Graduated, 5/2017.
2015-2017	Ruiqi Hu. BS/MS combined program. Title: “A Variable Stiffness Robotic Arm Design Using Linear Actuated Compliant Parallel Guided Mechanism”. Major: Mechanical Engineering. Graduated, 12/2017.
2015-2017	Chunhui Li. MS program. Project option. Graduated: 12/2017.
2017-2018	Sibei Wei. MS program. Project option. Major: Mechanical Engineering. Graduated: 05/2018.
2017-2018	Ying Yang. MS program. Project option. Major: Mechanical Engineering Graduated: 05/2018.
2017-2018	Collin Mikol, MS thesis. Major: Mechanical Engineering. Thesis option. Current position: industry. Graduated: 05/2018.
2018-2021	Yuan Gao, MS thesis. Major: Mechanical Engineering. Thesis option. Graduated: 05/2021.
2021-present	George Crowley, MS thesis. Major: Mechanical Engineering. Thesis option. Graduated: 12/2022.
2022-2023	Matt Titterton, MS thesis. Major: Mechanical Engineering. Thesis title “A Pneumatically Actuated Soft Robotic Hand End Effector with Variable Stiffness via Differential Layer Jamming”. Graduated: 05/2023.
2022-2023	Dylan Trainor, MS thesis. Major: Mechanical Engineering. Thesis title: “Design, Manufacturing, and Testing of a Three-Finger Pneumatic Soft Gripper”. Graduated: 05/2023.
2025-2026	Jessica Sillus, MS thesis. Major: Mechanical Engineering. Expected graduation: 05/2026.

Bachelor Student (UG Honor Thesis Advisees)

2012-present	Undergraduate students participated in my NSF REU projects: Jonathon King, Yao Fu, Jia Shung Yeap, Siddharth Nema. James Hasting, Wenhao Deng, Zihui Zhang, Simon Kalouche, Carter Hurd.
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2012-2013	Jeff Kohler, Thesis title: “Design, Modeling, and Fabrication of a Flapping Wing Micro Air Vehicle.” The Ohio State University, Columbus, OH. Graduated in 05/2013.
2013-2014	Mingle Tong, Thesis title: “Design, Simulation and Prototyping a Pneumatic Actuator for Massage Chairs.” The Ohio State University, Columbus, OH. Graduation date: 05/2014.
2014-2015	Benjamin Rhoads, UG Honor Thesis title: “The Design and Fabrication of a 3D Printed Origami Wheel.” The Ohio State University, Columbus, OH. Graduated in 12/2015.
2016-2017	Carter Hurd, UG Honor Thesis title: “Variable Stiffness Robotic Arm for Safe Human-Robot Interaction Using Layer Jamming.” The Ohio State University, Columbus, OH. Graduated in 5/2017.
2016-2017	Collin Mikol, UG Honor Thesis title: “Compliant Gripping Mechanism for Anchoring and Mobility in Microgravity and Extreme Terrain.” The Ohio State University, Columbus, OH. Graduated in 5/2017.
2017-2018	Yupeng Cheng, The Ohio State University, Columbus, OH. BS in Mechanical Engineering. Honor Thesis Title: “Design and Prototyping of a Transformable Quadruped Robot”. Graduated 5/2018.
2017-2018	Cameron Spicer, The Ohio State University, Columbus, OH. UG Honor Thesis Title: “Development of an Augmented Reality Testing Platform for Collaborative Robots”. BS in Mechanical Engineering, Graduated 5/2018.
2017-2018	Roger Kassouf, The Ohio State University, Columbus, OH. UG Honor Thesis Title: “Simulating Human Robot Collaboration with Virtual and Augmented Reality”. BS in Mechanical Engineering, Graduated 11/2018.
2018-2019	Zhixin Li, The Ohio State University, Columbus, OH. UG Honor Thesis. BS in Mechanical Engineering, Graduated 05/2019.
2018-2019	Qihang Zeng, The Ohio State University, Columbus, OH. UG Honor Thesis. BS in Mechanical Engineering, Graduated 12/2019.
2018-2019	John Ouyang, The Ohio State University, Columbus, OH. UG Honor Thesis. BS in Mechanical Engineering, Graduated 12/2019.
2020-2021	Andrew Schellenberg, The Ohio State University, Columbus, OH. UG Honor Thesis. BS in Mechanical Engineering, Graduated 05/2021.
2020-2021	George Crowley, The Ohio State University, Columbus, OH. UG Honor Thesis. BS in Mechanical Engineering, Graduated 05/2021.
2021-2022	Dylan Trainor, The Ohio State University, Columbus, OH. UG Honor Thesis. BS in Mechanical Engineering, Expected graduation: 05/2022.
2021-2022	Matt Titterton, The Ohio State University, Columbus, OH. UG Honor Thesis. BS in Mechanical Engineering, Graduated: 05/2022.
2021-2022	Noah McKee, The Ohio State University, Columbus, OH. UG Honor Thesis. BS in Mechanical Engineering, Graduated: 05/2022.
2021-2022	M. Gilbert, The Ohio State University, Columbus, OH. UG Honor Thesis. BS in Mechanical Engineering, Graduated: 05/2022.

2023-2024	Chengyang Yan, The Ohio State University, Columbus, OH. UG Honor Thesis. BS in Mechanical Engineering, Graduated: 05/2024.
2024-2025	Jessica Sillus, The Ohio State University, Columbus, OH. UG Honor Thesis. BS in Mechanical Engineering, Graduated: 05/2025.

