Brian Hill

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SUMMARY

Software developer well-versed in embedded systems and microcontroller programming. Driven to implement robust, real-world solutions applicable to a wide range of situations while focusing on meeting and exceeding customer expectations. Strong knowledge in both software development and hardware engineering, providing a blend of both skill sets while implementing complex solutions. Brings a unique outlook and energy to new situations and environments providing valued solutions to a variety of customers.

CLEARANCE

Active Public Trust Clearance   *May 2023*

WORK EXPERIENCE

Software Developer   Chantilly, VA
CACI International Inc.   *May 2023 – Present*
- Modify and develop SQL scripts for conversion between government financial systems.
- Develop Python-Selenium-based Robotic Process Automation (RPA) software for automated testing of government financial software (Momentum).
- Utilize government-based Agile approach to efficiently iterate on customer requirements.
- Deploy and release solutions to client with minimal downtime and confirmed functionality.
- Test and maintain current and legacy systems to validate performance and compliance with current systems.
- Analyze client requirements and create necessary documentation for future development and integration.
- Work with experienced team members to design and modify existing workflows surrounding previous software solutions.
- Evaluate and implement new interface technologies to provide fresh and intuitive user experience.
- Develop Node-based GUI for Python backend in ReactJS.

Sales Associate and Print Specialist   Manassas, VA
The UPS Store   *November 2020 – March 2025*
- Manage Enterprise IT network and point of sales systems to handle high traffic with minimal downtime.
- Upgrade and install Point of Sale (POS) system to meet corporate guidelines.
- Supervise high volume print jobs and designed methods to efficiently manage multiple enterprise grade printers.
- Work in national and international logistics for major retail package services.
- Design and print customers personalized business advertisements.

SKILLS & ATTRIBUTIONS

Languages: Python, C/C++, Rust, Java, PL/SQL, MATLAB, VHDL, JS/Web, Bash
Software: MS Office, Adobe CC, Autodesk Inventor, Xilinx Vivado/Vitis, KiCAD, PSpice, Docker, Git, Jenkins, SQL Developer, Nginx/Apache, Node, OpenCV, Linux, Proxmox
Development Focuses: Microcontrollers, Embedded Systems, Internet of Things, Autonomous Control Systems, Embedded Linux Systems, FPGAs

EDUCATION

George Mason University   Fairfax, VA
Computer Engineering, BS   *Expected May 2025*
- Notable Courses: Circuit Analysis I/II, Data Structures and Embedded Systems Programming, Continuous-Time Signals and Systems, Networking, Operating Systems, Computer Architecture, Embedded Systems, Linear Electronics, FPGA Design in VHDL, Microcontrollers, Internet of Things, Mobile Robots

AWARDS & CERTIFICATIONS

AWS Cloud Practitioner Accreditation | June 2023
GMU Tech Talent Awards | Multiple Years

Personal Projects and Research

Autonomous Lighter Than Air Vehicle Capstone
mason.gmu.edu/ nyao4/

- Office of Naval Research sponsored project via GMU CIAO Lab.
- Developed unique shared Center of Gravity/Center of Buoancy blimp from common components for high reproducibility while maintaining high maneuverability.
- Trained object detection model (YOLOv8) in high performance formats for reduced latency and to allow for accurate and fast detection.
- Designed and implemented fully functioning object detection, localization, and controls system in both C++ and Python.
- Tested and deployed codebases on battery constrained hardware with four motor stabilization system and sensors.

Keyboard Design
brianchill.us/#/Keyboard & https://github.com/TrojanPinata/Model-B

- Designed PCB for external manufacturing using chosen layouts, and configuration of all onboard components.
- Added functionality to existing firmware and documented changes/code on Github.
- Wrote bill of materials and chose cost effective components for design which were implemented into final product.
- Designed and manufactured ergonomic housing to contain assembly while remaining unique against other designs on the market.

Open-Source Macropad
brianchill.us/#/Macropad & https://github.com/TrojanPinata/Macropad-Pico

- Designed simple, easy to manufacture 3D printed case, printable on any 3D printer.
- Wrote firmware based on existing, widely used software to promote consitancy between similar keyboards.
- Engineered PCB for cost effective production with alternatives to reduce reliance on third party manufacturing.

Drawing Robot
brianchill.us/#/PiDraw

- Developed program for decoding location instructions and drawing on custom designed hardware.
- Designed CAD model of all components for low material 3D printing and structural stability during high stress movements.
- Used OpenCV to process images and generate location instructions from input images.

Hardware-based Line Following Robot
brianchill.us/#/LineFollower

- Designed Opamp based platform to drive four motors - Controlled by photoresistor-LED, TX-RX design.
- Integrated low-budget off the shelf components into design to satisfy budget requirements.
- Designed and manufactured PCB by hand for faster design-manufacturing turn around.