Kevin Patel

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TECHNICAL SKILLS

Languages: C/C++, SystemVerilog, VHDL, Python, Bash

Tools & Platforms: Git, Linux, Vivado, STM32CubeIDE, Arduino, KiCad, MATLAB, AutoCAD, Inventor, JIRA

PROJECTS

Biro-1 Media Controller (Ongoing) | *PCB, Firmware, 3D CAD, System Integration*

- Developing a PCB-based media controller with mechanical keys, a haptic dial, and Bluetooth/USB-C connectivity.
- Designing the 3D chassis and firmware while collaborating on Bluetooth, battery management, and power delivery.

Reservoir System | *STM32, C, UART, PWM*

- Developed **C** firmware for an **STM32** MCU with **UART**-based control of 4 pumps and real-time scheduling.
- Designed **PCB schematics**, **Gerber files**, and **BOM** to support hardware implementation and testing.

Fixed-Point Tanh Accelerator | *SystemVerilog, Vivado, Fixed-Point Q2.12*

- Designed a **23-stage pipelined tanh** circuit using an 11th-degree Taylor approximation in **Q2.12** fixed-point.
- Integrated a ready/valid handshake and met **180+ MHz** timing closure after FPGA synthesis.

RISC-V 5-Stage CPU | *Verilog, Verilator, Vivado*

- Implemented a **pipelined RV32I RISC-V CPU** with fetch, decode, execute, memory, and writeback stages.
- Designed hazard detection and forwarding logic with stall/bypass mechanisms to handle control and data hazards.

EXPERIENCE

Digital Design Engineer — Sept 2025 - Present
UWASIC DESIGN TEAM — *Waterloo, ON, CA*

- Developing the **memory interface** for UWASIC's **TinyTapeout F25** AES/SHA cryptographic accelerator.
- Implemented an **SPI module** in **Verilog** with FF synchronizers for **CDC** and wrote verification tests in **cocotb**.

Software Developer — Jan 2025 - Present
PINKBYTE — *Vaughan, ON, CA*

- Built an Android kiosk system with launcher, boot animation, and lockdown features on **Lantronix's uSOM 820**.
- Optimized OS on the **Snapdragon 820**, cutting boot time by **4.4s** and boosting memory bandwidth by **37%**.
- Deployed builds and debugged issues on **Qualcomm Snapdragon 820** using system partitions and flashing tools.

Technical Writer — Sept 2023 - Dec 2023
NCR VOYIX — *Waterloo, ON, CA*

- Created technical documentation for bi-weekly code drops, supporting **500+** developers.
- Streamlined workflows with **JIRA**, **GitHub**, **Docker**, and **Postman**, cutting turnaround time by **20%**.
- Improved API documentation accuracy, lowering customer support inquiries by **15%**.

EDUCATION

University of Waterloo — Waterloo, ON
Bachelor of Applied Science in Computer Engineering — *2022 - 2027 (Expected)*

- **Relevant Courses:** Embedded Microprocessor Systems, Digital Hardware Systems, Real-Time Operating Systems, Systems Programming & Concurrency, Signals & Systems, Digital Computers, Algorithms & Data Structures

AWARDS & ACHIEVEMENTS

President's Scholarship of Distinction — Awarded for admission average of **95%+** (University of Waterloo)

1st Place, ASA DataFest — **$2000** prize for Best Insight out of **20** teams (**75+** students internationally)

Best HealthTech Project — Hackathon winner out of **100+** participants for *Dr. Discord* bot