Samantha Hoang

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Education

Ph.D. in Mechanical Engineering, University of Washington (UW), Seattle, WA 2017–2022

Faculty Advisor: Dr. I.Y. (Steve) Shen

Thesis: Effects of Modeling Choices on High-Performance, Multi-Rotor Drone Dynamics and Energy Efficiency

M.S. in Mechanical Engineering, UW, Seattle, WA 2017–2020

B.S. in Engineering, Harvey Mudd College (HMC), Claremont, CA 2013–2017

Experience

Assistant Professor, Seattle University (SU), Seattle, WA 2022–

Duties: • Develop lectures, assignments, and exams to teach and evaluate learning • Hold office hours • New course development • Curriculum design

Courses:

- Engineering Design & Graphics (MEGR 1050) (FQ23, WQ24, FQ24, & WQ25)
- Dynamics (MEGR 2300) (WQ24 & WQ25)
- Engineering Methods (MEGR 2810) (FQ22)
- Integrated Design 2 (MEGR 2890) (SQ23)
- Data Acquisition 2 (MEGR 3370) (SQ23, SQ24, & SQ25)
- Digital Controls & Applications (MEGR 5080) (SQ23 & SQ25)
- Senior Design Faculty Advisor – Kenworth (AY22-23 & AY23-24)

Pre-Doctoral Instructor, UW, Seattle, WA 2020–2022

Duties: • Develop lectures, assignments, and exams to teach and evaluate learning • organize and delegate duties to teaching assistants • Hold office hours • Adapt course materials for online learning due to COVID19.

Courses:

- Kinematics and Dynamics (WQ20, SU20 [online], & WQ22)
- Finite Element Analysis (SU21 [online])

Teaching Assistant, UW, Seattle, WA 2018–2022

Duties: • Lead and develop materials for recitation sections • Grade all assignments and exams • Hold office hours • Adapt course materials for online learning due to COVID19.

Courses:

- *Undergraduate*:
  - Kinematics and Dynamics (WQ18, WQ21 & SQ21 [online])
  - Machine Design Analysis (SQ18)
  - Introduction to System Dynamics (WQ19)
  - Systems Dynamic Analysis and Design (SQ19 & SQ20 [online])
- *Graduate*:
  - Dynamics and Vibrations (FQ20 & FQ21 [online])

Global Internship Program Fellow, Industrial Technology Research Institute (ITRI), Hsinchu, Taiwan 2019

- Performed experiments on drone subsystems to verify simulation results for large multi-rotor

Publications

Undergraduate researcher names are underlined.

