Philip G. Johnson

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PROFESSIONAL SUMMARY

Hands-on, detail-oriented product engineer with 2 years of full-time and 2+ years of part-time experience in software development, firmware validation, and hardware-in-the-loop diagnostics. Proficient in Hardware design, SoC-level validation workflows, embedded architecture debugging, and real-time software and firmware development, implementing test automation using Python/C/C#/C++. Experienced in PCB-level and system-level validation, automated regression testing, and integration across hardware and software teams. Adept at developing test infrastructure and data analysis tools to optimize performance and reliability in embedded platforms.

EDUCATION

University of Utah | January 2024 - May 2025
Master of Science MS, Electrical and Computer Engineering | GPA: 3.5

- Coursework:
  Embedded Systems | Digital VLSI Design | State Space Control | Device Physics | Control of Electric Motors
  Neural Engineering | Artificial Intelligence | Machine Learning | Deep Learning | Computer Architecture

SKILLS

Programming languages: MATLAB, C#, Python, PLC Programming
Tools, Equipment & Platforms: CAD Tools, EDA Tools, Oscilloscope, Function Generators, Logic Analyzer, AdvancedHMI, Docker, Putty, Linux
Specialized Knowledge: QA/QC, Circuit Verification, Real-time Systems, PCB Design, Computer-Aided Design, SCADA
Communication Protocols: I²C, CAN, ADC, UART, Modbus, SPI
Certifications: Microsoft Certified: Azure AI Engineer Associate, Azure Developer Associate, Azure Fundamentals
Developer Boards: STM32, NodeMCU, Nvidia Jetson Nano, Arduino, Raspberry Pi

PROFESSIONAL EXPERIENCE

Hexaware Technologies | Chennai, TN, India
Product Engineer | March 2022 - December 2023

- Designed and implemented an intelligent room automation system with custom PCBs and PLCs, enabling human detection, adaptive lighting, and automatic temperature regulation-achieving 30% energy savings in internal trials.
- Integrated occupancy sensors and automation logic for HVAC and lighting systems, improving system response time by 60% in real-time embedded control environments.
- Participated in Agile sprints, led scrum meetings occasionally, and used Azure DevOps/Kanban boards to manage tickets, ensuring continuous delivery and minimal backlog accumulation.
- Facilitated sprint planning and code reviews, enhancing team collaboration with a 95% on-time sprint completion rate.
- Selected as 1 of only 2 engineers for the R&D team of a UK-based FinTech client; developed a scalable SaaS platform using C# with both .NET Framework and .NET Core, alongside ReactJS for frontend development.
- Performed end-to-end testing and debugging of RESTful APIs for SaaS services using POSTMAN and C#, reducing client-reported issues by 35% and achieving a 98% issue resolution rate.

University of Utah | Salt Lake City, UT, USA
Graduate Teaching Assistant | January 2025 - Present

- Taught concepts of Applied Computational Electromagnetics (ECE 6340) and Antenna Design (ECE 6324) for graduate-level students, assisting students in circuit simulation and process optimization.
- Guided circuit development for antenna structures and assisted in generating Gerber files for PCB fabrication.
- Supported graduate projects involving HIL testing, circuit simulations, and hardware validation.
- Assisted in antenna design, process optimization, and PCB-level development workflows.

1 Martian Way | Mumbai, MH, India
Robotics Engineer Intern | October 2020 - February 2021

- Built autonomous drone systems with embedded firmware, real-time signal processing, and PCB interfacing.
- Conducted electrical system debugging using AC/DC multimeters, power supplies, and analyzers for real-time systems.
- Interfaced UART, SPI, and CAN-based sensor data into telemetry modules, optimizing control latency by 12%.

DLK Technologies India Private Limited | Chennai, TN, India
IoT Engineer Intern | April 2019 - July 2019

- Supported IoT system development in embedded environments, with performance tuning and data acquisition.
- Provided technical support and collaborated with firmware revision and debugging reports for system verification.

