

Yen-Lin Han

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EDUCATION:

- 08/01-05/06 **University of Southern California** Los Angeles, CA
Ph.D., Mechanical Engineering, GPA 3.83
Han, Y.-L. (2006). Investigation of Knudsen Compressors at Low Pressures (Doctoral dissertation). University of Southern California, Los Angeles, CA.
Advisor: Dr. E. P. Muntz
- 01/07-08/08 **University of Southern California** Los Angeles, CA
Master of Science, Electrical Engineering, GPA 3.74
Major Field: Optics, Photonics
- 08/99-05/01 **California State University Northridge** Northridge, CA
Master of Science Program, Mechanical Engineering, GPA 3.98
Major Field: Heat Transfer, Thermal-Fluids
- 08/98-08/99 **California State University Dominguez Hills** Carson, CA
Master of Business Administration, General Management, GPA 3.93
- 10/89-05/93 **National Tsing-Hua University** Hsin-Chu, Taiwan
Bachelor of Science, Material Science and Engineering
Minor, Economics

APPOINTMENTS:

09/19- Present **Seattle University** Seattle, WA

09/15-08/19

Course Taught:

- Topics include contemporary energy technologies such as operation and analysis of thermal power, fuel cell, renewables, combined heat and power systems, and energy storage, with emphasis on environmental and societal awareness.
- - Theories and applications related to Finite Element Analysis (FEA) and Computational Fluid Dynamics (CFD) are discussed. This course focuses on applications in structural mechanics, heat transfer and fluid dynamics. A combination of theoretical derivations and practical applications using commercially available FEA and CFD codes (ANSYS Fluent) are covered.
- Coordinate Capstone Senior Design Projects (7 projects in 2020-21, 9 projects in 2019-20, 7 in 2018-19, 9 in 2017-18 & 9 in 2016-17). Advise teams of students completing engineering tasks provided by industrial sponsors. Prepare students with profession presentation and writing skills. Workshops on project management, and teamwork. Apply fundamental engineering theories including thermal fluids, dynamics, control, and materials. Complete each project with prototyping, testing, professional presentations, and technical reports to sponsors. Advise interdisciplinary and ME senior projects (1 project in 2020-21, 2 projects in 2019-20, 3 in 2018-19, 2 in 2017-18, 2 in 2016-17 & 2 in 2015-16)- Kenworth Truck Company (subsidiary of PACCAR) submitted six patent applications for the autonomous coupling of tractor and trailer project I advised in 2016-17. T-Mobile

submitted one patent application for the projects (automatic device testing platform) I advised in 2016-17.

- I & II- Two-course sequence with contents integrating fundamentals of electrical engineering including simulation using Multisim, computer programming and data acquisition (DAQ) with application to mechanical engineering systems. The topics include DC/AC circuits, electronic components, sensors, microcontrollers, statistical analysis, frequency domain analysis, filtering and Internet of Things (IoT) applications. Implemented remote labs in Spring 2020 with positive responses from students.
- Topics included general principles underlying heat transfer by conduction, convection, and radiation for applying steady flow and transient flow. Conduct experiments to demonstrate selected heat transfer phenomena. Utilized authentic engineering problems (AEPs) and inverted classroom (IC). Added a service-learning project in Spring 2019 (Hilltop House Energy Audit).
- Topics included modeling of mechanical, thermal, hydraulic, pneumatic, and electrical linear and non-linear systems, Laplace transforms, stability criteria, and frequency response. Re-designed laboratory experiments utilizing LabView/NI DAQ to observe time responses of selected mechanical, hydraulic and electromechanical systems.
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- o Biomedical Device Session Organizer-

- Regularly attend department events for students, alumni, and local professionals.
- Connected with Seattle University Community Engagement office and discussed collaborations.

09/12-08/15

Seattle University

Seattle, WA

Courses Taught:

- Coordinated Capstone Senior Design Projects (7 projects in 2014-

Research Interests:

- DSMC (Direct Simulation Monte Carlo)

- Assisted students with their questions on fundamental compressible gas dynamics problems such as subsonic and supersonic flows, shock

(1&2), 151-175.

INVITED BOOK CHAPTER:

Han, Y.-L. (in preparation). Unveiling my engineering identity. In Margaret Bailey & Laura Shackelford (Eds.), . Springer Publishing.

Han, Y.-L. (2012). Aerogel Materials for Aerospace. In S. Zhang & D. Zhao (Eds.), (pp. 699-743). Boca Raton, FL: CRC-Press.

PEER-REVIEWED CONFERENCE PROCEEDINGS (undergraduate students' names underlined):

Han, Y.-L., Cook, K., Mason, G., Shuman, T.R., and Turns, J. (2021). Engineering with Engineers: Fostering Engineering Identity,

Mejia, K. Han, Y.-L., and Turns, J. (2021). Inclusivity Meter: Tracing How it Worked and What Was Learned,

Mason, G., Han, Y.-L., Cook, K., Shuman, T.R., Hammel, J., Strebinger, C., Gilbertson, E., and Turns, J. (2021). Making the “New Reality” More Real: Adjusting a Hands-On Curriculum for Remote Learning,

Taylor, M., Westra, K., & Han, Y.-L. (2020). Developing a Thermally Actuated Soft Robot for Finger Rehabilitation. on, Virtual, Online: ASME.

Han, Y.-L., Mason, G., Cook, K., Shuman, T.R., and Turns, J. (2020). WIP: Integrating Electrical Engineering Fundamentals with Instrumentation and Data Acquisition in an Undergraduate Mechanical Engineering Curriculum. , Uppsala, Sweden: IEEE.