STUDENT HONORS

- George Crowley, Undergraduate Outstanding Research Award, MAE, OSU, 2021
- Xianpai Zeng, Graduate Outstanding Research and Leadership Award, MAE, OSU, 2021
- Yu She, Recipient of Presidential Fellowship, 2018
- Collin Mikol, Recipient of **Ohio Space Grant Consortium Scholarship**, OSU (2017)
- Collin Mikol, Recipient of **The Second Place** of Denman Undergraduate Research Forum in Engineering Category, OSU (2017)
- Lifeng Zhou, Presidential Fellowship, The Ohio State University 2015
- Carter Hurd, Recipient of **the first place** in the ASME Student Mechanism and Robot Design Competition, Undergraduate Robot Division, 2015
- Yu She, Recipient of **the fourth place** in the ASME Student Mechanism and Robot Design Competition, Graduate Robot Division, 2015
- Simon Kalouche, Recipient of **the second place** in the ASME Student Mechanism and Robot Design Competition, Undergraduate Robot Division (2014), **The First Place** of Denman Undergraduate Research Forum in Engineering Category, OSU (2014)
- Jonathon King, **MAE Outstanding Research and Outstanding Leadership for UG students**, 2013
- Jeff Kohler, Recipient of **the third place** in the ASME Student Mechanism and Robot Design Competition, Undergraduate Mechanism Division, 2013

TEACHING

Dept. of Mechanical and Aerospace Engineering, The Ohio State University, Columbus, Ohio

- Design and Manufacturing of Compliant Mechanisms and Robots (MECHENG 5751), Spring 2015 (23), Spring 2016 (15), Spring 2017 (19), Spring 2020 (25), Spring 2022 (35).
- Advanced Kinematics and Mechanisms (MECHENG 7751), Spring 2014 (13), Autumn 2015(7), Autumn 2017 (11), Autumn 2019 (5), Autumn 2021 (8)
- Kinematics and Mechanism Design (MECHENG 3751), Spring 2020 (87)
- Design of Machine Elements I (MECHENG 3670), Autumn 2013 (82), Autumn 2014 (85), Spring 2015 (92), Autumn 2015 (84), Autumn 2016 (150), Spring 2017 (82), Spring 2020 (86), Autumn 2020 (146), Autumn 2022 (212).
- Special Topics on Compliant Mechanisms (MECHENG 6194), Autumn 2012 (7).
- Kinematics and Dynamics of Machinery (ME 553), Spring 2012 (91).
- Application of Computer Graphics to Kinematic Synthesis and Analysis (ME 751), Winter 2012 (10).

SEMINARS, TUTORIAL, POSTERS AND PRESENTATIONS

Keynotes, Invited Lectures, Tutorials and Seminars:

1. “From Screw Theory to Compliant Mechanisms: A Unified Framework for Mobility Analysis and Synthesis,” Invited keynote, IFToMM Summer Screws 2026, Ball’s Screw Theory 150-Year Anniversary Special Day Event, University College Cork, Cork, Ireland, July 22, 2026.
2. “The Use of AI in Kinematics,” Invited tutorial, the 4th International Symposium on Mechanical Systems and Robotics (MSR 2026), Irvine, CA, May 2026.
3. “Design of Variable Stiffness Compliant Mechanisms for Collaborative Robots in Manufacturing Applications,” Invited seminar, Vanderbilt University, November 2019.
4. “Active Variable Stiffness Materials for Soft Robots,” Invited presentation, SES Soft Evolutionary Material Symposium, Washington University at St. Louis, October 2019.
5. “Design of DNA Nanomechine and Nanorobots from a Mechanical Engineering Perspective,” Invited presentation, 2nd Conference on Biomotors, Virus Assembly, and Nanobiotechnology Applications, Columbus, Ohio, July 29-31, 2019.
6. “Kinematics Problems in Design of DNA Origami Mechanisms,” Invited seminar, Southern University of Science and Technology, April 2019.
7. “Computer-Aided Design and Analysis of Planar and Spatial Compliant Mechanisms,” Invited seminar, Macau University, April 2019.
8. “Computer-Aided Design and Analysis of Planar and Spatial Compliant Mechanisms,” Keynote, Compliant Mechanism Symposium, Guangzhou, China, November 2018.
9. “Kinematics Problems in Design of DNA Origami Mechanisms,” Keynote, Biennial Kinematics and Mechanism Meeting of Chinese Society of Mechanical Engineers, Beijing, China, July 2018.
10. “Design Principles for DNA Origami Nanorobots and Human-Safe Corobots,” Invited seminar, National University of Taiwan, December 2017.
11. “Design Principles for DNA Origami Nanorobots and Human-Safe Corobots,” Invited seminar, Taiwan University of Science and Technology, December 2017.
12. “T5: Design and Fabrication of DNA Origami Mechanisms,” Tutorial, ASME International Design Engineering Technical Conferences, Cleveland, August 6, 2017.
13. “Algebraic Geometry for Projection Kinematic Analysis of DNA Origami Nano-Mechanisms,” Plenary speaker, Polynomials Kinematics and Robotics Conference, Notre Dame, June 5-7, 2017.
14. “Kinematic Principles for Designing DNA Origami Mechanisms and Nanorobots,” Invited seminar, Singapore University of Technology and Design, May 31/2017.
15. Halcyon Dialogue on “Promise and Peril of Military Robotics Technology in Civilian Settings,” Invited participant, S&R Foundation, Washington, DC, October 27, 2016.
16. “Computer Aided-Design of Compliant Mechanisms,” Invited lecture, Kinematics Summer School, Charlotte, NC, August 21, 2016.
17. “T2: Analysis and Synthesis of Compliant Mechanisms,” Invited tutorial, ASME International Design Engineering Technical Conferences, Boston, MA, August 2, 2015.
18. “Computational Methods for Solving Kinematics Problems,” Invited lecture, Kinematics Summer School, Buffalo, NY, August 15-16, 2014.
19. “Systematic Machine Innovation and Virtual Reality Simulation,” Department of Mechanical Engineering, the Stony Brook University, NY, October, 2010.
20. “Compliant Mechanism Synthesis and Virtual Reality Simulation,” Department of Mechanical and Aerospace Engineering, Rutgers University, NJ, March, 2010.

