Chinmay Murthy

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ECE student specializing in robotics and control systems, with experience in real-time state estimation, nonlinear control, and embedded systems. Proven leader in robotics projects, delivering optimized algorithms in industry and research.

Education

University of Washington Seattle, WA

Bachelor of Science, Electrical and Computer Engineering (3.73) | Minor in Music *Sep. 2022 – Jun 2026*

- Relevant Coursework: Machine Learning, Computer Architecture, Embedded Systems, Signal Processing, Data Structures & Algorithms, Digital Design, Control Systems, Statics, Kinematics and Dynamics

Experience

Software Engineering Intern June 2025 – Sep 2025

Bidgely *Palo Alto, CA*

- Performed supervised fine-tuning of a large language model (LLM) on a curated domain-specific dataset
- Designed and implemented a custom retrieval-augmented generation (RAG) pipeline for proprietary data, reducing response latency by 47%

Undergraduate Research Assistant Oct 2024 – May 2025

University of Washington *Seattle, WA*

- Optimized an MSCKF based VINS algorithm for GPS-fused visual inertial odometry on an outdoor ground robot

Geegah LLC Ithaca, NY

Engineering Intern *June 2024 – Sep 2024*

- Brought up and verified RF circuitry in next-gen (4x pixel density) ultrasonic imager with 200+ components
- Reengineered FPGA architecture for 25% lower resource use and 100x performance gain.
- Created Python API for USB communication, resulting in successful customer demos and IEEE IUS presentation

Applications Intern *June 2023 – Sep 2023*

- Developed cost efficient integration of proprietary imager technology with 3 axis motion control stage
- Result was demoed and presented at DARPA ERI summit 2023 (1300+ participants)
- Prototyped and troubleshot fluidics, electronics and full web app stack for a water quality monitoring PoC device
- Used Flask in Python to create a REST API to enable fully remote operation

Clubs and Projects

Controls Software Lead Sep 2022 – Present

Advanced Robotics at the University of Washington (ARUW) *Seattle, WA*

- Designed and implemented Cascade PID-LQG based controller of a 6DOF balancing two-wheel-legged robot (5-bar active suspension). Simulated in Matlab/Simulink before deploying to STM32 embedded environment
- Developing a Meta-Imitation Learning pipeline that distills many reinforcement-learned and MPC controllers into a recurrent foundation policy capable of online system identification and zero-shot adaptation to new dynamics
- Implemented and optimized inverse kinematics and gravity compensation for 8DOF differential manipulator
- Designed nonlinear sensor fusion algorithm eliminating angular drift between 3 independent IMUs on 8DOF robot
- Managed team of 10 students to deliver and document the following under tight deadlines in a 75k+ LoC codebase
  - A novel autonomous path-following algorithm that can operate at 3x the speed as its previous iteration
  - Kalman Filter localization with 2-3cm drift over 100m travel distance and fusion with fiducial markers

Wallscapes | *Swift, ARKit* June 2020 – Present

- Created an AR IOS app to project virtual art pieces onto public spaces

FTC Robotics Team 14504 Serenity Now! May 2018 – May 2020

- Implemented odometry, pure pursuit, spline interpolation for path planning, obstacle avoidance, computer vision using openCV and TensorFlow, and multithreaded software architecture in Java on Android (7k+ LoC).

Skills

Languages: C/C++, Python, Java, Verilog/SystemVerilog, Matlab, TypeScript
Developer Tools: Git, GoogleTest, ModelSim, Quartus, OpenCV, modm, Matlab/Simulink, React, Unix/Linux, ROS
Other: Arduino, Raspberry Pi, Finite Element Modeling, LaTeX, Fusion 360, CAN Bus, Oscilloscope/Logic Analyzer