Surafel Anshebo

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EDUCATION

VIRGINIA TECH **May 2023 – Present**

Master of Science, Mechanical Engineering

ABABA SCIENCE AND TECHNOLOGY UNIVERSITY **2013 - 2018**

Bachelor of Science, Mechanical Engineering

PROFESSIONAL EXPERIENCE

VIRGINIA TECH

Graduate research assistant **May 2023 – Present**

- Provided guidance to up to 50 students for drone technology and flight operations classes through office hours. Assisted with coursework, assignments and projects.
- Developed a BVLOS (Beyond visual line of sight) flight simulator using Python, Docker, Leaflet, and Dronekit-Python, enabling mission planning and flight risk assessment.

COCA COLA BEVERAGES

Line process engineer **Dec 2018 - Dec 2023**

- Maintained compliance with Safety, Health, Environment, and Quality (SHEQ) standards.
- Optimized overall Equipment Efficiency (OEE) by understanding the structure of all machines to detect abnormalities and conduct Root Cause Analysis (RCA) on different breakdowns using SAP.
- Achieved and maintained 90% Machine efficiency (ME) and 85% Unconstrained system line efficiency, exceeding production targets and ensuring operational reliability.

SKILLS

- **Software:** Python, C++, MATLAB, ROS, Flask, Docker, OpenCV, Dronekit-Python, SolidWorks, QGIS, SAP
- **Hardware:** Raspberry pi, STM32, Arduino, Vicon motion capture, 3D Printing
- **Certifications:** Part 107, SolidWorks Associate (CSWA)

PROJECTS

Vicon motion capture for an indoor flight **Nov 2024**

- Conducted system calibration to minimize tracking errors, ensuring millimeter accuracy in position estimate.
- Configured and integrated a Raspberry Pi 3B as a companion computer to enhance drone capabilities in autonomous flight
- Deployed ROS nodes on the Raspberry Pi to handle communication between the motion capture system, flight controller and onboard sensors.

Full state feedback control using pole placement **Dec 2023**

- Developed a smooth and controlled landing system for a simulated drone by implementing full-state feedback control in MATLAB. Utilized pole placement techniques to optimize system dynamics, ensuring a stable and precise descent.

Flood Hazard Mapping and Drone-Based Life-Saving Vest Delivery System **Nov 2022**

- Mapped areas that are prone to flood hazard using aerial image using QGIS and designed a gripper in SolidWorks to be mounted on S500 drones used for delivering lifesaving vests.

PUBLICATION

- D. Aggarwal**, S.T. Anshebo,** K. Kochersberger, A.L. Abbott. "Comparative Study of Vision-Based Methods for Real-Time Traffic Monitoring," *XPONENTIAL 2024 Conference*, pp. 68–79. DOI: 10.52202/075106-0004**.**

LEADERSHIP

AMERICAN SOCIETY OF MECHANICAL ENGINEERS

TREASURER **May 2024 - Present**

- Maintain financial records and ensure that all accounts and records are maintained in accordance with the school and ASME policies.