David Xu

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Education

University of Toronto **Sep. 2022 – May 2027**
Bachelor of Applied Science in Electrical and Computer Engineering *Toronto, Ontario, Canada*

- **GPA and Honours**: 3.7/4.0; Dean's Honour List; PEY Coop; Ontario Professional Engineering Scholarship

Relevant Courses

- Algorithm Design
- Operation System
- Embedded System
- Deep Learning
- Data Structure
- Digital Design
- Electronics
- Control System
- Signals and Systems
- Robot Modeling
- Energy Systems
- Hardware Design

Skills

Languages: C, C++, Java, Verilog, MATLAB, Python, Javascript, Typescript, HTML, CSS, Latex, Assembly
Library/Frameworks: Node.js, React, React Native, MongoDB, Unix, Bootstrap, Docker, Git, Homebrew, iPlug2
Technologies: Altium, NI Multisim, Quartus, Figma, Lightroom, Photoshop, Illustrator, Autocad, Fusion 360, STM32

Projects

STM32 DJ Controller | *Embedded System, DSP* **Mar. 2025 – Apr. 2025**

- Designed a custom DJ controller using **STM32 Nucleo** boards with **cue** triggering, **looping**, and **live effects**
- Integrated audio playback via **DMA**, leveraging timer **interrupts** for low-latency playback and real-time song switching
- Developed a **C** driver for the **TPA2016D2 amplifier** to enable dynamic control over gain via **I^2C**

Single-Sideband Demodulator | *Altium, NI Mutisim, Frequency Analysis* **Jan. 2024 – May 2024**

- Engineered a **CAD**-designed SSB Demodulator PCB using **Altium** for a flexible transceiver radio in a team of two
- Assembled a 200dB audio amplifier with **bass boost**, sideband selector, and volume control, with manually soldering
- Validated a 20dB sideband rejection ratio across 100Hz–6kHz, successfully integrating the system with 52 teams

NIOS RobotArm | *C, SoC, Assembly, NIOS II, 3D Print* **Apr. 2024 – May 2024**

- Implemented a **3DoF** robotic arm system with integrated **embedded systems**, electrical and mechanical design
- Developed embedded control systems on **DE1-SoC** using **C/Assembly** to operate robotic arm with joint limit control
- Integrated 3D-printed components with an A4988 motor driver circuit, earning recognition **$200** in funds from professor

PianoTiles | *FPGA, Verilog, Embedded Systems, Quartus* **Dec. 2023**

- Co-designed digital circuits using **Quartus** on **FPGA** board to produce sound and render animation based on key input
- Implemented firmware in **Verilog**, creating **Finite State Machine** to verify the logic for the correct song notes
- Composed a user interface that interacted with **I/O** ports, including a PS/2 keyboard, **VGA** display, and audio core

Work Experience

Elite Education Institution **May 2024 – Present**
Student Intern *Vancouver, British Columbia, Canada*

- Tutored over **50** students from grades 3 to freshman, improving their marks by 10% in SSAT, SAT, AP Calculus/Physics
- Provided **IT** support for the Elite Elis System and enhanced eliteprep.ca's UX with **Figma**, increasing traffic by 20%

Leadership / Extracurriculars

IEEE University of Toronto Chapter **June 2024 – Current**
Multimedia Director *Toronto, Ontario, Canada*

- Composed social media posts and uniform designs using **Figma**, collaborating with the web team on **UX/UI** design
- Volunteered at three **300+** Hackers Hackathons, mentoring technical skills, hosting events, and overseeing participants
- Promoted events through posters, mailing lists, websites, and social media, successfully inspiring over **5000+** students

Experimental Device for Graduate Course – Six Sigma **January 2023 – April 2023**
Engineering Consultant *Toronto, Ontario, Canada*

- Generated over **60+** solutions and presented **3** optimal options to the client through the **engineering design** process
- Prototyped the device and is utilized by the client, achieving a precise test result transfer variance of **0.968**

Activities & Interests

Activities: New Hacks Hackathon Winner/Organizer, Uber/Fantuan Driver, F!rosh, Vancouver Care Package,
Interests: DJ | Photography | Electric Guitar | Amateur Radio | Hip Hop Dance | Acappella | Culinarian | Ice Skating