

# TOBENNA W. UZUEGBUNAM

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## EDUCATION

**Texas A&M University** College Station

**Undergraduate degree:** Bachelor of Science in Electrical Engineering

**Minor:** Computer Science

May 2021

[GPA: 3.69]

**SKILLS:** C++, Verilog, Circuit Design, Candace, Matlab, Swift, Linux OS, Microcontroller, I2C Protocol, Python, Java, JavaScript, Hardware Design, ROS, Energia, Robot Programming, Data Analysis, Allen-Bradley/Siemens PLC, Prototyping, RoboGuide, Solidworks, AutoCAD Electrical, Web Design, Adobe, Unreal Engine



**COURSEWORK:** Digital Integrated Circuits, Microprocessor System Design, Computer Architecture and Design, Electronics, Power Electronics, Controls, Electric Circuit Theory, Intro to Digital System Design, Electronic Motor Drive, Data Structures and Algorithm, Electronic Properties of Materials, Electric and Magnetic Fields, Programming Languages, Intro to Programming Design Concept, Discrete Structure Computing, Electricity and Optics, Signals and Systems

## WORK EXPERIENCE

**TESLA: AUTOMATION CONTROLS ENGINEERING INTERN**

May 2020 – August 2020

*Tesla Motors, Sparks, Nevada.*

- Optimized manufacturing software (Golang) used for serial communication with megapack voltage testers
- Created 10 new TWINCAT HMI templates (JavaScript) used these to communicate with PLCs
- Supported creation and development of Kubernetes Cluster used to host and run web applications and production services

**TESLA: MANUFACTURING DESIGN ENGINEERING INTERN**

May 2019 – August 2019

*Tesla Motors, Sparks, Nevada.*

- Improved the functionality and cycle time of 5 PLC stations by creating smarter sequences and more responsive HMIs
- Designed a Robot station to save Tesla \$440,000 yearly by efficiently automating 2 manual assembly processes
- Lead automation project, coordinated with vendors, and created business justification for the implementation of the project

**TESLA: AUTOMATION CONTROLS ENGINEERING INTERN**

January 2019 – May 2019

*Tesla Motors, Sparks, Nevada.*

- Programmed 6-Axis Robots, 20+ PLCs, and microcontrollers to interface with conveyors, sensors, and safety devices
- Created Schematics and assembled 2 Robot/PLC stations used to train tesla employees in-house
- Lead the creation of in-house training robots which saved Tesla \$170,000 in the first year and potentially \$1,645,000 in 5 years
- Developed HMI screens (JavaScript/Python) to help operators control and troubleshoot machines in production

## PROJECTS

**SENIOR DESIGN**

August 2020 - Present

- Used open-source Robot Operating Software and AI/ML to teach 6-axis UR10e robot how to play checkers
- Developed robot applications (Python) that direct the robots on how to move the checkers' pieces using its grippers and camera

**BAJA SAE DESIGN TEAM**

May 2020 - Present

- Lead the electrical subsection and creation of an advanced vehicle analytics system that interfaces with sensors on our car
- Used a microcontroller (C++) to monitor and analyze vehicle movement using gyroscopes, camera, and sensors

**DIGITAL BUSINESS CARDS PROJECT**

January 2020 - Present

- Designed a means of networking through Digital Business Cards that can be stored on the Apple Wallet and Google Wallet
- Wrote 2500+ lines (JavaScript) to allow the creation and customization of Digital Business cards through my website
- Designed and programmed Near Field Communication cards to allow sharing business cards using RFID

**AERIAL SUPERVISION DRONE PROJECT**

February 2018 - July 2018

- Created quadcopter and tested schematics I designed to ensure efficient power distribution and secure safety measures
- Designed the auto-leveling system using a PID controls system I programmed on the microcontroller
- Programmed and debugged microcontroller (C++) to interface with gyroscope and accelerometer using I2C protocol
- Soldered and performed hardware debugging to ensure effective flow of power between propellers and other peripherals

**UNDERGRADUATE RESEARCH FACILITATED BY NASA ENGINEER**

August 2017 - June 2018

- Programmed on Unreal Engine to re-create a realistic simulation and enhanced virtual reality "sandbox" of Mars and the Moon
- Debugged and tested the virtual reality game environment using its blueprint visual scripting and C++

## INVOLVEMENT

**Institute of Electrical and Electronics Engineers (IEEE) - Electronics Chair**

August 2019 - May 2019

- Create and host a workshop to teach 200+ members how to create circuits and program microcontrollers

**National Society of Black Engineers (NSBE) - Telecommunications Chair**

August 2018 – December 2019

**Resident Advisor (RA)**

January 2017 – December 2018

**Discover Explore and Enjoy Physics (DEEP) – Research Assistant**

September 2016 - May 2017