Xavier C. Onwu

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https://github.com/Xaviero8623
https://tinyurl.com/xaviers-pcbs

EDUCATION

Vanderbilt University, Nashville, TN

Electrical and Computer Engineering (Major), Minors in Digital Fabrication, Quantum Information Science & Engineering, & Physics
Class of 2027
CGPA 3.81/4.0
Dean's list for four semesters

Our Lady of Good Counsel High School, Olney MD

Class of 2023
Unweighted CGPA 3.81/4.0

RELEVANT COURSEWORK

- *Electronics I & Lab*
- *Microcontrollers & Lab*
- *Electromagnetics*
- *Modern Physics and the Quantum World*
- *Program Design and Data Structures*
- *Differential Equations with Linear Algebra*
- *Analog Circuits and Systems*
- *Microelectronic Systems*
- *Rapid Prototyping*
- *Circuits & Lab*
- *Digital Systems & Lab*
- *Calculus I, II, III*
- *General Physics I & Lab*
- *General Physics II & Lab*

Motivated self-starter and learner with a passion for electrical and computer engineering. I am interested in opportunities to improve my knowledge of electrical engineering.

TECHNICAL SKILLS

Introductory knowledge of python, circuit design, and embedded systems, machine elements; intermediate knowledge of Java and C programs, digital circuit design and circuit analysis, 3D printing, CAD design, MATLAB, Simulink, STM32, RISC-V architecture and assembly language, and RISC-V microarchitecture; proficient in VHDL and Verilog, Xilinx and Intel FPGAs, Quartus II software, Xilinx Vivado and Vitis software, and Fusion 360.

EXPERIENCE

Northrup Grumman Mission Systems, Ocean Springs, MS

June 2025 - August 2025

- Electrical Engineering Intern
- Offshore Patrol Cutter
  - Debugged, tested, and developed comprehensive testing procedures for serial interfaces on shipboard network devices, ensuring compliance with DoD Instruction 8310.01 and DoD Instruction 8510.01
  - Configured, stood-up, and maintained secure host baseline (SHB)-compliant deployment server. Ensure adherence to DoD Security Technical Implementation Guides while managing the end-to-end lifecycle of SHB server images
- Maneuver Support Vessel Light (MSVL)
  - Conducted in-depth examination of the modeling and simulation of the top-side electromagnetic environment for naval vessels
  - Reviewed MSVL comprehensive assessment reports on electromagnetic environmental effects to enhance understanding of radar system radiation patterns

Vanderbilt Aerospace Design Laboratory, Nashville, TN

June 2025 - Present

- Design, test, and document electrical subsystem for the 2025-2026 NASA University Student Launch Initiative (USLI) competition

Vanderbilt University, Institute for Space and Defense Electronics, Nashville, TN; Primary Investigator- Dr. Robert Reed

January 2025 - Present

- Test and characterize radiation effects on integrated circuits for space applications with a focus on single event effects (SEE) and total ionizing dose (TID)
- Contribute to the development of advanced modeling software to simulate radiation effects on semiconductors for space applications

Vanderbilt University, Electrical & Computer Engineering Department, Nashville, TN

January 2025 - Present

- Teaching Assistant, Digital Systems (ECE 2123/ECE 2123L)
  - Lead laboratory sessions for a class of seven to 15 students
  - Grade homework assignments and midterm assessments

Xavier C. Onwu

AWARDS

Vanderbilt University Chancellor's Scholar

National Merit Scholarship Program Letter of Commendation

College Board National African American Recognition Program Scholar

National Honor Society, Our Lady of Good Counsel High School, MD

St. Mary's Scholar, Our Lady of Good Counsel High School, MD

***Vanderbilt University Robotics Team:** 5th place overall & 2nd place Caterpillar autonomy awards, NASA 2024 Lunabotics Challenge*

AFFILIATIONS

***SCALE (Scalable Asymmetric Lifecycle Engagement);** Purdue University & Department of Defense Microelectronics Workforce Development Program*

NSBE (National Society of Black Engineers)

LINKEDIN QR CODE

EXPERIENCE CONT'D

Vanderbilt University Amateur Radio Club, Nashville, TN

August 2024 - Present

- Member; Licensee, HAM radio operator (Technician class)
- Projects
  - Design circuit for an AM transmitter; assemble and test functionality on a breadboard ; design and produce a Printed Circuit BOard (PCB) for the AM transmitter
  - Build directional (Yagi) antenna for use in fox hunt competition

Vanderbilt University Robotics Team, Nashville, TN

January 2024 - Present

- Vice President/ Electrical Engineering Lead
- Oversee robot development, preparation for competition, and development of electrical subsystems

Vanderbilt University, Mechanical Engineering Department, Nashville, TN

August 2024 - December 2024

- Independent Study, Design of Electromechanical Systems, ME 8353 (Fall Semester)
  - Assemble PCB breakout board for dsPIC microcontroller
  - Explore methods for precise control of brushed and brushless motors
  - Develop drivers for motor controller in MPlab and debug/analyze motor data in MATLAB /Simulink
  - Develop PID Controller for precise servo control of a brushed motor
  - Use MATLAB and Simulink to analyze motor data and debug drivers

National Institute of Biomedical Imaging and Bioengineering, Instrumentation Development and Engineering Application Solutions (IDEAS) Lab, Bethesda, MD

June 2024 - August 2024

- Summer intern, College Summer Opportunities to Advance Research (C-SOAR) program
  - Tasked with optimizing the essential components of a home-based wearable biosensor for monitoring vitals of suspected Covid-19 patients with a focus on blood oxygen. Specific activities and accomplishments:
    - Designed part of an RTL model to control light-emitting diodes (LEDs), light sensors, and interpret data. Successfully achieved the design goal of a 40KHz refresh rate for the LEDs in the device
    - Developed and implemented test protocols to validate proposed design concepts for the LED Control and Light Sensor control systems. Successfully confirmed the viability of both systems
    - Developed an outline for code to eliminate noise and irrelevant frequencies to enable accurate interpretation and filtering of data collected by the wearable biosensor design by patients and healthcare staff