16. Oguine, O., Radford, D., **Hoang, S.**, and Badillo-Urquiola, K. "Inclusion by Design or by Default? Examining How HCI Studies Engage Underrepresented Youth in Makerspaces". *Accepted as CSCW 2025 Poster Paper*.
15. **Hoang, S.**, Bowen, C. L., Menezes, G. B., and Panwar, S. "Instructor Experiences Implementing Two Engineering Graphics Courses using Mastery-Based Grading and Project-Based Learning". *2025 ASEE Annual Conference.* Baltimore, MD. June 22-25, 2025.
14. Günter, K. P., Grande, V., **Hoang, S.**, Kjelsberg, R., Mir, D., Peters, A. K., Paretti, M., Lönngren, J. "And then I made some pockets of change: Collage-making to think presents and futures of engineering education with". *International Journal of Engineering, Social Justice, and Peace,* Vol. 12, No. 1 (2025): 35-72. https://doi.org/10.24908/ijesjp.v12i1.18422
13. Mejia, K., **Hoang, S.**, and Han, Y. L. "Career paths and building a supportive network for female faculty of color". *International Journal of Engineering, Social Justice, and Peace,* Vol. 12, No. 1: 113-133. https://doi.org/10.24908/ijesjp.v12i1.19022
12. **Hoang, S.**, Bui, A., and Achwal, P. "Strategies and Considerations for Starting an Undergraduate Research Lab as a New Faculty at a PUI". *FIE 2024*. Washington, D.C., USA. October 13-16, 2024.
11. **Hoang, S.** and Shen, IY. "Effects of Deterministic Gust Modeling for Large, Multi-Rotor Drones." *Proceedings of the ASME 2023 International Mechanical Engineering Congress and Exposition. Volume 6: Dynamics, Vibration, and Control*. New Orleans, Louisiana, USA. October 29–November 2, 2023. V006T07A027. ASME. https://doi.org/10.1115/IMECE2023-113645
10. MacNider, B., Liang, X., **Hoang, S.**, Ghanem, M.A., Cai, S., and Boechler, N. "Dynamic compression of soft layered materials yields tunable and spatiotemporally evolving surface patterns". *Phys. Rev. E*, Vol. 107, Issue 3 (2023): p.035002. https://link.aps.org/doi/10.1103/PhysRevE.107.035002
9. **Hoang, S.**, Rasmussen, E., and Obenaus, A. "Best practices in an undergraduate engineering course from analyzing a decade of data from in-class, hybrid, and online environments." *2023 ASEE Annual Conference.* Baltimore, MD. June 25-28, 2023. DOI: 10.18260/1-2–44621. https://peer.asee.org/44621
8. **Hoang, S.** and Shen, I. Y. "Cost of Controls for Multi-Rotor Drones." *International Design Engineering Technical Conferences and Computers and Information in Engineering Conference (IDETC-CIE)* (2021): p.V08BT08A002. https://doi.org/10.1115/detc2021-67816.
7. **Hoang, S.**, Marsh, L., Aliseda, A., and Shen, I. Y. "Effects of High Fidelity Modeling of Multirotor Drones." *ASME Journal of Autonomous Vehicles and Systems* Vol. 1, No. 1 (2021): p.011007. https://doi.org/10.1115/1.4050013
6. **Hoang, S.**, Marsh, L., Aliseda, A., and Shen, I. Y. "Analysis of High Fidelity Modeling of Drone Dynamics and Aerodynamics for Reduced Energy Consumption." *IDETC-CIE* Vol. 83969 (2020): p.V007T07A022. https://doi.org/10.1115/DETC2020-22481
5. **Hoang, S.**, Liu, Y., Aliseda, A., and Shen, I. Y. "Stability analysis of high-performance drones with suspended payloads." *IDETC-CIE* Vol. 59285 (2019): p.V008T10A039. https://doi.org/10.1115/DETC2019-97947
4. Abi Ghanem, M., Liang, X., Lydon, B., Potocsnak, L., Wehr, T., Ghanem, M., **Hoang, S.**, Cai, S., and Boechler, N. "Wrinkles Riding Waves in Soft Layered Materials." *Advanced Materials Interfaces* Vol. 6, No. 1 (2019): p. 1801609. https://doi.org/10.1002/admi.201801609
3. **Hoang, S.**, Park, T. H., Lum, J. , and Duron, Z. "Proposed Guidelines for Conducting a Performance-Based Evaluation of a Concrete Dam." *USSD Conference* (2017).
2. Park, T. H., **Hoang, S.**, Lum, J., and Duron, Z. "A Performance-Based Evaluation of Post-Tensioned Anchors Embedded within a Concrete Gravity Dam." *USSD Conference* (2017).
1. Lum, J., **Hoang, S.**, Park, T. H., and Duron, Z. "On the Use of Discrete Lumped Element Modeling for Insight into Concrete Dam Behavior." *USSD Conference* (2017).

Selected Presentations & Posters

Undergraduate student names are underlined.

Invited Talks

Hoang, S. and Shen, I. Y. "Effects of High Fidelity Modeling of Multirotor Drones." *IDETC-CIE* Spotlight Session, Virtual, August 2021.

Park, T. H., **Hoang, S.**, and Lum, J. " Performance-Based Evaluation of Shaver Lake Dam." *Division of Dam Safety*, Sacramento, CA, September 2016.