21. “Design Synthesis and Virtual Reality Simulation of Machine Systems,” Manufacturing Engineering Lab, National Institute of Standards and Technology, Gaithersburg, MD, October, 2009.
22. “Computational Synthesis of Mechanisms & Virtual Reality Simulation,” Department of Mechanical Engineering, University of Texas, Pan American, Edinburg, Texas, February 2007.
23. “Computational Synthesis of Mechanisms & Virtual Environment for Designing Bio-Nanomachines,” Department of Mechanical Engineering, University of Maryland, Baltimore County, MD, March 2007.
24. “Computational Synthesis of Spatial Robotic Systems and Compliant Mechanisms,” Department of Mechanical Engineering, University of Maryland, College Park, MD, February 2006.
25. “Mechanism Design: From Traditional to Modern,” Department of Mechanical Engineering, California State University, Northridge, March 2004.
26. “From Mechanism Design to Drug Design: Challenges for Kinematics,” Department of Mechanical and Aerospace Engineering, Rutgers University, NJ, March 2004.
27. “Robot Design Using Mechanism Synthesis Theory,” invited lecture to a tutorial offered at ASME International Design Engineering Technical Conference, Salt Lake City, Utah, October 2004

Posters and Demos:

28. “An Actively Controlled Variable Stiffness Structure via Layer Jamming and Pneumatic Actuation,” Poster, *IEEE 2019 International Conference on Robotics and Automation (ICRA 2019)*. May 20-24, 2019. Montreal, Canada. (2019).
29. “SHARP: A System for Haptic Assembly & Realistic Prototyping,” Poster, Haptics Symposium, IEEE Virtual Reality Conference, Alexandria, VA, March 25-26 2006 “Virtual Manufacturing and Assembly,” John Deere Day Demo, Virtual Reality Application Center, Iowa State University, October 11, 2005
30. “SYNTHETICA 1.0 Demo,” special session of ASME International Design Engineering Technical Conference, Montreal, Canada, 2002.

Conference Presentations and Meetings:

1. “Where we are in the path towards AGI in kinematics.” In: *ASME 2026 International Design Engineering Technical Conferences (IDETC/CIE 2026)*. August 23 – 26, 2026. Houston, TX.
2. “Solving Kinematics Problems by Leveraging the Power of Large Language Models.” In: *ASME 2026 International Design Engineering Technical Conferences (IDETC/CIE 2026)*. August 23 – 26, 2026. Houston, TX.
3. “Deriving Analytical Inverse Kinematics of 6R Robots with Three Parallel Joints with AI Agents.” In: *the 4th International Symposium on Mechanical Systems and Robotics (MSR 2026)*. May 21 – 23, 2026. Irvine, CA.
4. 2021 Journal Spotlight (ASME Journal of Mechanical Design) at the 2021 ASME International Design Engineering Technical Conferences (IDETC) for the paper titled “A comparative study on the effect of mechanical compliance for safe physical human-robot Interaction”
5. “Design and Actuation of DNA Origami mechanisms for Functional Bionanomaterials.” ASME 2019 ASME International Design Engineering Technical Conferences. Anaheim, CA, August 18 – 21, (2019).

