

ILIA KHEIRKHAH

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EDUCATION:

University of Pennsylvania, Philadelphia, PA

BSE in Mechanical Engineering (Expected Graduation Spring 2024)

GPA – 3.72

MSE in Mechanical Engineering (Expected Graduation Fall 2024)

GPA – 4.00

Experience:

Naval Surface Warfare Center Philadelphia – Engineering Intern

June 2023 – August 2023

- Reduced Testing time by up to 30% by developing a model for predicting flow rate between two closed tanks accurate to 99% of predicted values.
- Designed and presented a poster about flow model that won Second Best Project Presentation out of ~30 other posters.
- Set up, executed, and processed Acoustic Flow Testing for various different shipboard parts.
- Helped Calibrate and organize ~100 Accelerometers, Hydrophones, and other Miscellaneous sensors.

M51 Space – Mechanical Team Lead

November 2021 - Present

- Designed and tested a function hybrid engine during the Summer of 2022.
- Created a critical design review (CDR) presentation to present to and get feedback from professionals from different industries.
- Using ANSYS FEA and CFD to verify designs and improve various parameters
- Designed and tested a 10k ft Solid Engine rocket which we competed with at the Friends of Amateur Rocketry Competition in June 2023.
- Used Solidworks to create CAD Models and engineering drawings for various parts which were then machined in house.

Penn Aerospace Club – Balloon Team Mechanical Lead

Fall 2020 - Present

- Designing and testing High Altitude Balloons.
- Launching High Altitude Balloons throughout the semester to collect various forms of data using Arduinos.
- Analyzing received data to improve our systems and conduct various experiments.

Undergraduate Research Assistant

November 2021 – Present

- Used ANSYS and OpenFOAM to model fluid flow through kirigami fog collectors with Professor Arratia of the Complex Fluids Lab at the University of Pennsylvania
- Work with Graduate students to analyze simulation data and measure effectiveness of geometries

Projects:

Transient Lid Driven Cavity Flow Simulation

- Derived and implemented a Transient Lid Driven Cavity Flow Simulation in MATLAB
- Used Finite Volume Method (FVM) and SIMPLE algorithm for discretization and pressure-velocity coupling
- Evaluated at various Reynolds Numbers, documenting solve time and convergence rates.

Numeric Lifting Line Wing Analyzer

- Applied Numeric Lifting Line techniques to predict Lift and Drag properties of any wing

Sterling Engine

- Designed and created engineering drawings for a Sterling Heat Engine
- Manufactured and tested the engine; operating speed of 1000 RPM

Other:

Secret Security Clearance, Portfolio Website: <https://iliak1729.github.io/>