

Anthony W. Tugman

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EDUCATION

Indiana University Bloomington

Bloomington, IN

M.S. Intelligent Systems Engineering – Cyber-Physical Systems

May 2021

B.S. Intelligent Systems Engineering – Cyber-Physical Systems

May 2020

EXPERIENCE

Lumis Corp

Pittsburgh, PA

Hardware/Software Integration Consultant

May 2020 – August 2020

- Collaborated with client to determine product design requirements, functionality, and budget
- Modeled device using CAD and circuit simulator ensure client's needs were met before assembly
- Created a demonstration-ready prototype in 10 weeks' time, from concept to physical device, including accompanying documentation (bill of materials, wiring schematic, assembly guide, instruction manual)
- Generated a virtual simulation in Unity 3D to demonstrate to client how the device is intended to work when integrated with the existing communication protocol

Hardware/Software Integration Intern

May 2019 – July 2019

- Facilitated R&D efforts by leading product and materials research, prototyping mechanical components, and presenting marketability findings on design alternatives as additional customers were acquired
- Redesigned an existing wearable module to meet customers' needs including upgrading microcontroller and associated hardware components, wiring schematics, PCB, software, and technical documentation
- Automated debugging, testing, and calibration procedures reducing module deployment time by 80%
- Automated the above training module to reduce setup and calibration time by 80%

ACADEMIC PROJECTS AND RESEARCH

IntelliPlants – Automated Greenhouse System

Bloomington, IN

Hardware Integrator

August 2019 – May 2020

- Designed, fabricated, and assembled a robust device housing to safely partition sensor array from grow area as well as preventing water delivery components from coming into contact with sensor array
- Selected and verified each hardware component to ensure compatibility and performance
- Generated technical documentation including specifications, IEEE standard fulfillment, analysis of simulations, and proof-of-concept results before presenting to a board of industry experts for review

Light Monitoring System for Indiana DNR

Bloomington, IN

Embedded Systems Designer

January 2018 – May 2018

- Designed a prototype conforming to customer requirements including cost, weatherability, and ease of use by selecting components, generating a schematic, and fabricating a weatherproof housing
- Verified performance through data logging, power analysis, and in-field deployment
- Collaborated with a multidisciplinary team to refine device's power consumption through software

Improving Maker Technology For Aging Adults

Bloomington, IN

Undergraduate Researcher

August 2017 – December 2017

- Fabricated 3D printed circuit connectors allowing those with impaired coordination to use the device documenting my design so that researchers may incorporate it in future research

TECHNICAL SKILLS

- **Languages:** Python, Verilog, Arduino, C, C++, C#
- **Software:** EAGLE, SolidWorks, Fusion 360, Unity 3D, Git, Linux
- **Lab:** Component Selection/Assembly, Soldering, Oscilloscope, Function Generator, 3D Printing, Laser Cutting, CNC, CAD Modeling, PCB Design