6. “A Variable Stiffness Robotic Arm Using Linearly Actuated Compliant Parallel Guided Mechanism,” *the 4th IFToMM Symposium on Mechanism Design for Robotics (MEDER)*, Udine, Italy, September 11th - 13th, 2018.
7. A Pneumatically-Actuated Variable Stiffness Robot Arm Using Parallel Flexures,” IEEE International Conference on Robotics and Biomimetics (ROBIO 2018), Kuala Lumpur, Malaysia, December, 2018.
8. “NRI: Shape Morphing Arm Robotic (SMART) Manipulators for Simultaneous Safe Human-Robot Interaction and High Performance in Manufacturing”, NSF National Robotics Initiative PI Meeting, October 29-30, 2018, Washington, DC. (November 2018).
9. “On the Impact Force of Human-Robot Interaction: Joint Compliance vs. Link Compliance.” In: *IEEE 2017 International Conference on Robotics and Automation (ICRA 2017)*. May 28-June 3, 2017. Singapore. (2017).
10. “Robust Design of Compliant DNA Origami Mechanisms”, NSF Engineering and Systems Design, and Systems Science (ESD/SYS) Program Workshop and Grantees Meeting, January 20-22, 2017, Atlanta, Georgia Institute of Technology.
11. “NRI: Shape Morphing Arm Robotic (SMART) Manipulators for Simultaneous Safe Human-Robot Interaction and High Performance in Manufacturing”, NSF National Robotics Initiative PI Meeting, November 9-10, 2017, Washington, DC. (November 2017).
12. “NRI: Shape Morphing Arm Robotic (SMART) Manipulators for Simultaneous Safe Human-Robot Interaction and High Performance in Manufacturing”, NSF National Robotics Initiative PI Meeting, November 28-30, 2016, Washington, DC. (November 2016).
13. “Design & Fabrication of a 3D Printed Origami Wheel”, ASME 2016 International Design Engineering Technical Conferences. Charlotte, NC. (August 2016).
14. AFOSR 2016 Multi-Scale Structural Mechanics and Prognosis Program Review, Dayton, Ohio, July 18-22, 2016.
15. “The Kinematic Principle for Designing DNA Origami Mechanisms: Challenges and Opportunities.” ASME 2015 International Design Engineering Technical Conferences. Boston, MA. (2015).
16. “Design of a Compliant XY Positioning Stage With Large Workspace.” ASME 2015 International Design Engineering Technical Conferences. Boston, MA. (2015).
17. “A Transformable Wheel Robot with A Passive Leg.” 2015 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS). Hamburg, Germany, (2015).
18. “Dynamic Modeling of A 2D Compliant Link for Safety Evaluation in Human-Robot Interactions.” 2015 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS). Hamburg, Germany, (2015).
19. “A kinetostatic synthesis theory of compliant mechanisms for flapping wing micro air vehicles.” AFOSR Structureal Mechanics Annual Grantee Meeting, Kirtland AFB, Albuquerque, New Mexico, 09/03-05, 2014.
20. “Optimization of the Workspace of a MEMS Hexapod Nanopositioner Using an Adaptive Genetic Algorithm.” IEEE 2014 International Conference on Robotics and Automation (ICRA 2014). May 31-June 7, 2014. Hongkong, China. (2014).

21. "A Unified Kinetostatic Analysis Framework for Planar Compliant and Rigid Body Mechanisms." ASME 2014 International Design Engineering Technical Conferences. Buffalo, NY. (2014)
22. "Type Synthesis of 3-Dof Translational Compliant Parallel Mechanisms." 2013 ASME International Design Engineering Technical Conferences. ASME. Portland, Oregon, August, 2013.
23. "Quantifying Effects of Compliant Joints on a Flapping Wing MAV." AFOSR Grantee Conference. DC, July, 2013.
24. "Peak Input Torque Minimization of a Flapping Wing Mechanism for MAVs," the 54th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference. Boston, MA, April, 2013.
25. "Design Optimization of a Flapping Wing Mechanism for Micro Air Vehicles." *8th Annual Dayton Engineering Sciences Symposium (DESS 2012), October 29, Dayton, Ohio.*
26. "Workspace of a Flexure Hexapod Nanopositioner." *2012 ASME International Design Engineering Technical Conferences*, Chicago, IL, August 12-15, 2012.
27. "Design and Fabrication of DNA Origami Mechanisms and Machines." The Second ASME/IEEE International Conference on Reconfigurable Mechanisms and Robots (ReMAR 2012), Tianjin, China, July 9-11, 2012
28. "Compliance Analysis and Synthesis of Flexure Mechanisms," *2011 ASME International Design Engineering Technical Conferences*, Washington, DC, August 29-31, 2011.
29. "Mobility Analysis of Flexure Mechanisms via Screw Algebra," *2011 ASME International Design Engineering Technical Conferences*, Washington, DC, August 29-31, 2011.
30. "On Line Screw Systems and Its Application to Flexure Synthesis," *2010 ASME International Design Engineering Technical Conferences*, Montreal, Canada, August 15-18, 2010.
31. "Synthesis of Flexures for Orthogonal Motions," *2010 ASME International Design Engineering Technical Conferences*, Montreal, Canada, August 15-18, 2010.
32. "Compliant Mechanism Analysis and Synthesis via Polynomial Solvers," Kinematics and Numerical Algebraic Geometry Symposium, *2010 SIAM Annual Meeting*, Pittsburgh, PA, July 14, 2010.
33. "A Screw Theory Approach for the Type Synthesis of Compliant Mechanisms with Flexures," *ASME International Design Engineering Technical Conferences*, August 30- September 2, 2009, San Diego, CA.
34. "Computational Algebraic Geometry for Mechanism Synthesis," American Mathematical Society, Special Session on Computational Algebra and Convexity, Joint Mathematics Meetings, Washington, DC, January 5-8, 2009
35. "A Load Independent Pseudo-Rigid-Body 3R Model for Determining Large Deflection of Beams in Compliant Mechanisms," *ASME International Design Engineering Technical Conferences*, August 3 – 6, 2008, New York City, NY.
36. "Kinetostatic Analysis and Synthesis of Compliant Mechanisms," Symposium on the Mechanics of Slender Structures, University of Maryland, Baltimore County, July 23-25 2008
37. "A Comparison of Kinetostatic and Multibody Dynamics Models for Simulating Protein Structures," ASME 1st International Conference on Micro- and Nanosystems (MNS), September 4 – 7, 2007, Las Vegas, Nevada.
38. "A Polynomial Homotopy Formulation for the Synthesis of Compliant Mechanisms to Reach Specified Equilibrium Positions," ASME International Design Engineering Technical Conference, Long Beach, CA, September, 2005