Park, T. H., **Hoang, S.**, and Lum, J. "Performance-Based Evaluation of Concrete Dams." *US Bureau of Reclamation*, Denver, CO, June 2016.

Conference Special Sessions

Hoang, S. and Han, Y. L. "How do faculty members from underrepresented minority groups express their identity?" *Special Session at ASEE 2025*.

Conference Posters

Agopsowicz, I., Mesfin, S., Gill, S., Sahagun, M.-A., Edora, E., and **Hoang, S.** "Tuning and Validating a Multi-Rotor Drone Model Using a Stationary Frame." *IMECE 2024*, Undergraduate Expo, Portland, OR, November 2024.

Intellectual Property

U.S. Patent 10632298, "Fluid infusion systems and methods," Apr 28, 2020. *Link*

Mentoring

Undergraduates: Parth Achwal and Anthony Bui (2023-2024); Marco-Antonio Sahagun (2024-2025); Cedrick Villegas, Liam Bernier, Samuel Mesfin, Ian Agopsowicz, Sameer Gill, and EJ Edora (2024-present)

Fellowships & Awards

Outstanding Teaching Assistant Award, UW, Seattle, WA 2020

De Pietro Engineering Fellowship, Harvey Mudd College, Claremont, CA 2016–2017

- Fellowship awarded annually to three undergraduate engineering students to perform research with Dr. Ziyad Duron on dam monitoring and evaluation.

Professional Development

Minority Mentorship Program, American Society for Engineering Education (ASEE) 2024–2025

- 9-month mentorship program aimed at supporting faculty from minoritized populations in their careers through a formalized mentorship relationship.

"Less grading, deeper learning" workshop, Center for Faculty Development, SU 2024

- Workshop hosted by the Center for Faculty Development at SU on how to structure learning outcomes and grading rubrics to reduce grading load while prioritizing deeper learning for students by applying principles of mastery-based grading.

Academic Leadership for Women in Engineering (ALWE), Society of Women Engineers (SWE) 2023
- 9-month mentorship program aimed at supporting the professional development of female faculty and preparing them for leadership roles at their institution.

Replacing Implicit Bias Workshop, ASEE 2023
- Plan and facilitate first LEAP Early arrival program to welcome incoming CSE students and introduce them to SU in a more personalized setting.

NETI-1 (Basic), National Effective Teaching Institute (NETI) 2023
- Three-day interactive workshop to learn about strategies for effective teaching including topics such as course planning, active learning, inclusive teaching, and learning assessments.

Abstract and Paper Reviewer, Various 2023–
- ASME IMECE 2023: 1 paper.
- ASEE 2024: 7 abstracts, 5 papers.
- FIE 2024: 3 abstracts, 3 papers.
- ASME IMECE 2024: 1 paper.
- ASEE 2025: 1 paper.
- FIE 2025: 3 abstracts, 2 papers.

Service

CSE Experiential Learning Task Force, SU, Seattle, WA 2025–
- Member of the College of Science and Engineering (CSE) Task Force whose goal is to develop common language surrounding experiential learning and identity strategic directions for CSE related to this topic.

CSE DEI Committee, SU, Seattle, WA 2025–
- Elected to committee on Diversity, Equity, and Inclusion (DEI) for the College of Science and Engineering to work on evaluating college climate and ensuring that DEI is centered in important college-wide decisions.

Early Arrival Program Committee Member, SU, Seattle, WA 2023–
- Plan and facilitate LEAP program to welcome incoming CSE students and introduce them to SU in a more personalized setting with many community-building opportunities.

CSE Faculty Senate Department Representative, SU, Seattle, WA 2023–2025
- Represent ME department at Senate Meetings and relay important information back the ME department.
- Participate in discussions concerning decisions made by administration and ensure that faculty concerns are considered by administration.

Academic Advisor, SU, Seattle, WA 2022–
- Advise 16 mechanical engineering students on their academic and professional development.
- Refer advisees to relevant resources for academic and personal issues as necessary.