

# 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

<b>University of Washington</b> <i>Bachelor of Science, Electrical and Computer Engineering (3.73)   Minor in Music</i>	Seattle, WA <i>Sep 2022 – Jun 2026</i>
<ul style="list-style-type: none"><li>Relevant Coursework: Machine Learning, Computer Architecture, Embedded Systems, Signal Processing, Data Structures &amp; Algorithms, Digital Design, Control Systems, Statics, Kinematics and Dynamics</li></ul>	

## EXPERIENCE

<b>Software Engineering Intern</b> <i>Bidgely</i>	June 2025 – Sep 2025 Palo Alto, CA
<ul style="list-style-type: none"><li>Performed <b>supervised fine-tuning</b> of a large language model (<b>LLM</b>) on a curated <b>domain-specific dataset</b></li><li>Designed and implemented a <b>custom retrieval-augmented generation</b> (RAG) pipeline for proprietary data, reducing <b>response latency by 47%</b></li></ul>	
<b>Undergraduate Research Assistant</b> <i>University of Washington</i>	Oct 2024 – May 2025 Seattle, WA
<ul style="list-style-type: none"><li>Optimized <b>MSCKF</b> based VINS algorithm for <b>GPS-fused visual-inertial odometry</b> on outdoor ground robot</li></ul>	
<b>Geegah LLC</b> <b>Engineering Intern</b>	Ithaca, NY June 2024 – Sep 2024
<ul style="list-style-type: none"><li>Brought up and verified <b>RF circuitry</b> in next-gen (4x pixel density) ultrasonic imager with 200+ components</li><li>Reengineered <b>FPGA</b> architecture for <b>25% lower resource use</b> and <b>100x performance gain</b></li><li>Created Python API for USB communication, enabling successful <b>customer demos</b> and <b>IEEE IUS</b> presentation</li></ul>	
<b>Applications Intern</b>	June 2023 – Sep 2023
<ul style="list-style-type: none"><li>Developed cost-efficient integration of proprietary imager technology with 3 axis motion control stage</li><li>Demoed results at <b>DARPA ERI summit 2023 (1300+ participants)</b></li><li>Prototyped and troubleshoot <b>fluidics, electronics and full stack web app</b> for water quality monitoring PoC</li><li>Used Flask (Python) to create a <b>REST API</b> enabling fully remote operation</li></ul>	

## CLUBS AND PROJECTS

<b>Controls Software Lead</b> <i>Advanced Robotics at the University of Washington (ARUW)</i>	Sep 2022 – Present Seattle, WA
<ul style="list-style-type: none"><li>Designed and implemented <b>Cascade PID-LQG</b> controller of a <b>6DOF balancing two-wheel-legged robot</b> (5-bar active suspension). <b>Simulated in Matlab/Simulink</b> before STM32 deployment</li><li>Developing a <b>Meta-Imitation Learning</b> pipeline distilling <b>RL</b> and <b>MPC</b> controllers into a <b>recurrent foundation policy</b> for <b>online system identification</b> and <b>zero-shot adaptation</b></li><li>Implemented <b>inverse kinematics</b> and gravity compensation for <b>8DOF differential manipulator</b></li><li>Designed <b>nonlinear sensor fusion</b> eliminating angular drift between 3 independent IMUs</li><li>Managed <b>team of 10</b> to deliver and document the following under tight deadlines in a <b>75k+ LoC</b> codebase<ul style="list-style-type: none"><li>* A novel <b>autonomous path-following</b> algorithm operating at <b>3x previous speed</b></li><li>* Achieved <b>Kalman Filter</b> localization with <b>2-3 cm drift</b> over <b>100m travel</b>, fused with <b>fiducial markers</b></li></ul></li></ul>	
<b>Wallscapes</b>   <i>Swift, ARKit</i>	Oct 2023
<ul style="list-style-type: none"><li>Created an AR IOS app to project virtual art pieces onto public spaces</li></ul>	
<b>FTC Robotics Team 14504 Serenity Now!</b>	May 2018 – May 2022
<ul style="list-style-type: none"><li>Implemented <b>odometry</b>, pure pursuit, <b>spline-interpolated path planning</b>, <b>obstacle avoidance</b>, and computer vision using <b>OpenCV/TensorFlow</b> with <b>multithreaded Java architecture</b> (<b>7k+ LoC</b>)</li></ul>	

## 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