

Arnab Gupta

arnabgupta.vercel.app
linkedin.com/in/arnab-gupta04

Email: arnab.gupta.05@gmail.com

Mobile: 814-280-2574

University Park, PA



EDUCATION

The Pennsylvania State University

Master of Science in Mechanical Engineering; Minor in ELIM; GPA: 4.00/4.00

University Park, PA

Aug 2024 – May 2026

The Pennsylvania State University

Bachelor of Science in Mechanical Engineering; GPA: 3.80/4.00; Major GPA: 3.87

University Park, PA

Aug 2020 – May 2024

- 7-Term Dean's List recipient

EXPERIENCE

Pennsylvania State University - BioRob InFL Lab

Graduate Research Assistant

University Park, PA

Dec 2024 – Present

- Applied reinforcement learning algorithms to optimize control of bioinspired modular undulatory aquatic robot (MuBot), identifying 3+ novel variable stiffness caudal fin designs
- Increased swimming speed by 25% compared to baseline designs through morphology optimization
- Designed and conducted experiments on biomimetic robotic systems for fluid locomotion applications

Pennsylvania State University

Graduate Teaching Assistant - ME 330: Computational Tools

University Park, PA

Aug 2024 – Present

- Taught lab sections for 75+ junior-level students covering finite element analysis (FEA) for structural/thermal mechanics and computational fluid dynamics (CFD) for fluid flow applications
- Conducted weekly office hours and provided technical support for simulation software and analysis methods

Dassault Systèmes

Mechanical Engineering Intern

Bangalore, India

May 2023 – July 2023

- Modeled and simulated thermal performance of automotive disc brakes using Abaqus and SIMULIA, reducing heat-induced wear by 30% through design optimization
- Designed optimized disc brake geometry increasing efficiency and cooling performance by 45% while meeting automotive safety and durability standards
- Presented simulation-based design improvements to senior engineers and management, resulting in adoption of iterative FEA analysis methodologies

3M India Limited

Market Research Intern

Bangalore, India

June 2019 – July 2019

- Conducted comprehensive market study in Personal Safety Division to understand welding solutions from a safety perspective
- Analyzed market trends and customer requirements for personal protective equipment

TECHNICAL SKILLS

Programming & Software: Python, MATLAB, Arduino IDE, C/C++, Google Cloud API, NLP frameworks

Engineering Tools: SolidWorks, Abaqus/SIMULIA, CAD/CAM, FEA, CFD, 3D simulation

Robotics & Control: Reinforcement learning, autonomous systems, mechatronics, control systems, biomimetic robotics

Hardware: Soldering, circuitry design, sensor integration, embedded systems

Additional: Technical report writing, Lean-Sigma Yellow Belt certified, project management

SELECTED PROJECTS

Biomimetic Robotic Swimmer (MuBot): Developed variable stiffness actuators and optimized undulatory locomotion through RL-based control strategies, achieving 25% speed improvement

Dobot Magician Robotic Arm Programming: Programmed robotic arm to autonomously solve children's spelling game using pick-and-place routines; integrated top-down computer vision system for letter detection and precise slot placement

Autonomous Line Following Robot: Designed Arduino-based mobile robot with IR sensors and differential drive; 3D-printed custom chassis optimized for high-speed outdoor navigation (¡0.1s response time)