39. "Finite Position Synthesis for a Class of Serial and Parallel Mechanisms," American Mathematics Society Special Session: Solving Polynomial Systems, Northwestern University (Evanston, IL), October 23-24 2004
40. "Using Polynomial Homotopy Method to Inverse Static Analysis for a Planar Compliant Platform Mechanism," ASME International Design Engineering Technical Conference, Salt Lake City, Utah, October 2004
41. "Kinematics Synthesis of Serial Chains Using Homotopy Continuation Method," ASME International Design Engineering Technical Conference, Chicago, Illinois, 2003.
42. "An Extensible Java Applet for Spatial Linkage Synthesis," ASME International Design Engineering Technical Conference, Montreal, Canada, 2002.
43. "Classification of RRSS Linkages for Design," ASME International Design Engineering Technical Conference, Pittsburgh, Pennsylvania, 2001.

PUBLICATIONS AND SUBMISSIONS

Google h-index: 46, i10-index: 115, total citations: 6,782 (as of September 2026). URL:

<https://scholar.google.com/citations?user=04HjeOkAAAAJ&hl=en>

Underscored names are current or past my advisees.

Edited Books:

1. "Advances in Mechanisms, Robotics and Design Education and Research". Mechanisms and Machine Science Series Vol.14, Edited by: Vijay Kumar, James Schmiedeler, S.V. Sreenivasan, **Hai-Jun Su**. New York, Springer. 2013.
2. "Special issue: Selected papers from IDETC 2016". ASME Journal of Mechanisms and Robotics, **9**(2), Edited by: Venkat Krovi, James Schmiedeler and, **Hai-Jun Su**, April 2017

Book Chapters:

1. McCarthy, J.M. and **Su, H.-J.**, "Computation of Reachable Surfaces for a Specified Set of Spatial Displacements". In "Handbook of Geometric Computing: applications in Pattern Recognition, Computer Vision, Neurocomputing, and Robotics". Edited by: Eduardo Bayro- Corrochano. Berlin: Springer Verlag. 2005. 80% Authorship
2. Gascons, N., **Su, H.-J.** and McCarthy, J.M., "Performance Evaluation of the Grasp of Two Cooperating Robots Using a Type Map". In "Performance Evaluation of the Grasp of Two Cooperating Robots Using a Type Map". Edited by: J. Lenarcic, and F. Thomas. Barcelona: Kluwer Academic Publishing. 48-56. 2002. 30% Authorship
3. **Su, H.-J.**, Carlos Ernesto Castro, Alexander Edison Marras, and Michael Hudoba. "Design and Fabrication of DNA Origami Mechanisms and Machines." In Advances in Reconfigurable Mechanisms and Robots I, edited by Jian S. Dai, Matteo Zoppi, and Xianwen Kong, 487–500. Springer, London, 2012. [Peer-Review] (Published) 40% Authorship

4. **Su, H.-J.**, Zhou L. and Zhang, Y., "Mobility Analysis and Type Synthesis with Screw Theory: From Rigid Body Linkages to Compliant Mechanisms". In "Advances in Mechanisms, Robotics and Design Education and Research". pp.67-81. Mechanisms and Machine Science Series Vol.14, Edited by: Vijay Kumar, James Schmiedeler, S.V. Sreenivasan, **Hai-Jun Su**. Springer. 2013. 60% Authorship

Magazine Article:

1. **Su, H.-J.**, and Castro, C.E., "The Rise of DNA Nano Robots". *Mechanical Engineering Magazine*. Vol. 138, No.8, 46-49, August, 2016. (Selected as **one of 15 best nanotechnology feature articles since 2010** by The Nanoscale Frontier of ASME in 2016)

Peer Review Journal Articles:

