Nicholas Morgan

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Education

Iowa State University | Ames, IA   *August 2019 – December 2023*
Bachelor's of Engineering - Computer Engineering
Minor: Cybersecurity Engineering
Relevant Courses: Real-Time Systems, Electrical Cicuits, Computer Architecture, Programming Logic, Data Structures and more.

Skills

Platforms & Operating Systems: Linux, MacOS, Windows
Programming: C/C++, C#/.NET, Java, Python/MicroPython, Bash, JavaScript, Flutter, HTML, CSS, Git.
Tools & Technologies: FreeRTOS, ESP32, ESP8266, Node-Red, Visual Studio, ESP-IDF, Postgres

Projects & Notable Achievements

iRobot Mars Aerospace Rover | iRobot inspired the first Micro Rovers used by NASA
- Led a team of four in programming an iRobot for precise obstacle navigation and distance measurement.
- Utilized embedded systems programming in C, enhancing the team's collaborative efforts and technical proficiency.
- Conducted extensive testing and debugging to ensure robust performance in diverse environments.

Arduino Advanced Real-Time Security System Development
- Integrated motion, sound, and distance sensors for enhanced system responsiveness.
- Developed a robust solution on the ESP32 platform using FreeRTOS and Arduino for seamless task management and optimal performance.
- Implemented real-time data acquisition via ESP8266, ensuring swift threat detection and response

Arinc429 Portable Receiver Application and Firmware Development
- Collaborated cross-functionally to design firmware for the ESP32S3 chip, enabling BLE communication with mobile devices for Arinc 429 data transmission.
- Created comprehensive design documents outlining system architecture and functional specifications.
- Utilized ESP-IDF, C, and Python for reliable firmware development.
- Created a Flutter application for Arinc 429 label reading and decoding, enhancing user accessibility and functionality.

Experience

Computer Engineering Intern - Mr. IIoT | Crystal Lake, IL   *May – August 2023*
- Enhanced the Fanuc Driver codebase using C#/.NET in Visual Studio for improved operation and adaptability.
- Developed and connected the front and back end of the SHARC data integration interface using Node-Red (JavaScript), improving data accuracy and usability.
- Installed and updated firmware and software on ESP32 devices, leveraging ESP-IDF for efficient and reliable performance.
- Optimized Beckhoff PLC and HMI code, consolidating axles and stamps to boost performance.

Robotics Engineer - Walmart Advanced Systems & Robotics | Rockton, IL   *April 2024 – Current*
- Conducted rigorous testing procedures on Alphabots to guarantee seamless deployment, adhering to strict quality standards.
- Collaborated closely with cross-functional teams to identify and address any issues, ensuring smooth integration of Alphabot technology into operational processes.
- Actively participated in the continuous improvement of the Alphabot System, providing valuable insights for ongoing development and enhancement initiatives
- Automated system maintenance with Bash scripts, enhancing operational efficiency, shortening system startup time by 20%.