RYKER KOLLMYER

rykerkollmyer@gmail.com | 360 349 3689 | Portfolio: ryker32.github.io | linkedin.com/in/rykerkollmyer/

Education

Olympia High School – Olympia, WA — Expected June 2027

Experience

Autonomous UAV Programmer, MIT Aero Astro – Cambridge, MA — June 2025 – Aug 2025

- Developed autonomous line following and obstacle avoidance software for a UAV using OpenCV, Python, ROS2, and Pixhawk.
- Used Fusion 360 to CAD and 3-D print Raspberry Pi 5 enclosure and landing gear.

UAV Researcher, MIT AeroAstro Lab – Cambridge, MA — June 2025 – Oct 2025

- Researched and developed a novel hybrid UAV/UGV system that was done on a team of five.
- Used CAD to make custom ground vehicle, landing gear attachments, and battery case.
- Presented poster at IEEE - Undergraduate Research & Technology Conference at the MIT STATA Center.

Chairman and Founder, Fiji Education Fund – Olympia, WA — Sept 2023 – Present

- Raised $4,000+ through donors. Spread awareness in community and garnered support since freshman year.
- Designing low-cost e-writers for students at Yalobi School in Nalauwaki, Fiji.

Journalist and STEM Column Founder, The Olympus – Olympia, WA — Sept 2024 – Present

- Wrote 10+ articles for The Olympus, 5+ articles for the print paper. Interviewed politicians, race car drivers, and startup founders.
- Founded and leads the STEM column to spread stories of student researchers within the community.

Independent Projects

Resilient Election & Impeachment Policy (REIP) for Multi-Agent Systems — Mar 2025 – Present

- Designed a trust-based election/impeachment controller to handle hallucinating leaders and adversarial faults in multi-agent exploration.
- Used Python to build a custom simulation environment to run ablation tests in a controlled manner.
- Submitted to Washington State Science & Engineering Fair 2026.

LOX-Propane Rocket Engine — Dec 2023 – Jan 2025

- Designed and engineered a liquid oxygen (LOX) - propane rocket engine. ANSYS CFD was utilized to simulate regenerative cooling.
- Developed and simulated a working rotation detonation engine using ANSYS CFD.

Weather Brick for Windsurfers and Sailors — Jan 2025 – Present

- Designed and currently selling "Weather Bricks," waterproof, low-power weather devices for sailors ($35 profit per unit).
- Designed and fabricated waterproof chassis and mapped circuits to an ESP Wroom-32 using Autodesk Fusion before soldering the device together.

Honors & Awards

- **Beaver Works Summer Institute Scholar** – Selected for MIT's summer institute for autonomous UAV programming (5.8% acceptance rate).
- **Washington State Seal of Biliteracy (Spanish)** – Passed the STAMP test and awarded the Spanish Seal of Biliteracy
- **MIT IEEE URTC Presenter** – Accepted to present research at a highly selective undergraduate research symposium.

Skills

Programming: Python, C++, Java, Git, LaTeX
Robotics & Control: ROS2, Gazebo, PX4, MAVLink/MAVROS, QGroundControl, OpenCV, MATLAB
Hardware & Fabrication: Fusion 360, ANSYS Fluent, Autodesk CFD, Arduino / embedded C++, PCB design, soldering, 3D printing, CNC machining, laser cutting
Media & Design: Adobe Premiere Pro, Illustrator, After Effects, Photoshop