Wyatt Dunbar

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RESEARCH

VLAISAVLJEVICH RESEARCH LAB - UNDERGRADUATE RESEARCH | Medical Screening Device Development

Sep 2025 – Present | Blacksburg, VA

- Conducted design input and output analysis for product development
- Developed rapid prototype improvement to device design
- Fabricated prototype devices using 3D printing processes
- Performed quality testing in-lab to confirm product function changes according to design outputs
- Conducted primary hazard analysis (ISO 14971) implemented risk mitigation's

TEAM MALAWI - FUSE | Coupling Materials Research

Jan 2025 – Present | Blacksburg, VA

- Identified materials to be tested as a coupling medium
- Designed components for testing the acoustic impedance of materials
- Created research protocols for the testing of materials
- Conducted interviews with industry professionals to enhance the understanding of the device adoption journey
- Networked with stakeholders to best identify needs in the implementation of the screening device

HUMAN POWERED SUBMARINE | Electronics Subteam

Dec 2023 – Present | Blacksburg, VA

- Led development of a HUD displaying real-time information to the pilot
- Developed rapid prototypes of projects components
- Designed waterproofing solutions for electronics subsystems, tested up to 30 ft
- Collaborated with 4 different team members to build a suite of classes for managing all data from submarine sensors
- Optimized the design of a small electronics canister used as the hub for processing sensor data input recorded from submarine trials

CAMPUS ENGAGEMENT

MARCHING VIRGINIANS | Mellophone

Aug 2023 - Present | Blacksburg, VA

- Fostering school spirit as part of a diverse, 330-person team
- Organized large team events
- Effectively managed large time commitments between academics and band obligations

GALILEO LIVING AND LEARNING COMMUNITY

August 2023 - May 2024

- Participated in professional development and academic improvement activities
- Engaged in community service events to enhance the local quality of life

EDUCATION

VIRGINIA TECH

Bachelor of Science in Biomedical Engineering minors in Computer Science and ESM
Expected May 2027 | Blacksburg, VA
Cum. GPA: 3.23 / 4.0
In major GPA: 3.88 / 4.0

SKILLS

TECHNOLOGY:

- SolidWorks
- Circuit Design
- 3D Printing/Prototyping
- Engineering Design Process
- Excel
- Linux (Arch)

PROGRAMMING:

3+ years:
Python • Arduino
2+ years:
MATLAB • JavaScript
1 year:
C++ • Go

SOFT SKILLS:

- Time management
- Communication
- Project management
- Project planning

RESEARCH INTERESTS

- Medical device development
- Quality assurance
- Design verification
- Focused ultrasound

AWARDS

- Deans List
- Eagle Scout
- Clinicians Choice Award (BME Professional Practice)

PROJECTS

NEEDS IDENTIFICATION IN HEALTHCARE
Jan 2025 - May 2025 | Blacksburg, VA

- Identified patient-stakeholder needs through in-field observation
- Interviewed stakeholders including patients, physicians, and technicians
- Created a needs database with priority of needs observed and detailed explanation of stakeholder requirements
- Translated user needs into well defined needs statements fully encompassing stakeholder needs and interaction

UMBILICAL CORD CLAMP DESIGN PROJECT
Oct 2024 | Blacksburg, VA

- Created comprehensive user needs and design inputs (ISO 7151)
- Conducted preliminary hazard analysis (ISO 14971), implemented risk mitigation
- Created research protocols for the testing of materials based on needs analysis matrix
- Utilized 3D printing and rapid prototyping skills in the iterative design process

BIOINSTRUMENTATION DESIGN LAB
Jan 2025 - Present | Blacksburg, VA

- Designed a point-of-care device around needs statements from UNICEF and NEST360
- Planned the complete circuit diagrams for the design of a low-resource hemoglobinometer
- Implemented the engineering design process through repeated testing of components to ensure reliability and ease of use

LEADERSHIP EXPERIENCE

HUMAN POWERED SUBMARINE | Treasurer
June 2025 - Present | Blacksburg, VA

- Managed over $39,000 in assets for a team of over 60+ active members
- Coordinated with 5 different subteams to ensure proper funding of all project components
- Created an effective funds tracking system for purchase of all project components

HUMAN POWERED SUBMARINE | Website Maintainer
May 2024 - Present | Blacksburg, VA

- Maintained a team website built on React and HTML
- Committed regular changes to the website communicating recruitment events and sponsor information

WORK EXPERIENCE

NEEDS IDENTIFICATION IN HEALTHCARE | UTA
Jan 2025 - Present | Blacksburg, VA

- Connected course students with clinical site mentors
- Communicated important site information to students when in the clinical setting
- Provided guidance during clinical site visits on how to best analyze the settings for user needs and stakeholder input

SOUTH HAMPTON ROADS YMCA | Lead Lifeguard
May 2021 - Present | Chesapeake, VA

- Managed a team of lifeguards
- Developed monthly training plans
- Assisted with operations management

CERTIFICATIONS

- Open Water Diver (SSI)
- CITI IRB
- VT IACUC
- Biosaftey for Research Labs
- Electrical saftey for Research
- Lockout-Tagout Awareness

COURSEWORK

- **Dynamics**:
Studied the kinematics and kinetics of particles and rigid bodies, focusing on force, energy, and momentum to model physical systems.

- **Fluid Dynamics**:
Analyzed the behaviors of fluids, applying conservation of mass, momentum, and energy to solve complex flow problems.

- **Mechanics of Deformable Bodies**:
Investigated the relationship of stress vs. strain in various materials to ensure structural integrity.

- **Computational Methods**:
Utilized numerical methods to approach engineering problems containing complex mathematics requiring iterative solutions.

- **Calculus I-IV**:
Mastered foundational math skills for the understanding of correctly relating engineering problems to mathematical equations.

- **Elements of Materials Engineering**:
Explored the fundamental properties, processing, and performance or metals, polymers, and ceramics for engineering applications.

- **Software Design and Data Structures**:
Developed proficiency in object oriented programming, an understanding of algorithm efficiency, and the implementation of complex data structures.

VOLUNTEERING

- STEAM Day - Engineering outreach
- The Health Wagon - Clinical Volunteer
- Engineering Expo - Event Support
- Hokies for the Hungry