Arav Bhargava

(703) 963-6325 · abhargava@college.harvard.edu · www.linkedin.com/in/arav-bhargava · aravsportfolio.com

EDUCATION

HARVARD COLLEGE **Cambridge, MA**

B.S. in Electrical Engineering. Minor in Computer Science. **GPA:** 3.97 **May 2028**

Relevant Coursework: Computer-Aided Machine Design; Vector Calculus; Biomechanics and Assistive Robotics (Spring 2026)

Student Groups: Harvard Ventures (Board), The Bottom Line (Host), Harvard Biotech Club, Harvard GAMI, Club Swimming

Awards: Regeneron Science Talent Search Top 40, VEX Robotics World Championship Finalist; Capital Emmy Winner

TECHNICAL SKILLS

Skills: Robotics & Embedded Systems (Python, Embedded C/C++), Actuation & Control (servo/DC/BLDC integration, PID/trajectory basics), Perception (OpenCV, OpenPIV), ML for Robotics (PyTorch, TensorFlow, data pipelines with Pandas), Electronics (circuit design/analysis, PCB design in KiCad), Mechanical Design (SolidWorks, Fusion 360, FEA, FDM 3D printing)

PROFESSIONAL EXPERIENCE

MOBILIS **Cambridge, MA**

Founder, Accessible Prostheses for Developing Countries **September 2021-Present**

- Designed and patented a <$40, accessible, size-adjustable prosthesis for upper-limb amputees in developing regions
- Rapid-prototyped and iterated 300+ designs with end-users and clinicians (Fusion 360, FDM 3D printing, FEA)
- Engineered novel BOA tensioning system, pseudo-silicone interior liner, and adapted mechanical hook/hand control
- Validated design through bench testing and user trials to meet ISO socket standards, achieving comfort ratings surpassing traditional prosthetics at <1% of cost; deploying in Ukraine and India (Dec 2025).
- Launched "The Prosthetic Experience" podcast (NPR National award-winner; 10,000+ Listens)
- Awarded Regeneron STS National Top 40 ($27,000); featured on *ABC News, Scripps News, 3Dprint.com, The 74*

HARVARD MICROROBOTICS LABORATORY **Cambridge, MA**

Researcher, Selected as a PRISE Fellow to advance microrobotic applications **May 2025-Present**

- Developed and open-sourced a Low-Turbulence Vertical Wind Tunnel for Microrobotic Insect Flight Testing with 44% reduction in turbulence; design to be used by MIT and Berkeley labs (KiCad, Fusion 360, C++)
- Designed a computer vision program to analyze wind particle flow and perform PIV analysis of microrobot aerodynamics (Python, OpenCV, OpenPIV)

CODA LLC **McLean, VA**

Summer Associate, Leading Digital Provider to the Built Environment **June-August 2023**

- Helped develop a new ML-driven approach to detect expensive errors in construction design (Revit, Dynamo)
- Wrote 3D model design check scripts with Dynamo to create an egress path program to sell to OSHA

FEATURED PROJECTS AND ADDITIONAL EXPERIENCE

REAL-TIME TRAINABLE BIONIC ARM FOR IMPROVING ROBOTIC MODELS (Project) **April 2025**

- Engineered an EMG-based embedded control system for a multi-DOF bionic arm robot, with analog filtering (20–500 Hz) and noise cancellation, achieving real-time, low-latency control and reducing model training time to <2 minutes.
- Implemented a KNN classifier in C++ to control multi-servo tendon actuation; validated responsive hand motion via oscilloscope and EMG trials across multiple users

SO101 ROBOT ARM - TELEOP, VISION DATASET, AND POLICY TRAINING (Project) **January 2026-Present**

- Built an SO101 arm manipulation pipeline in Python for teleoperation and control, with synchronized logging of observations and actions to create demonstration datasets for pick-and-place.
- Added vision-based perception for pose estimation and ran baseline policy training on collected demos, tracking success rate, and common failure modes across different object positions and lighting conditions.

VEX ROBOTICS - POTOMAC ROBOTICS TEAM (Engineering Lead) **September 2020-June 2024**

- Engineered, fabricated, and coded competition robots (VEX), including mechatronic subsystems, sensors & actuators, and autonomous control for global-level robotics competitions.
- Implemented pneumatic-controlled transmission systems; utilized C++ to create autonomous programs

HARVARD VENTURES (Board) **January 2025-Present**

- Co-hosting and directing Harvard Ventures podcast "The Bottom Line" end-to-end
- Interviewing Fortune 500 founders on building extraordinary ventures (15,000+ listens)