

Amin Ghafari

Cell: 510-710-3496 | Email: amin.ghafari@berkeley.edu | Website: aminghafari.com

SUMMARY OF QUALIFICATIONS

- Experienced in Computational Modeling and Simulation
 - Have a broad knowledge of Nano-scale Heat Transfer Theory, Statistical and Thermal Physics
 - Performed fundamental research in Photonics and Phononics
 - Interested in solving Physics problems via Deep Learning Models
 - Programming Skills: Python, C++, C#, Fortran, Scipy, Numpy
 - Technical Skills: MATLAB, ANSYS, COMSOL, Unity, Git, TensorFlow, PyTorch, OpenCV, Linux, AWS
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EDUCATION

- **University of California Berkeley,** 2014-Dec. 2019(exp.)
Ph.D. in Mechanical Engineering, Minors in Physics and Mathematics, [GPA: 4.0/4.0] Berkeley, CA
 - **University of California Berkeley,** 2017
M.Sc. in Mechanical Engineering, [GPA: 4.0/4.0] Berkeley, CA
 - **Sharif University of Technology,** 2010-2014
B.Sc. in Mechanical Engineering, [GPA: 3.99/4.0] Tehran, Iran
Ranked 3rd among 120 students in the Mechanical Engineering Department's Class of 2014
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EXPERIENCE

- **Graduate Student Researcher,** 2014-Present
UC Berkeley, Mechanical Engineering Department, Advisor: [David B. Bogy](#)
 - Simulated the nano-scale heat transfer phenomena in multilayered structures via MATLAB
 - Wrote industry level codes to investigate the thermal response of microfabricated and nanofabricated structures which are suitable for semiconductor and Hard Disk Drive industries
 - Improved the nano-scale heat transfer theory which encompasses near-field radiation and phonon conduction which in turn predicts the heat flux in nano-structure more accurately
 - Worked with diverse groups. Partnered with a mentor to modify the heat transfer theory and how to approach the theory with various solutions
 - **Undergraduate Student Researcher,** 2013-2014
Sharif University of Technology, Advisor: [M.S. Saidi](#)
 - Modeled plasma matter by considering the interaction of ions
 - Simulated dusty plasma in a microfabrication process
 - Found a method to manipulate the potential field of plasma to eliminate the interference of dust with the etching procedure. This improved the microfabrication process in the simulations
 - Utilized C++ for coding and Tecplot for visualizing the data
 - **President/Lead Organizer and Financial Director,** 2018-Present
Iranian Student Association in America at UC Berkeley, a none-profit organization
 - Revived the group amidst declining membership and participation
 - Increased funding by 500%
 - Developed and launched widely successful cultural events to promote awareness of the Iranian culture
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SIDE PROJECTS

- **Reducing Human's Burden in Deep Inverse Reinforcement Learning from Human Feedback**, [\[Link\]](#)
Deep Reinforcement Learning Course, Prof. Sergey Levine, UC Berkeley, Fall 2017
 - Developed algorithms reducing human's burden for training an agent performing specific tasks
 - Introduced a Critique to learn from data and inquiry only on useful data which made the learning process 2X faster
 - Integrated the exploration to the learning process so that multiple agents are trained, and more performance options are explored
 - Used TensorFlow, OpenAI Gym, and Mujoco
 - **Autonomous Mapping and Navigation**, [\[Link\]](#)
Robotics Course, Udacity, Fall 2017
 - Wrote a computer vision pipeline (using Python and OpenCV)
 - Performed color thresholding, perspective and coordinate transforms to complete the task of autonomous mapping and navigation in a simulated (Unity) environment
 - **Realistic Rendering of Ice cubes**, [\[Link\]](#)
Computer Graphics, Prof Ren NG, UC Berkeley, Spring 2017
 - Devised an optical model for the texture of ice which is visually more compelling comparing to the previous models
 - Implemented a Path tracing code to render various ice cubes using C++
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HONORS AND AWARDS

- The Graduate Division Nano Block Grant Award (\$18000), UC Berkeley 2018
 - Otto and Herta F. Kornei Endowment Fellowship (\$18000), UC Berkeley 2017
 - The Graduate Division Block Grant Award (\$22000), UC Berkeley 2015, 2017, 2019
 - Merit-based Admission Offer to the Master of Science program, Mechanical Engineering Department, Sharif University of Technology, Tehran, Iran, 2013
 - Ranked 39th in the National University Entrance Examination out of a pool of 100,000+ participants, Iran 2010
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PUBLICATIONS

- [Controlled heat flux measurement across a closing nanoscale gap](#) Ma, Ghafari, Budaev, Bogy Applied Physics Letters, 2016
 - [Intense radiative heat transport across a nano-scale gap](#) Budaev, Ghafari, Bogy Journal of Applied Physics, 2016
 - [Measurement and simulation of nanoscale HDI heat transfer using a PMR head](#) Ma, Ghafari, Budaev, Bogy IEEE, 2017
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