**Emmanuel Butsana** | East Lansing, MI | butsanae@msu.edu | (517) 721-0687 | ebutsana.me

*Deliver impactful solutions by leveraging technical skills and fostering an environment built on teamwork*

## EDUCATION

**Michigan State University** - East Lansing, MI — May 2026
*Bachelor of Science, Computer Engineering (Additional Major: Electrical Engineering)* — GPA: 3.98

**Skills:** Python, C/C++, MATLAB, Verilog, Bash, FreeRTOS, LTspice, Vivado, Virtuoso, Altium Designer

**Coursework:** Embedded Systems, Computer Architecture, Advanced VLSI Design, Signal Processing

**Involvement:** MSU Software Engineering and Computing Society, MSU Artificial Intelligence Club

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## EXPERIENCE

**DayDream Inc.** - Grand Rapids, MI
*Firmware Engineering Intern* — August 2024 - Present

- Implemented firmware with C++ to interface the ESP32-S2 SoC with rotary encoders through GPIOs and with the BMI270 IMU through I2C
- Leveraged FreeRTOS to manage 6 concurrent tasks across 2 cores, optimizing resource utilization and ensuring reliable system performance
- Designed schematics and PCB layout for a smart AR device via Altium Designer, focusing on power and communication circuits

**Human Augmentation Technologies (HAT) Lab** - East Lansing, MI
*Undergraduate Research Assistant* — September 2024 - Present

- Deployed and benchmarked image recognition models on the NVIDIA Jetson AGX Orin, evaluating the effect of hardware limitations on real-time inference performance
- Applied model compression techniques to minimize memory usage and inference latency, while preserving high accuracy on resource-constrained devices
- Conducted a comprehensive literature review on AI model quantization, exploring fixed-point methods, low-precision arithmetic, and hardware-specific optimization

**KPIT Technologies** - Novi, MI
*Software Development Intern, Middleware* — June - August 2024

- Built a formatting tool with Python to help with implementation of MISRA C guidelines for generated C scripts, identifying over 90% of compliance violations and reducing manual review time
- Automated generation of Lauterbach PRACTICE test scripts through Excel and Python, lowering prerequisite technical barrier and accelerating script development
- Prepared project documentation and weekly presentations to keep key stakeholders apprised of progress and obtain feedback

**Physical Ultrasonics, Microscopy and Acoustics (PUMA) Lab** - East Lansing, MI
*Undergraduate Research Assistant* — September 2022 - May 2024

- Employed data augmentation and preprocessing techniques to enhance diversity of time-series datasets with MATLAB
- Utilized Python to implement algorithms to compute and visualize material properties from signals collected via ultrasonic testing, obtaining results within 5% of accepted values
- Built preprocessing pipeline to clean and format raw data from ultrasonic testing and prepare it for machine learning applications.