**INGRID RUMBAUGH**

Cell: (484) 599-1173 111 Quad Drive, Box # 9564 Easton, PA [rumbaugi@lafayette.edu](mailto:rumbaugi@lafayette.edu)

**OBJECTIVE**

To work as a robotics engineer leveraging both my engineering and programming skills. I enjoy the entire life cycle of systems development: conceptualize, design, build, test, and maintain robotic systems. I strive to continually improve my programming and engineering skills, working in a team to develop robotic prototypes. I have a special interest in machine learning algorithms with recent research using Histogram of Oriented Gradients to train a Linear Support Vector Machine (SVM) to identify unique objects in a video frame.

**EDUCATION**

**B.S. Mechanical Engineering & Computer Science Minor** **Lafayette College** Class of 2019 GPA: 3.32

**WORK EXPERIENCE**

**Software & Robotics Engineering Intern, Booz Allen Hamilton,** Chantilly, VA **Summer 2018**

Supported both the XIBus DoD contract as a software engineer, and the STARS (Scaled Testbed for Automated Robotic Systems) project as a robotics engineer. **XIBus:** Researched and integrated JMeter to load test the message format translator system. Actively participated in the Agile software development process, including daily scrum and sprint planning. **STARS:**

**Technical Intern, Active Orbital Debris Removal, Integrity Applications Inc.,** Chantilly, VA **Summer 2017**

Researched possible solutions for remediation of orbital debris. Created combined metrics to characterize and measure effectiveness of Active Debris Removal (ADR) and conducted a trade study evaluating ADR solutions.

**Technical Robotics Intern, Integrity Applications Inc.,** Chantilly, VA **Summer 2016**

Designed, built, and tested a working autonomous robot prototype. Participated in 3D CAD modeling, system requirements documentation, engineering notebook, and all programming. Contributed to a hologram imaging program by designing holograms for potential use in the Museum of the Bible.

**Business Continuity Analyst/ FIRST Intern, Comcast Cable,** Philadelphia, PA **Winter 2014 & Summer 2015**

Helped develop FIRST robotics sponsorship program and website. Planned and coordinated Comcast events and helped plan the WICT (Women in Cable Technology) 2015 Tech it Out! Conference (July 23, 2015).

**SKILLS**

**Software:**  Java, C++, Arduino, Matlab, Python, ARMv8 Assembly, Autodesk Inventor, ANSYS, Linux (Ubuntu & RedHat), UML, Robot Operating System (ROS), OpenCV, SciKit-Learn, Computer Vision & Image Processing, Oracle VirtualBox, Jira, Confluence

**Hardware:** Power tools, Machine Shop skills, 3D Printers, Soldering, Welding (MIG, Flux Core)

**Other:** Robotics, Organization, Leadership, Project Management, Gantt Charts, Agile Project Management, Scrum, Histogram of Oriented Gradients (HOG), Linear Support Vector Machines (SVMs), **Active TS//SCI with CI Polygraph**

**LEADERSHIP EXPERIENCE**

**Team Leader, Senior Design Project**, HAZMAT Assistance Robot, Lafayette College, Easton, PA **Fall 2017 – Spring 2018**

The goal of the project was to build a more affordable alternative to EOD robots, with an articulated arm to assist firefighters remediate gas leaks in a HAZMAT situation. As team leader, I helped the team to produce a successful prototype on time and under budget, while meeting most original design requirements. In addition, I ran weekly team meetings as well as organized design reports and presentations. I also kept track of team progress through Gantt charts and sub-team meetings. I facilitated discussions on design decisions, making sure that all team members were able to contribute, and that a mutual agreement was reached.

**President, ASME**, Lafayette College, Easton, PA **Spring 2016 – Fall 2017**

Lead the campus-wide organization by coordinating events, speakers, and engineering clubs. Handled ASME’s presence on campus and relationships with other engineering organizations. This greatly improved ASME’s involvement on campus including outreach to freshman, and students in other departments. Also initiated a succession program where leaders and board members would remain on the team the following year in order to mentor students new to that position.

**Leader, ASME Robotics Team,** Lafayette College, Easton, PA **Fall 2015 – Fall 2017**

Designed and developed projects for the ASME robotics team focused on teaching, building, programming, and design skills to new students. In charge of keeping track of team progress, purchase orders, and teaching new members both programming and mechanical skills.

**ENGINEERING EXPERIENCE**

**Robot Controls & Comms Lead, Sr. Design Project,** HAZMAT Assistance Robot, Lafayette College **Fall 2017 – Spring 2018**

Was in charge of designing, building, programming, and testing all control and some communication-related electronics on the robot. I designed and created a PCB to drive two stepper motors and a servo, as well as programmed a custom TCP-like protocol for wireless RF robot communication. I also designed the electronics for a custom controller to capture manual input from the user.

**FIRST FTC/FRC Robotics Teams** (**F**or **I**nspiration and **R**ecognition of **S**cience & **T**echnology, see usfirst.org)

Established and led multiple state-champion robotics teams. Worked with other team members and other teams to solve engineering problems creatively. Responsible for 5+ robotic system designs, winning multiple design & engineering awards in PA from 2011 – 2014. Serves as a robot inspector and field tech advisor volunteer for all of FIRST Pennsylvania.

**Engineering Notebooks & Technical Writing**

Spearheaded an award-winning engineering notebook at the state championship level and taught other team members that documentation is key. Won multiple awards for the robotics team at the State and Region-level.

**Published a collaborative paper on Automated Intelligent Systems for the Naval Academy Science and Engineering Conference in 2014.**

**AWARDS**

**Mechanical Engineering Design –** Lafayette College, awarded for an outstanding senior capstone design project. Received this award for helping a senior design team during my sophomore year at Lafayette College.

**FIRST Dean’s List Finalist, World Championship –** Recognized for technical contributions to the team as well as organizational skills and community outreach. ­

**Lafayette College Dean’s List –** Fall 2014 & Spring 2018 Semesters.