1. **Su, H.-J.**, Liao, Q., and Liang, C., "Direct Positional Analysis of a kind of 5-5 Platform In-Parallel Robotic Mechanism". *Mechanism and Machine Theory*. **Vol. 34, no. 2:** 285-301. February 1999. 90% Authorship
2. Collins, C.L., McCarthy, J. M., Perez, A., and **Su, H.-J.**, "The Structure of an Extensible Java Applet for Spatial Linkage Synthesis ". *ASME Journal of Computing and Information Science in Engineering*. **Vol. 2, no. 1:** 45-49. June 2002. 30% Authorship
3. **Su, H.-J.**, Collins, C.L., and McCarthy, J.M., "Classification of RRSS Linkages". *Mechanism and Machine Theory*. **Vol. 37, no. 11:** 1413-1433. November 2002. 90% Authorship
4. **Su, H.-J.**, Dietmaier, P. and McCarthy, J.M., "Trajectory Planning for Constrained Parallel Manipulators". *ASME Journal of Mechanical Design*. **Vol. 125, no. 4:** 709-716. January, 2004. 85% Authorship
5. **Su, H.-J.**, Wampler, C.W. and McCarthy J.M., "Geometric Design of Cylindric PRS Serial Chains". *ASME Journal of Mechanical Design*. **Vol. 126, no. 1:** 269-277. May 2004. 80% Authorship
6. **Su, H.-J.**, McCarthy, J.M. and Watson, L.T., "Generalized Linear Product Polynomial Continuation and the Computation of Reachable Surfaces". *ASME Journal of Information and Computer Sciences in Engineering*. **Vol. 4, no. 3:** 226-234. September 2004. 80% Authorship
7. **Su, H.-J.** and McCarthy J.M., " The synthesis of an RPS serial chain to reach a given set of task positions". *Mechanism and Machine Theory*. **Vol. 40, no. 7:** 269-277. 2005. 90% Authorship
8. **Su, H.-J.** and McCarthy J.M., "A Polynomial Homotopy Formulation of the Inverse Static Analysis of Planar Compliant Mechanisms". *ASME Journal of Mechanical Design*. **Vol. 128, no. 4:** 776-786. July 2006. 90% Authorship
9. **Su, H.-J.**, McCarthy, J.M., Sosonkina, M. and Watson, L.T., "Algorithm 857: POLSYS_GLP: A Parallel General Linear Product Homotopy Code for Solving Polynomial Systems of Equations". *ACM Transactions on Mathematical Software*. **Vol. 32, no. 4:** 561-579. December 2006. 80% Authorship
10. **Su, H.-J.**, and McCarthy J.M., "Synthesis of Bistable Compliant Four-bar Mechanisms using Polynomial Homotopy". *ASME Journal of Mechanical Design*. **Vol. 129, no. 10:** 1094-1098. October 2007. 90% Authorship
11. Seth, A., **Su, H.-J.** and Vance, J.M., "Development of a Dual-Handed Haptic Assembly System: SHARP". *ASME Journal of Computing and Information Science in Engineering*. **Vol. 8, no. 4:** 044502. December 2008. 30% Authorship

12. **Su, H.-J.**, "A Pseudorigid-Body 3R Model for Determining Large Deflection of Cantilever Beams Subject to Tip Loads". *ASME Journal of Mechanisms and Robotics*. **Vol. 1, no. 2:** 021008. May, 2009.
13. Pei, X., Yu, J., Zong, G., Bi, S., **Su, H.-J.**, "The modeling of cartwheel flexural hinges". *Mechanism and Machine Theory*. **Vol. 44, no. 10:**1900-1909. October 2009. 10% Authorship
14. **Su, H.-J.**, Dorozhkin, D.V., Vance, J.M., "A Screw Theory Approach for the Conceptual Design of Flexible Joints for Compliant Mechanisms". *ASME Journal of Mechanisms and Robotics*. **Vol. 1, no. 4:** 041009. November 2009. 90% Authorship
15. Qiao, S., Liao, Q., Wei, S. and **Su, H.-J.**, "Inverse Kinematic Analysis of the General 6R Serial Manipulator Based on Double Quaternion". *Mechanism and Machine Theory*. **Vol. 45, no. 2:** 193-199. February 2010. 20% Authorship
16. Tari, H., **Su, H.-J.**, and Li, T.-Y., "A Constrained Homotopy Technique for Excluding Unwanted Solutions From Polynomial Equations Arising in Kinematics Problems". *Mechanism and Machine Theory*. **Vol. 45, no. 6:** 898-910. June 2010. 30% Authorship
17. Tari, H. and **Su, H.-J.**, "Complete solution of the path generation of a crank-slider linkage". *ASME Journal of Mechanical Design*. **Vol.132,** 081003. August 2010. 50% Authorship
18. **Su, H.-J.** and Tari, H., "Realizing Orthogonal Motions With Wire Flexures Connected in Parallel". *ASME Journal of Mechanical Design*. **Vol. 132, no. 12:** 121002. December 2010. 75% Authorship
19. **Su, H.-J.** and Tari, H., "On Line Screw Systems and Its Application to Flexure Synthesis". *ASME Journal of Mechanisms and Robotics*. **Vol. 3, no. 3:** 011009. February 2011. 80% Authorship
20. Tari, Hafez, **Su, H.-J.**, "A complex solution framework for the kinetostatic synthesis of a compliant four-bar mechanism". *Mechanism and Machine Theory*. **Vol. 46, no. 8:** 1137-1152. August 2011. 40% Authorship
21. Yu, J., Li, S., **Su, H.-J.**, Culpepper, M. L., "Screw Theory Based Methodology for the Deterministic Type Synthesis of Flexure Mechanisms". *ASME Journal of Mechanisms and Robotics*. **Vol. 3, no. 3:** 031008. August 2011. 20% Authorship
22. Wu, J., Ge, Q.J., Gao, F. and **Su, H.-J.**, " Fourier Descriptors with Different Shape Signatures: a Comparative Study for Shape Based Retrieval of Kinematic Constraints". *Chinese Journal of Mechanical Engineering*, **Vol. 24, no. 5:** 723-730. September 2011. 10% Authorship
23. **Su, H.-J.**, "Mobility Analysis of Flexure Mechanisms via Screw Algebra". *ASME Journal of Mechanisms and Robotics*. **Vol. 3, no. 4:** 041010. November 2011. 100% Authorship
24. Tari, Hafez, **Su, H.-J.**, Hauenstein, J. D., "Classification and complete solution of the kinetostatics of a compliant Stewart-Gough platform". *Mechanism and Machine Theory*. Vol. 49, pp. 177-186, March 2012. 20% Authorship
25. Alvarez, J.C. and **Su, H.-J.**, "VRMDS: An Intuitive Virtual Environment for Supporting the Conceptual Design of Mechanisms". *Journal of Virtual Reality*. **Vol. 16, no. 1,** pp. 57-68, March 2012. 50% Authorship
26. **Su, H.-J.**, Shi, H., and Yu, J. "A Symbolic Formulation for Analytical Compliance Analysis and Synthesis of Flexure Mechanisms." *ASME Journal of Mechanical Design* 134, no. 5: 051009, May 2012. 50% Authorship

