

TRISTAN RHYS SHALLBETTER

✉ rhys.shallbetter@gmail.com ☎ (571) 239-0270 🔗 Portfolio

EDUCATION

Virginia Polytechnic and State University, BS Mechanical Engineering
Cumulative GPA of 3.55. Graduated May 2024.

Blacksburg, VA

PROFESSIONAL EXPERIENCE

RESEARCH FELLOW, Virginia Tech IRES Brunei

05/2024 – 09/2024

Bandar Seri Begawan,
Brunei

- Developed unjammable local positioning system using an algorithm trained on GNSS data and an echolocating sonar robot, enhancing reliability in GNSS-denied environments.
- Simulated bat flight mechanics using an acoustic array and optical reconstruction.
- Collaborated globally with biologists, computer scientists, and engineers.

MANUFACTURING ENGINEERING CO-OP, Volvo Group

05/2022 – 12/2022

Dublin, VA

- Developed robotic paths and optimized part flows for upcoming semi-truck product line.
- Designed and constructed a cart for truck cab transport utilizing safety interlocks, replacing forklift usage and reducing cycle time by 30%.
- Refined tooling designs with a focus on throughput and ergonomics, increasing workplace safety and reducing operational downtime by 12%.
- Led a major SOP overhaul, enhancing quality control through cloud support and increasing adaptability to support evolving production requirements.

APPLICATIONS ENGINEERING CO-OP, Altec Inc.

01/2021 – 08/2021

Roanoke, VA

- Developed custom structural assemblies, including truck beds, ladders, and tailshelves, enhancing vehicle functionality.
- Designed and implemented customer-specific electrical and hydraulic systems, delivering tailored solutions to meet diverse client requirements.
- Fabricated new hydraulic test unit hardware for cranes and derricks, improving testing efficiency by 20%.

DESIGN PROJECTS

Ultrasonic Levitation and Translation using Brainwave Acquisition, Team Lead, Senior Design Project

- Successfully levitated small objects and shifted their location in 3D space based on users brain state
- Controlled wirelessly through EEG cap and machine learning algorithm

Semi-Autonomous 3D-Printed Strandbeest Robot, Personal Project

- Designed and fabricated 8-legged robot with spatial memory abilities
- Coded path optimization algorithm in C++, using input from ultrasonic and infrared sensors

Laser Projector, Personal Project

- Designed a system to display images using an array of rotating mirrors and a pulsed laser

RELEVANT TECHNICAL SKILLS

- Proficient in AutoCAD, Python, C++, MATLAB, Solidworks, PTC Creo Parametric, DraftSight
- Experience with Revit, Java, SQL, Simulink, TensorFlow, PyTorch, NX, Catia, Microsoft Excel
- Coursework: Controls, Thermodynamics, Heat and Mass Transfer, Fluids, Statistics, Statics, Dynamics, Deforms
- Applicable Skills: data analysis, FEA, RTFM, organization, Lean Six Sigma, quality control, GD&T

ADDITIONAL EXPERIENCE

SERVER, Blacksburg Tavern

Blacksburg, VA

- Provided exceptional customer service in a fast-paced environment, efficiently managing orders, delivering meals, and ensuring guest satisfaction.

ASSISTANT MECHANIC, Village Hardware

Alexandria, VA

- Performed initial diagnosis on repairs for power equipment, conducted fixes such as clogged carburetors, cracked casings, etc.