

Nicole Huimei Lee

Aeronautical and Astronautical Engineering
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EDUCATION	<i>SM/Ph.D. in AeroAstro Engineering and Dual SM in Technology and Policy</i> August. 2025 – Present Massachusetts Institute of Technology (MIT) President of Graduate Association of Aeronautics and Astronautics
	<i>B.Sc. Double Major in Mechanical Engineering and Business, Economics, and Management</i> with Minor in Aerospace Sept. 2021 – June 2025 California Institute of Technology
RESEARCH EXPERIENCE	<i>Researcher</i> Sept. 2025 – Present Advisor: Prof. Dava Newman Massachusetts Institute of Technology, Human Systems Lab (Cambridge, MA) Integrating human-systems physiology with aerospace systems engineering and policy analysis to design next generation life support solutions for long duration missions.
	<i>Researcher</i> Aug. 2023 - June 2025 Advisor/Mentor: Prof. Mory Gharib and Arian Aghilinejad Caltech Graduate Aerospace Laboratories (Pasadena, CA) Predicted and analyzed fluid-structure interactions in elastic tubes using Lattice Boltzmann and Immersed Boundary Methods to model cardiovascular flow under various pulsatile conditions for extreme environments.
	<i>Researcher</i> May 2022 - Aug. 2022 Advisor/Mentor: Prof. Jean-Philippe Avouac and Mateo Acosta (Pasadena, CA) Developed an interface between geophysical simulation codes and Petrel software to improve planetary surface modeling. Contributed to computational methods that can support planetary exploration and in-situ resource utilization (ISRU) analysis.
	<i>Researcher</i> May 2022 - Aug. 2022 Advisor/Mentor: Prof. Mory Gharib and Emile Oshima (Pasadena, CA) Applied physics-informed machine learning to experimental and computational aerodynamics data to improve prediction of complex flow fields. Designed ML tools to support aerodynamic efficiency and performance optimization in aeronautics applications.
WORK EXPERIENCES	<i>Venture Capital Intern</i> June 2024 - Aug. 2024 CEO and reference: Chad Anderson Space Capital (New York, NY) Developed market analysis models for direct-to-cell satellite communications, leveraging data science techniques for strategic investment evaluations. Conducted due diligence reports and deal flow assessments in the aerospace sector.
	<i>Propulsion Intern</i> June 2023 - Aug. 2023 Manager: Jon Tovar

The Aerospace Corporation (El Segundo, CA)
Developed tools for solid motor propellant grain regression and performed ballistic analysis from static fire tests, contributing to performance assessments for NASA, the Space Force, and other organizations.

Design Engineer June 2022 - Sep. 2022
Quest Carbon Capture and Storage (Alberta, Canada)
Manager: Simon O'Brien Modeled reservoir compaction for a carbon capture site, developed a pipe stress analysis interface, and enhanced geomechanical simulations using Petrel software.

Fluid Mechanics Engineer March 2022 - July 2022
Boeing Aeronautics
Manager: Sean Devey (Remote)
Project caught interest, funded to develop machine learning model to predict and simulate 3D flow fields over airfoil and speed bump to be used in airwing computation.

Univ. of Arizona Research Intern June 2020 - Sep. 2020
Mentors: Prof. Sunder Sethuraman (Tucson, AZ)
Developed Neural Network gaming programs following research done by Tariq Rashid.

SELECTED HONORS

Awards
NSF Graduate Research Fellow
Brooke Owens Fellow
Beckman Political Award Recipient
Aerospace Corporation Iron Intern
Kiyo and Eiko Tomiyasu SURF Scholar
Los Angeles Philanthropic Foundation Scholarship Awardee
LeRoy and Anita Nelson Scholarship Recipient
Mr. Tao Tan Scholarship Award
Peat Scholarship
Arizona Seal of Fine Arts Award
American Mathematics Competition (AMC) Finalist

PUBLICATIONS *Published 2023*

Development of a Physics-Informed Neural Network to Enhance Wind Tunnel Data for Aerospace Design, at [Aerospace Research Central Journal](#) and [American Institute of Aeronautics and Astronautics](#) and [Research Gate](#).

Published 2023
Reservoir Compaction Poroelastic Model, at [Caltech GMG](#).

Published 2023
Connecting the World, at [Space Capital Publications](#).

TECHNOLOGY SKILLS

Languages: MATLAB, Python, Java, JavaScript, C, R
Software: SOLIDWORKS, ANSYS, AutoCAD, MATLAB, CAESAR II, AutoCAD Plant 3D, Solidity, Petrel, LabVIEW, NX
Tools/Libraries: ILS/VLS Laser, ProtoMAX/Flow Waterjet, TRAK/ACER Lathe, TRAK/ACER Mill, 3D-Printer, pandas, numpy, TensorFlow
Certifications: Prototyping Laboratory, Construction Trained (Caltech), ServSafe
Experience: Systems Engineering, Propulsion, Thermal Analysis, Fluid Systems, Test Engineering, FEA, CFD, RF