Han, Y.-L., Cook, K., Mason, G., Shuman, T.R., and Turns, J. (2020). Engineering with Engineers: Fostering Engineering Identity through Industry Immersion. , Montreal, Québec, Canada: ASEE.

Roberts, K., & Han, Y.-L. (2019). Investigating Density Functional Theory’s Effectiveness in Studying Metal-Organic Frameworks Structures. on, Salt Lake City, UT: ASME.

Han, Y.-L., Cook, K., Mason, G., Shuman, T.R., and Turns, J. (2019). Engineering with Engineers: Revolutionizing a Mechanical Engineering Department through Industry Immersion and a Focus on Identity. , Tampa, FL: ASEE.

Cook, K., Han, Y.-L., Mason, G., Shuman, T.R., & Turns, J. (2019) Implicit Engineering Identity in the Mechanical Engineering Major. , Tampa, FL: ASEE.

Nakao, J., & Han, Y.-L. (2018). Preliminary Heat Transfer Simulation Model of a Novel Dynamic Thermal Ablation Probe. on, Pittsburgh, PA: ASME. doi:10.1115/IMECE2018-86874.

Han, Y.-L., Cook, K., Mason, G., Shuman, T.R., and Turns, J. (2018). Engineering with Engineers: Revolutionizing Engineering Education through Industry Immersion and a Focus on Identity. , Salt Lake City, UT: ASEE.

Cook, K., Han, Y.-L., Mason, G., Shuman, T.R., & Turns, J. (2018) Engineering Identity across the Mechanical Engineering Major. , Salt Lake City, UT: ASEE.

Den Adel, C., Husler, Z.-M., & Han, Y.-L. (2017). Design of a Novel Radio Frequency Ablation Probe for Tumor

- Ablation Treatment. , Minneapolis, Minnesota, USA: ASME. doi:10.1115/DMD2017-3508.
- Han, Y.-L., Cook, K. E., Shuman, T. R., & Mason, G. S. (2016). Development of Authentic Engineering Problems for Problem-Centered Learning. , New Orleans, Louisiana (10.18260/p.26821): ASEE.
- Han, Y.-L. (2015). Computational Studies on the Effects of Non-linear Temperature Functions in Thermal Creep Membranes of Radiantly Driven Knudsen Compressors. , Houston, Texas: ASME.
- Bever, A. M., Brown, P. J., Lane, K. V., Levy-Wendt, B. L., Yasuda, N., Han, Y.-L., & Shih, F. J. (2015). Characterization of a Fast Responding Composite Thermal Bimorph Actuator Based on Carbon Nanotube Sheets. , Houston, Texas: ASME.
- Shuman, T.R., Mason, G., Han, , & Cook, K. (2015). Facilitating Problem-Based Learning with an Inverted Classroom. , Belgrade, Serbia: SIE.
- Mason, G. S., Shuman, T. R., Han, , and Cook, K. E. (2015). Facilitating Problem-Based Learning with an Inverted Classroom. , Seattle, Washington (10.18260/p.24089): ASEE.
- Han, Y.-L. (2014). Computational Study on a Novel Micropump Driven by a Built-In Thermal Bimorph Microvalve. , Montreal, Canada (IMECE2014-38708): ASME.
- Bever, A. M., Levy-Wendt, B. L., del Rosario, V., Pentz, J. A., Han, Y.-L. and Shih, F. J. (2014). In-Plane Thermal Conductivities of CFRP Composites Interleaved with Dissimilar Conductive Media. , Montreal, Canada: ASME.
- Han, Y.-L. (2013). Performance Model for Optically Driven Micropumps with Carbon Opacified Aerogel Membranes. , San Diego, CA (IMECE2013-62197): ASME.
- Han, Y.-L. (2009). Simulation Studies of Micro-Scale Gas Pumps Driven by Isolated Heating Elements Induced Thermal Creep Flows. , Lake Buena Vista, Florida (IMECE 2009-10856).
- Han, Y.-L. (2008). Investigation of Temperature Driven Gas Flows in 4 nm Channels for Applications of Micro-Scale Compressors at above Atmospheric Pressure. , Boston (IMECE 2008-68170): ASME.
- Han, Y.-L., Young, M., Muntz, E.P. (2004). Performance of Micro/Meso-Scale Thermal Transpiration Pumps at Low Pressures.

Nozzle for Microsatellite Thrust Vector Control.
AIAA. <https://doi.org/10.2514/6.2017-3964>.

, Denver, Colorado:

Han, Y.-L. (2008). Implications of Imposing Working Gas Temperature Change Limits on Thermal Creep Driven Flows. , Kyoto, Japan.

Muntz, E.P., Alexeenko, A.A. Gimelshein, S.F., Ketsdever, A.D., Han, Y.-L., Y

3/2020 Seattle University PACCAR Endowed Professorship- Wearable Assistive Soft Robots for Finger, Hand, or Elbow Rehabilitation- \$52,713. Declined.

01/19 National Renewable Lab (NREL) Collegiate Wind Competition (PI)- \$9,999. Awarded.
01/17 NSF IUSE/PFE- RED #1730354 Revolutionizing Engineering Education through Industry Immersion and a Focus on Identity (Co-PI)- \$1,861,527. Awarded 07/01/2017 – 06/30/2022.

10/17 Seattle University Summer Faculty Fellowship- Design, Prototyping, and Testing of a Novel Thermal Ablation Probe for Cancer Treatment- \$7,100. Awarded.