27. Zhang, Ying, Liao, Q., **Su, H.-J.**, and Wei, S. “A New Closed-form Solution to the Forward Displacement Analysis of a 5–5 In-parallel Platform.” *Mechanism and Machine Theory* 52, no. 6: 47–58, June 2012. 20% Authorship
28. Yue, C., **Su, H.-J.**, and Ge, Q.J.. “A Hybrid Computer-aided Linkage Design System for Tracing Open and Closed Planar Curves.” *Computer-Aided Design*, vol. 44, no. 11: 1141–1150, November 2012. 30% Authorship
29. Shi, H., **Su, H.-J.**, Dagalakakis, N., and Kramar, J. A. “Kinematic Modeling and Calibration of a Flexure Based Hexapod Nanopositioner.” *Precision Engineering* vol. 37, no. 1, pp.117–128, January 2013. 20% Authorship
30. Wu, J., Ge, Q. J., **Su, H.-J.**, and Gao, F. “Kinematic Acquisition of Geometric Constraints for Task-Oriented Design of Planar Mechanisms.” *ASME Journal of Mechanisms and Robotics* vol.5, no. 1: 011003, February 2013. 10% Authorship
31. **Su, H.-J.** and Yue, C., “Type Synthesis of Freedom and Constraint Elements for Design of Flexure Mechanisms.” *Mechanical Sciences* 4, no. 2: 263–277, July, 2013. 50% Authorship.
32. Shi, H. and **Su, H.-J.**, “An Analytical Model for Calculating the Workspace of a Flexure Hexapod Nanopositioner.” *ASME Journal of Mechanisms and Robotics* vol. 5, no. 4: 041009–041009, September 2013. 20% Authorship
33. Zhou, L., Marras, A. E., **Su, H.-J.**, and Castro, C. E. “DNA origami compliant nanostructures with controllable geometry”. *ACS Nano*. 8(1) (January 2014): 27-34. 20% Authorship. (**Media report by Foresight Institute**)
34. Zhang, Y., **Su, H.-J.** and Liao, Q., “Mobility criteria of compliant mechanisms based on decomposition of compliance matrices.” *Mechanism and Machine Theory*. 79: 80–93, September 2014. 40% Authorship
35. Shi, H., **Su, H.-J.** and Nicholas Dagalakakis, “A Stiffness Model for Control and Analysis of a MEMS Hexapod Nanopositioner.” *Mechanism and Machine Theory*. 80: 246–264, October 2014. 20% Authorship
36. Marras, A. E., Zhou, L., **Su, H.-J.**, and Castro, C. E. “Programmable Motion of DNA origami mechanisms”. *Proceedings of the National Academy of Sciences (PNAS)* 112, no. 3 (January 20, 2015): 713–18. (**multiple media reports and research highlights, see below**). 25% Authorship
37. Castro, Carlos E., **Su, H.-J.**, Marras, A.E., Zhou, L., and Johnson, J. “Mechanical Design of DNA Nanostructures.” *Nanoscale*, February 6, 2015. (**featured article**)
38. Zhou, L., Marras, A. E., **Su, H.-J.**, and Castro, C. E. “Direct design of an energy landscape with bi-stable DNA origami mechanisms”. *Nano Letters*. 15 (3), pp 1815–1821, February 2015, 20% Authorship.
39. Venkiteswaran V.K. and **Su, H.-J.**, “A parameter optimization framework for determining the pseudo-rigid-body model of cantilever-beams.” *Precision Engineering* 40: 46–54, April 2015. 30% Authorship
40. Yu She, Chang Li, Jonathon Cleary and **Su, H.-J.**, “Design and Fabrication of a Soft Robotic Hand with Embedded Actuators and Sensors.” *ASME Journal of Mechanism and Robotics*. Special Issue on Novel Approaches to Design and Manufacture of Fully-Integrated Robotic Mechanisms, Vol. 7, no. 2, May 2015. 20% Authorship.

