Soheil Fatehiboroujeni

Colorado State University
Engineering A103U | 1374 Campus Delivery
Fort Collins, CO 80523
(209) 291-9749 | fatehi@colostate.edu

EDUCATION

University of California, Merced
Ph.D., Mechanical Engineering 2018
Thesis: *Inverse Approaches for Identification of Constitutive Laws of Slender Structures*
Advisor: Sachin Goyal

M.S., Mechanical Engineering 2016
Project: *Bayesian Statistics of Filament Elasticity*

University of California, Berkeley
Fall 2014, Intercampus Exchange Program to attend courses on the Theory of Elasticity and Advanced Control

Sharif University of Technology
B.S., Mechanical Engineering 2013
Final Project: *Computational fluid mechanics of aerosol particles in respiratory tracts*

EXPERIENCE

Colorado State University
January 2022 – Present: Assistant Professor of Practice
Courses offered: *MECH324 Dynamics of Machines*
MECH325 Machine Design
MECH307 Mechatronics

Cornell University
June 2020 – December 2021: Postdoctoral Fellow in Active Learning Initiative (ALI)
Assessment design for expertise in problem-solving skills
July 2021 – August 2021: Instructor of Record (Lecturer)
Courses offered: *Heat Transfer*

Purdue University
June 2018 – June 2020: Postdoctoral Fellow in the School of Engineering Education
Student pathways in engineering and ABET accreditation
August 2019 – May 2020: Instructor of Record (Lecturer)
Courses offered: *Transforming Ideas to Innovation*

University of California, Merced
July 2017 – December 2017: Instructor of Record (Lecturer)
Courses offered: *Engineering Thermodynamics*
August 2013 – May 2018: Research and Teaching Assistant
Courses: *Statics and Dynamics, Mechanics of Materials, Vibrations and Control*

PUBLICATIONS

1. M. Ford, **S. Fatehiboroujeni,** H. Ritz, E. M. Fisher, A hands-on guided-inquiry materials laboratory that supports student agency, *Advances in Engineering Education*, 2023.
2. **S. Fatehiboroujeni,** A. Gopinath, S. Goyal, Three-dimensional nonlinear dynamics of pre-stressed active filaments: Flapping, swirling, and flipping, *Physical Review E*, 2021.
3. **S. Fatehiboroujeni**, N. Petra, S. Goyal, Linearized Bayesian Inversion for the Young's Modulus Field in an Elastic Model of Slender Structures, *Proceedings of the Royal Society A*, 2020.
4. **S. Fatehiboroujeni**, A. Qattawi, S. Goyal, Understanding Gaps in Student Engagement and Motivation in Online and Hybrid Mechanical Engineering Courses, *Journal of Online Engineering Education*, 2020.
5. **S. Fatehiboroujeni**, A. Gopinath, S. Goyal, Nonlinear Oscillations Induced by Follower Forces in Pre-Stressed Clamped Rods Subjected to Drag, *Journal of Nonlinear and Computational Dynamics*, 2018.
6. **S. Fatehiboroujeni**, S. Goyal, H. Palanthandalam-Madapusi, Computational Rod Model with User-Defined Nonlinear Constitutive Laws, *Journal of Nonlinear and Computational Dynamics*, 2018.
7. M.S. Saidi, M. Rismanian, M. Monjezi, M. Zendehbad, **S. Fatehiboroujeni**, Comparison between Lagrangian and Eulerian approaches in predicting motion of micron-sized particles in laminar flows, *Journal of Atmospheric Environment*, 2014.

CONFERENCE PUBLICATIONS:

