Kofi Ohene Adu

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Education

Cornell University – BS in Electrical and Computer Engineering | Dean's List (Fall 2024)   May 2025

Coursework: Foundations of Robotics, Robot Perception, Fast Robots, Mechatronics, Embedded Systems, Design with Embedded Operating Systems, Computer Systems Programming, Computer Architecture, Digital Logic and Computer Organization, Object-Oriented Programming and Data Structures, Network Systems and Games, Signals and Systems, Data Science for Engineers, Intro to Microelectronics, Intro to Circuits for Electrical and Computer Engineers

Experience

Manufacturing Controls Engineering Intern, **Tesla Gigafactory NY** – Buffalo, New York   May 2024 –Aug 2024
- Deployed UR10e robot using UR polyscope with Cognex Insight Vision camera, cutting station errors by 27% and improving throughput visibility through custom MES-linked HMI
- Engineered and implemented NFPA-compliant safety relay and integrated Allen-Bradley fieldbus-connected controls, eliminating safety risks, and enhancing station ergonomics and uptime
- Troubleshot MES-PLC sync issues in Studio 5000 Logix Designer, reducing rework, and improving traceability by 33%
- Boosted station performance by 17% and streamlined maintenance, using Eplan and Proneta for targeted revisions
- Led cross-functional robot deployment meetings, aligning stakeholders and operators through JIRA and MS Teams

Projects

Cube Craze Robot(Cornell & ASML Annual: 5th out of 40 teams) - C++   github.com/Kaylam60/Cube-Craze
- Engineered Arduino UNO robot with custom H-bridge drive and 3D-printed arms, emphasizing precise motion control
- Implemented finite state machine-based logic in C++ for navigation, object handling, and automatic process switching
- Integrated and calibrated QTI sensors and color sensors for reliable platform recognition and edge avoidance

SLAM-Based Autonomous Robot - C++, Python   kaylam60.github.io/SLAM-Based-Robot/
- Engineered an autonomous RC car, integrating an Artemis MCU with IMU, TOF sensors, and wireless Bluetooth control, tuning PID loops using the Ziegler-Nichols method for stable path following
- Applied Kalman filtering and Bayesian mapping for reliable localization in obstacle-ridden 4m squared environments

PiDash Crash Detecting Webcam - Python, Linux, Git   https://youtu.be/BGgrBcqAX3g
- Developed two-way dashcam system on Raspberry Pi 4, enabling live web recording using Debian Linux's Bulleyes OS
- Implemented data management strategy to ensure preservation of OpenCV dual-camera recordings by partitioning files into time-stamped crash folder for event-triggered data and a folder for 1-minute interval "standby" data
- Implemented interface to display real-time OBD-II statistics using Python PiGame library and Adafruit display

Skills

Programming: C, C++, Python, Git, Bash, Verilog, SystemVerilog, RISC-V assembly, PLC Ladder Programming, JavaScript, MATLAB

Hardware: FPGA(DE0-CV), Arduino(Red Nano, Uno), Artemis MCU, NXP (FRDM-KL46Z), UR e-series cobot, Cognex In-Sight 3D L4000, Allen Bradley Safety Relays and PLCs

Software: ROS Noetic, Docker, Quartus, LTSpice, KiCAD, MCUEXpresso, Studio 5000 Logix Designer, EPlan, UR Polyscope, Proneta, Cognex Insight Vision Suite, JIRA, Microsoft 365 Suite, LaTeX

Lab: Oscilloscope, DMM, Function Generator, Power supplies

Network & Protocols: TCP/IP, I2C, SPI, Profinet, MES

Certifications: NFPA 70E Standard for Electrical Safety in the Workplace (June 2024)