41. J. Cleary and **Su, H.-J.**, “Modeling and Experimental Validation of Actuating a Bistable Buckled Beam via Moment Input.” *ASME Journal of Applied Mechanics*. p.051005, May 2015.
42. Yue, C., Zhang, Y., **Su, H.-J.** and Kong, X. “Type Synthesis of Three-Degree-of-Freedom Translational Compliant Parallel Mechanisms.” *ASME Journal of Mechanisms and Robotics*, Vol. 7, no. 3, p.031012, August 2015. 30% Authorship
43. Y. Zhang, Q. Liao, **H.-J. Su**, and S. Wei, “A new closed-form solution to inverse static force analysis of a spatial three-spring system,” *Proceedings of the Institution of Mechanical Engineers, Part C: Journal of Mechanical Engineering Science*, vol. 229, no. 14, pp. 2599–2610, Oct. 2015.
44. She, Yu, Wenfu Xu, **H. Su**, Bin Liang, and Hongliang Shi. “Fault-Tolerant Analysis and Control of SSRMS-Type Manipulators with Single-Joint Failure.” *Acta Astronautica* Vol.120, pp. 270–286, March 2016.
45. Marras, A. E., Zhou, L., Kolliopoulos, V., **Su, H.-J.**, and Castro, C. E. “Directing folding pathways for multi-component DNA origami nanostructures with complex topology”. *New Journal of Physics* 18, May 2016.
46. She, Y., Chen J., Shi, H., and **Su, H.-J.**, “Modeling and Validation of a Novel Bending Actuator for Soft Robotics Applications” *Soft Robotics*. 3(2), pp. 71-81, June 2016.
47. Turkkan, O.A. and **Su, H.-J.**, “DAS-2D: A Concept Design Tool for Compliant Mechanisms.” *Mechanical Sciences*. pp. 135-148, July 2016.
48. Venkiteswaran V.K. and **Su, H.-J.**, “Extension Effects in Compliant Joints and Pseudo-Rigid-Body Models.” *ASME Journal of Mechanical Design*, p. 092302, July, 2016
49. Zhou, L., Marras, A. E., Castro, C. E. and **Su, H.-J.**, “Pseudorigid-Body Models of Compliant DNA Origami Mechanisms”. *ASME Journal of Mechanisms and Robotics*, vol. 8, p. 05101, October, 2016.
50. Venkiteswaran V.K. and **Su, H.-J.**, “A Three-Spring Pseudo-Rigid-Body Model for Soft Joints with Significant Elongation Effects.” *ASME Journal of Mechanisms and Robotics*, 061001, December, 2016
51. V. K. Venkiteswaran and **H.-J. Su**, “Pseudo-rigid-body models for circular beams under combined tip loads,” *Mechanism and Machine Theory*, vol. 106, pp. 80–93, Dec. 2016.
52. S. Schnelle, J. Wang, H. J. Su, and R. Jagacinski, “A Driver Steering Model With Personalized Desired Path Generation,” *IEEE Transactions on Systems, Man, and Cybernetics: Systems*, vol. 47, no. 1, pp. 111–120, January 2017.
53. L. Zhou, **H.-J. Su**, A. E. Marras, C.-M. Huang, and C. E. Castro, “Projection kinematic analysis of DNA origami mechanisms based on a two-dimensional TEM image,” *Mechanism and Machine Theory*, vol. 109, pp. 22–38, March 2017.
54. **H.-J. Su**, C. E. Castro L. Zhou, and A. E. Marras, “The Kinematic Principle for Designing Deoxyribose Nucleic Acid Origami Mechanisms: Challenges and Opportunities,” *ASME Journal of Mechanical Design*, vol. 139, no.6, p.062301, June, 2017.
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63. Y. She, D. Meng, **H.-J. Su**, S. Song and J. Wang, “Introducing Mass Parameters to Pseudo-Rigid-Body Models for Precisely Predicting Dynamics of Compliant Mechanisms,” *Mechanism and Machine Theory*, Vol. 126, pp. 273-294, 2018.
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66. Zhou, L., Marras, A. E., Castro, C. E. and **Su, H.-J.**, “Paper Origami-Inspired Design and Actuation of DNA Nanomachines with Complex Motions”. *Small*, October, 2018.
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Pre-prints:

1. Hai-Jun Su, “Analytical Solvers for Common Algebraic Equations Arising in Kinematics Problems” , arXiv preprint arXiv:2509.01010
2. Hai-Jun Su, “A Robust Numerical Method for Solving Trigonometric Equations in Robotic Kinematics” , arXiv preprint arXiv: 2509.01010

Meeting Abstracts and Posters:

3. Chao-Min Huang, Alex Marras, Carlos E. Castro, Hai-Jun Su, “Studying 3D Geometry of DNA Nanostructures by Generating Projected Images via an Orientation Manipulator” , Lawrence Berkeley National Lab, Berkeley, CA 94720, August 11-12, 2016

COMMERCIALIZATION AND ENTREPRENEURSHIP TRAINING

1. Customer Learning Lab, three days workshop, Rev 1 Venture, Columbus Ohio, February 2020.
2. I-Corps@Ohio Cohort, Columbus Ohio, June-August 2020.
3. NSF I-Corps Cohort, Ohio, October-November 2022

PATENT/INVENTION DISCLOSURE

1. Haijun Su, and Yuan Gao, US Patent 11975444B2, “Variable Stiffness Robotic Gripper Based on Layer Jamming”, June 20, 2023.
2. Haijun Su, George Crowley, Xianpai Zeng, United States and International Patent, PCT/US2023/063350, “Soft Robotic Gripper with a Variable Stiffness Enabled by Positive Pressure Layer Jamming”, published 8/31/2023
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SOFTWARE

1. MagicDNA for computer-aided design and engineering of DNA nano assemblies.
2. DAS-3D (Design, Analysis and Synthesis) for computer-aided design and analysis spatial compliant mechanisms.
3. DAS-2D (Design, Analysis and Synthesis) for computer-aided design and analysis planar compliant mechanisms.
4. VRMDS (Virtual Reality Mechanism Design Studio), a Python program for interactive design and dynamics simulation of spatial mechanisms.
5. SYNTHETICA, a Java program for synthesis, analysis and simulation of spatial linkages,

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