1. **S. Fatehiboroujeni**, Hassaan Ahmed, Sachin Goyal, Frequency Response of a Beck's Column with Nonlinear Softening Constitutive Law, (2024, July) *11th European Nonlinear Dynamics Conference, Delft, Netherlands.*
2. **S. Fatehiboroujeni**, L. Bosman, (2023, July) Bringing Entrepreneurial Mindset to the Design of Machinery Through a Bio-Inspired Project with Aesthetic Objectives, *ASEE Annual Conference & Exposition, Baltimore, MD.* https://peer.asee.org/43040
3. J. Zhang, **S. Fatehiboroujeni**, M. Ford and E. Burkholder, "Impact of decision-making in heat transfer courses on students' ability to solve authentic problems," 2022 IEEE Frontiers in Education Conference (FIE), 2022, pp. 1-9, DOI: 10.1109/FIE56618.2022.9962389.
4. J. Zhang, **S. Fatehiboroujeni**, M. Ford, E. Burkholder, (2022, August), Assessing authentic problem-solving in heat transfer, *ASEE Annual Conference & Exposition, Minneapolis, MN.* https://peer.asee.org/40752
5. **S. Fatehiboroujeni**, M. Ford, H. Ritz, B. J. Kirby, E. M. Fisher, (2021, July), How to Think About Fluids in and out of Classrooms: Developing Interactive Strategies for Learning Fluids Mechanics Online, *ASEE Virtual Annual Conference Online.* https://peer.asee.org/37260
6. **S. Fatehiboroujeni**, M. Ford, H. Ritz, E. M. Fisher, (2021, July), What Sticks When the Dust Settles: Evaluating the Retention of Concepts and Thought Processes with Think-aloud Interviews, *ASEE Virtual Annual Conference Online*. https://peer.asee.org/38050
7. M. Ford, **S. Fatehiboroujeni**, H. Ritz, E. M. Fisher, (2021, July), Student Motivation and Engagement Across Time and Context Through the COVID-19 Pandemic, *ASEE Virtual Annual Conference Online*. https://peer.asee.org/37746
8. M. Ford, **S. Fatehiboroujeni**, H. Ritz, E. M. Fisher, (2021, July), A Low-cost Materials Laboratory Sequence for Remote Instruction that Supports Student Agency, *ASEE Virtual Annual Conference, Online*. https://peer.asee.org/36591
9. M. Shuey, A. Akera, S. Appelhans, A. Cheville, T. De Pree, **S. Fatehiboroujeni**, (2021, July), Student Experience with COVID-19 and Online Learning: Impact of Faculty's Ability to Successfully Navigate Technological Platforms for Remote Instruction, ASEE Virtual Annual Conference online. https://peer.asee.org/37742
10. A. Akera, S. Appelhans, A. Cheville, T. De Pree, **S. Fatehiboroujeni**, J. Karlin, D. Riley, (2021, July), ABET's Maverick Evaluators and the Limits of Accreditation as a Mode of Governance in Engineering Education, *ASEE Virtual Annual Conference Online*. https://peer.asee.org/36632
11. E. Foster, D. Riley, A. Haverkamp, **S. Fatehiboroujeni**, J. C. Major, (2021, January), Week of Action: Engineers Show Up as Intersectional Advocates, CoNECD, Virtual Confrence Online. https://peer.asee.org/36137
12. A. Akera, **S. Fatehiboroujeni**, S. Appelhans, J. Aviles, E. Dibong, B. Mendiola, M. Murray, M. Shuey, M. Tsyndra, M. Wahaus, (2020, June), Student Perspectives on Navigating Engineering Pathways, *ASEE Virtual Annual Conference On line*. https://peer.asee.org/35234
13. A. Akera, **S. Fatehiboroujeni**, S. Appelhans, A. Cheville, J. Karlin, D. Riley, T. De Pree, R. Burgos-Mirabal, (2020, June), The Modalities of Governance in Engineering Education, *ASEE Virtual Annual Conference On line*. https://peer.asee.org/35348
14. **S. Fatehiboroujeni**, A. Qattawi, S. Goyal, (2019, June), Assessing and Improving Student's Engagement and Motivation in Mechanical Engineering Online Courses, *ASEE Annual Conference & Exposition, Tampa, Florida*. https://peer.asee.org/32111
15. **S. Fatehiboroujeni**, A. Akera, D. Riley, A. Cheville, J. Karlin, S. Appelhans, T. De Pree, (2019, June), Why Engineering Ethics? How Do Educators and Administrators Justify Teaching Engineering Ethics? *ASEE Annual Conference & Exposition, Tampa, Florida*. https://peer.asee.org/32416
16. **S. Fatehiboroujeni**, D. Riley, (2019, June), The Logic of Decision Making In Engineering Design: An Examination of Design Theories From A Logical Point of View, *ASEE Annual Conference & Exposition, Tampa, Florida*. https://peer.asee.org/33405
17. S. Appelhans, T. De Pree, J. Thompson, J.A. Aviles, A. Cheville, D.M. Riley, J. Karlin, **S. Fatehiboroujeni**, A. Akera, (2019, June), From "Leaky Pipelines" to "Diversity of Thought": What Does "Diversity" Mean in Engineering Education? *ASEE Annual Conference & Exposition, Tampa, Florida*. https://peer.asee.org/32861 **[ASEE best division paper]**
18. A. Akera, S. Appelhans, A. Chevile, T. De Pree, **S. Fatehiboroujeni**, D. Riley, J. Karlin, (2019, June), ABET & Engineering Accreditation – History, Theory, Practice: Initial Findings from an NSF Sponsored Study the Governance of Engineering Education, *ASEE Annual Conference & Exposition, Tampa, Florida*. https://peer.asee.org/32020

