



EDUCATION

Virginia Polytechnic Institute and State University: Blacksburg, VA *Expected 2028*

- B.S. in Mechanical Engineering - Robotics and Mechatronics

Ocean Lakes High School and Advanced Technology Center: Virginia Beach, VA *2021-2025*

- 3.99 Unweighted, 4.616 Weighted GPA; Graduate of The Math and Science Academy
- Engineering Technology Program (2022-23), Engineering Practicum (2024)

ENGINEERING EXPERIENCE

MachWorks Engineering Design Team *2025-Present*

- **UAV Camera Tracking**
 - Developing a Ronin-S based autonomous gimbal system for UAV target tracking
 - Programming a ROS2 framework to process telemetry and execute real-time control algorithms via SBUS communication protocols
 - Implementing Kalman filter-based state estimation and computer vision layer to account and compensate for latency, data loss, and sensor tolerances
 - Conducting hardware in the loop testing and data analysis through MATLAB to validate system performance
- **Business Team**
 - Responsible for the team's annual technical and financial report, synthesizing data from each subteam to communicate outcomes and future goals to sponsors and advisors

Dr. Scott Kennedy's Intelligent Materials for Biomimetic Sensors & Actuators Lab *2025-Present*

- Researching current "Shape Memory Alloy" actuators and robotic and biomimetic joint designs
- Designing and prototyping an SMA robotic system mimicking the human ankle
- Writing a technical literature review summarizing findings comparing computer vision based tracking to simulated data

Underwater ROV and Telemetry System *2024-2025*

- Designed and modeled an underwater remotely operated vehicle (ROV) using SolidWorks CAD, PVC structuring, and bilge thrusters
- Implemented an RS-485-based telemetry system utilizing a PS2 controller over a 30ft tether

Technology Student Association *2023-2024*

- **CAD Engineering:** Utilized provided isometric drawings to create CAD models, technical drawings, and renders under a time constraint (Competed at Regionals, States, and Nationals)

SKILLS

- **Software:** SolidWorks, ROS2, Python, PyTorch, Arduino IDE, Git, C++, MATLAB
- **Technical:** Control algorithms, sensor fusion, hardware-in-the-loop testing, embedded systems
- **Certifications:** Certified SolidWorks Associate and Professional (CSWP) in Mechanical Design

LEADERSHIP

ABRC Manager (23-25) and Lifeguard (22-23) *2022-2025*

- Directed daily operations managing a team of 30 lifeguard staff, maintaining pool chemistry and equipment, and providing customer service and support
 - Mentored and trained assistant managers in leadership, operations, and safety procedures
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