Athary Biju Pillai

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EDUCATION

Boston University, Boston, MA

Bachelor of Science in Mechanical Engineering

May 2026 GPA: 3.97/4.0

Relevant Coursework: Fluid Mechanics, Dynamics, Thermodynamics, Mechanics of Materials, Electromechanical Design, Differential Equations, Multivariable Calculus, Linear Algebra, Probability Statistics and Data Structures

SKILLS

Computer Aided Design, Microcontrollers, Simulink, MATLAB, Python, C++, Java.

HIGHLIGHTED PROJECTS & EXPERIENCE

Boston University Rocket Propulsion Group

Sep 2023 - Present

Fluids/Propulsion Engineer

- Design and build pressure relief, fill, and vent systems for next bipropellant rocket (IPA/NOx)
- ❖ Design and build fuel and oxidizer tanks for next bipropellant rocket (IPA/NOx)
- ❖ Co-led Hybrid Introduction Project (HIP) for incoming members, provided feedback for design reviews, held office hours to solidify participants' grasp of fundamental rocketry concepts
- ❖ Designed carbon steel pintle injector for 600 lbf bipropellant (IPA/NOx) rocket engine
- ❖ Designed, printed, and fired resin nozzle for hybrid (Paraffin/GOx) rocket engine

The MathWorks, Inc.

May 2025 – August 2025

Engineering Development Group Intern

- ❖ Designed automated performance tests in MATLAB for Simulink Safety Analysis Manager
- ❖ Identified sources of improvement for time-based performance of critical features
- Gave lecture regarding performance and memory testing tools to Quality Engineering team

Applied Interfacial Phenomena Lab

September 2025 – Present

Undergraduate Researcher

- Design and fabricate fluidically-shaped prosthetic finger, proof of concept for future prosthetics
- * Extend capability of fluidically-shaping from lenses to wider variety of structures
- Improve mechanical interface methods between polymer and PLA in fabricated structures

Hybrid Electric Turboprop

September 2025 - Present

ME460/461: Senior Design Capstone Project

- ❖ Design domestic aircraft using hybrid electric turboprop system
- ❖ Capitalize on 50-seat airliner market, fuel economy of 500 nmi fuel/seat range
- ❖ Experimental percent error for critical load measurement: 4.28%

Twin Jet Airliner Design

September 2025 - Present

ME408: Aircraft Performance and Design

- Design twin-jet continental airliner to compete with current Airbus 320 and Boeing 737 designs
- ❖ Prioritize long-range commercial transport (~3000 nmi) through maximizing fuel efficiency, material usage
- ❖ Modify cabin design to better accommodate passengers and improve comfort
- ❖ Aim to create design that is 5-10% more profitable to capture market share

Fluid System Simulation Software

September 2024 - Present

May 2023 - Present

Personal Project

- ❖ Create C++ software that graphs 2-D plot of a bipropellant fluid system using inputs for: valve placement, pipe length, line specification (fuel, oxidizer, purge)
- Strengthening understanding of fluid flow and computational engineering
- * Return: table of pressure drops across each valve, head losses across pipes using Darcy-Weisbach equation, final pre-injector pressure

AWARDS

Academic Honors

Award Recipient

- ❖ Boston University Dean's List: 2023/2024, 2024/2025
- President's Award for Educational Excellence 2023