19. A. Chevile, A. Akera, D. Riley, J. Karlin, S. Appelhans, T. De Pree, **S. Fatehiboroujeni**, (2019, June), What is the Impact of Research in Engineering Education on University Administrators? *ASEE Annual Conference & Exposition, Tampa, Florida*. https://peer.asee.org/33664
20. **S. Fatehiboroujeni**, A. Gopinath, S. Goyal, (2018, August), Follower Forces in Pre-Stressed Fixed-Fixed Rods to Mimic Oscillatory Beating of Active Filaments, *ASME International Design Engineering Technical Conferences and Computers and Information in Engineering Conference, Quebec City, Quebec, Canada*. https://arxiv.org/abs/1805.08922v1 **[ASME best paper award]**
21. **S. Fatehiboroujeni**, (2018, June) On Epistemic Diversity of Engineering and Engineering Education, *ASEE Annual Conference & Exposition, Salt Lake City, Utah*. https://peer.asee.org/30847
22. **S. Fatehiboroujeni,** D. Hollenbeck, S. Goyal, (2017, June), Effect of Softening Constitutive Law on Column Buckling, *ENOC, Budapest, Hungary*. https://congressline.hu/enoc2017/abstracts/442.pdf
23. **S. Fatehiboroujeni**, N. Petra, S. Goyal, (2016, August), Towards adjoint-based inversion of the Lame parameter field for slender structures with cantilever loading, *ASME International Design Engineering Technical Conferences and Computers and Information in Engineering Conference, Charlotte, North Carolina*.
24. **S. Fatehiboroujeni**, S. Goyal, A. Gramada, (2015, August), A Method for Identification of the Constitutive Law of Biological Filaments From Their Dynamic Equilibria. *ASME International Design Engineering Technical Conferences and Computers and Information in Engineering Conference, Boston, Massachusetts.*
25. J. Gray, **S. Fatehiboroujeni**, S. Goyal, (2015, November), Robustness Analysis of Algorithms to Estimate Constitutive Laws of Biological Filaments. *ASME International Mechanical Engineering Congress and Exposition, Houston, Texas.*

ADVISING & MENTORING:

- Hired and mentored two undergraduate researchers on the development of educational kits.
- Main advisor to multiple senior design teams.
- Main advisor to several undergraduate students in the honors program.
- Mentoring a PhD student from University of California, Merced by serving as a PhD committee member.
- Served as a design reviewer and mentor in Purdue EPICS program (Engineering Projects in Community Service) to students working in:
    - Team VETS: Designing prosthetic arm for veteran athletes.
    - Engineers Without Borders: Designing and developing water supply systems in Bolivia.
    - Team Pharmacy: Designing medical Automation and dispenser robots.
    - Team India: Designing oxen tractor systems.
- Served in the Graduate Students Mentoring Undergraduates (GSMU) program at Cornell University, Office of Academic Diversity Initiatives (OADI) and Office of Inclusion & Student Engagement (OISE) designed to support the scholarship and professional development of undergraduate fellows from underrepresented minorities.

