Donovan Cullen

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EDUCATION

Computer Systems Engineering, Bachelor of Science in Engineering (BSE) **December 2023**

Arizona State University**,** Tempe, AZ

- Specialization in artificial intelligence, data analysis, and hardware design.
- Relevant Coursework: Hardware Design Languages and Programmable Logic, Machine Learning, Operating Systems, Applied Programming, Computer Architecture, Data Structures and Algorithms.

PROFESSIONAL EXPERIENCE

Night Auditor and Accounting Assistant **August 2022-Present**

Graduate Hotels, Tempe, AZ

- Responsible for managing and verifying financial transactions, overseeing daily reconciliation of over $15,000 in revenue.
- Automated manual workflows, such as file transfers and audit validation using Python scripts.
- Earned multiple awards in recognition of outstanding performance, including over 25+ performance related bonuses.

Machine Learning Development Intern **January 2023-November 2023**

Bit Space Development**,** Remote

- Successfully trained and built image classification model for rock identification. Model deployed as prototype by contracted company.
- Expanded remote hardware deployment capabilities for machine learning software on CCTV's with Docker and Ansible.
- Deployed commercial machine learning software on edge devices, using NVIDIA Jetson platform.

Software Engineering Intern **June 2019-August 2019**

GE Transportation, Erie, PA

- Designed a CPU utilization monitoring tool, used to optimize resource use for commercial rail software.
- Converted VBA-based software to C++ for standardization, improving maintainability and reducing compatibility issues.
- Resolved and deployed fixes for 20+ software issues in commercial hardware.

SKILLS

Proficient in Python, C/C++; familiar with Java, Verilog, SQL, HTML/CSS.
Experience with machine learning frameworks (PyTorch, TensorFlow, LLMs), computer vision (YOLO, MobileNetV2), and hardware design (FPGA, Xilinx Vivado).
Experience with ARM architecture, NVIDIA Jetson, Docker, and communication protocols (SPI/I2C, RS-232).

PROJECT EXPERIENCE

Real-Time Aircraft Tracking and Identification **August 2024-Present**

Designed and implemented a real-time aircraft detection and classification system using YOLOv8 and MobileNetV2, accurately identifying over 60 distinct aircraft types.

- Achieved real-time processing speeds of 30+ frames per second on GPU-enabled systems.
- Enhanced classification accuracy by ~15% through the integration of confidence scoring and historical data analysis.

AI-Generated Scientific Paper Detection **September 2023-December 2023**

Program designed to detect AI-Generated scientific content.

- Prediction accuracy of 93%, more accurate than most publicly available models.
- Leveraged Bi-Directional LSTM with text embeddings.

Autonomous Navigation Robot **January 2023-April 2023**

Created an autonomously navigating robot in C.

- Added sensor suite(LIDAR, ultrasonic sensors, color sensor) to allow for environmental navigation.
- Utilized I2C/RS232 protocol for hardware signal translation.
- Interrupt-based motor control implemented for fine-tuned movement.

ADDITIONAL INFORMATION

- Team captain in hockey and lacrosse.
- Tutor: Arizona State University (6 hours/week).
- Project portfolio: https://djcullen43.github.io/djcullen43/