University of Utah | Salt Lake City, UT, USA
Student Representative | February 2024 - January 2025

- Reached out to over 1500 alumni, increasing engagement by 25% over the year. Utilized Excel and Python scripts to automate data collection and perform statistical analysis.
- Automated data tracking and reporting workflows using Python and Excel, increasing accuracy and engagement.
- Emphasized project management, optimizing workflows and communication strategies with cross-functional teams.

PROJECTS

Industrial SCADA Architecture with Modbus Integration | AdvancedHMI, Modbus Protocol, PLC Programming, Ladder Logic, Sensor interfaces

- Built a test SCADA system using Ladder Logic, AdvancedHMI, and Modbus for real-time factory diagnostics and automation.
- Deployed data acquisition interfaces and integrated real-time control loops mirroring smart factory architecture.

FPGA-Based Pong Game SoC Design | Verilog, Cadence Virtuoso/Innovus, Synopsys, ModelSim, Shell Scripting, Linux

- Designed and simulated a Pong game chip using Verilog, Simulation, and Digital logic tools and interfaced it with VGA via FPGA for real-time gameplay.
- Emphasized low-latency design and digital circuit optimization with hands-on FPGA prototyping.

Autonomous UAV Prototyping for Surveillance Applications | Embedded C, Altium Designer, CAN/IMU/GPS, Motor control libraries

- Led the design and assembly of autonomous drones with IPC-compliant hardware, improving obstacle detection and flight stability by 20%.
- Developed custom sensor drivers, power distribution boards, and flight controllers and conducted end-user training and demonstrations.

Multi-Agent Swarm Robotics with ROS and Vision Integration | ROS, OpenCV, Python, XBee, ESP32, ArUco

- Engineered distributed robotic control using ROS and OpenCV, with embedded path planning and actuator loops.
- Synchronized agent communication over WiFi using XBee modules for industrial coordination and warehouse management, boosting task reliability by 25%.

Force-to-Stimulation Feedback System for Neuroprosthetics | Arduino, Piezo Sensors, MATLAB, High-Voltage Stimulator

- Developed a real-time system translating piezoelectric sensor input (force) into electrocutaneous stimulation triggering finger movements using Arduino and high-voltage stimulators.
- Achieved 81% accuracy in blind force discrimination tests; validated stimulation intensity perception with statistical significance

UR5 Robotic Arm Motion Planning and Trajectory Optimization | ROS, Gazebo, rViz, Python, MoveIt!, URDF

- Simulated robotic manipulation using ROS, Gazebo, and rViz, applying inverse kinematics and path planning.
- Created motion validation and test environments for real-time performance benchmarking.

AI-Generated Image Detection using Deep Learning | Python, PyTorch, ResNet18, Vision Transformer (ViT), Custom CNN

- Developed and compared three deep learning models (ResNet18, ViT, Custom CNN) to classify real vs AI-generated images with >90% validation accuracy.
- Implemented training pipeline, evaluation metrics (F1, AUC), and cross-architecture benchmarking on synthetic image datasets.

Event Ticketing System with Real-Time Payment Integration | Python, Flask, HTML, CSS, Razorpay

- Built and deployed a full-stack ticket booking platform using ReactJS, Node.js, and MongoDB, enabling 300+ users and 800+ transactions in 15 days with real-time payment (Stripe) and seat selection.
- Optimized backend and API performance, reducing load time by 25% and improving transaction speed by 15%.

Role-Based Leave Management System | C#, .NET Framework, LINQ, SQL Server, WinForms / ASP.NET

- Developed a secure leave management system using C# and LINQ, with features for application submission, approval workflows, and leave tracking for 100+ employees.
- Achieved a 50% reduction in manual processing and a 30% improvement in database query performance via optimized LINQ and role-based access control.

ACHIEVEMENTS

- Flipkart Grid 3.0 - Finalists (2021 - Nationwide) - Led the team to the finale.
- E-Yantra Robotics Competition - Top 10 (2020 & 2021 - Nationwide)
- Student of the Year - ECE (2018 - 2022) - Agni College of Technology
- NASA's Lunabotics Challenge - Award Winners (2024 - Nationwide) - Served as a team member in Utah Student Robotics