HONORS & AWARDS

- Professor Ali H. Nayfeh award by Springer Publishing & Nonlinear Dynamics Conference (NODYCON), Rome, Italy, 2019.
- Best Paper Award, American Society of Engineering Education (ASEE), Division of Minorities in Engineering, Tampa, Florida, 2019.
- Emerging Engineering Educator, Making Academic Change Happen (MACH Workshop fellowship) by Rose-Hulman Institute of Technology, Terre Haute, Indiana, 2019.
- Carol Tomlinson-Keasey Leadership Award, the most prestigious leadership award at University of California, Merced, 2018.
- Best Paper Award, American Society of Mechanical Engineering (ASME), Technical Committee in MSNDC, Quebec City, Canada, 2018.
- Purdue University Postdoc Travel Grant, West Lafayette, Indiana 2018-20.
- Donald H. Wulff Diversity Travel Fellowships from the POD Network Annual Conference, Oregon, 2018.
- Outstanding Teaching Award, Graduate Division, University of California, Merced, 2017.

- Graduate Dean's Dissertation Fellow, University of California, Merced, 2017.
- Center for Engaged Teaching and Learning (CETL) Graduate Student Education Research Fellowship, University of California, Merced, 2017.
- Dr. Donald and Effie Godbold Fellowship, Graduate Division, University of California, Merced, 2017.
- SAMSI Fellowship from the Statistical and Applied Mathematical Sciences Institute, summer school at Durham, North Carolina, 2016.
- VIB and MSNDC Fellowship from the American Society of Mechanical Engineering IDETC-CIE conference, Charlotte, North Carolina, 2016.
- Q-bio Scholarship from Los Alamos National Lab and University of New Mexico for the 8th Q-bio summer school, Albuquerque, New Mexico, 2014.
- Bobcat Fellowship Award, School of Engineering travel and summer award, University of California, Merced, 2104-16.
- Distinguished Student Fellow from Iranian National Elites Foundation for being in the top 100 students (87^{th}) in the nation, 2012.

SERVICE & OUTREACH

- Engineering education consultant at the Kern Family Foundation.
- Serving on the Mechanical Engineering department DE&I committee at CSU and leading the subteam on engineering education.
- Serving as the Mechanical Engineering department representative on the faculty council at CSU.
- Serving as a judge in poster presentations in the CSU MURALS, CURC, and AIAA events.
- Professional Development:
    - Spring 2022: PurduePD: EM-Focused Bio-Inspired STEAM Curriculum Development
    - Fall 2022: Proposal Reviewer Training Program
- Past program chair of the TELPhE Division in ASEE 2022-23.
- Current division chair of the TELPhE Division in ASEE 2024-25.
- Symposium Organizer for the *Nonlinear Dynamics in Biological Systems*, ENOC 2024: 11^{th} European Nonlinear Dynamics Conference, Delft, Netherlands.
- Symposium Organizer for the *Nonlinear Dynamics in Biological Systems*, ENOC 2020: 10^{th} European Nonlinear Dynamics Conference, Lyon, France.
- Symposium Organizer for the *Nonlinear Dynamics of Structures* in 2018 ASME International Design Technical Conferences & Computers and Information in Engineering Conferences IDETC-CIE, Quebec City, Canada.
- Vice President of the UC Merced Graduate Student Association (GSA)
- Committee Services:
    - Technical Committee of VIB and MSNDC sections at ASME 2016-18 Conferences
    - WASC Senior College and University Commission steering committee for accreditation
- Session Chair:
    - ASEE 2019, Technical sessions in Educational Research and Methods (ERM), Engineering Ethics division, and Technological and Engineering Literacy – Philosophy of Engineering
    - ASME IDETC-CIE 2018, Technical symposium on Nonlinear Dynamics of Structures
    - ASME 11th International Conference on Multibody Systems, Nonlinear Dynamics, and Control (MSNDC) 2016, Biomechanics Symposia
- Referee Services in journals:
    - Journal of Nonlinear Dynamics
    - International Journal of Non-Linear Mechanics
    - European Journal of Mechanics A/Solids
    - ASME Journal of Mechanical Design
    - Journal of Sound and Vibration
- Instructor of K-12 STEM education workshops for teachers in the Merced County Office of Education:
    - Offering professional development units to educators from the local school districts supporting the implementation of the Next Generation Science Standards.
    - Topics covered: Genetics and heredity, DNA molecular geometry.