

Yousef Kamel

1B Electrical Engineering Student @ University of Waterloo
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SKILLS

Hardware: PCB Design (KiCad), Microcontrollers (ESP32, Arduino), Raspberry Pi, IMU/Sensor Integration, Embedded Systems, Soldering, Digital Circuits

Software: React, Next.js, TypeScript, Node.js, tRPC, Prisma ORM, PostgreSQL, Python, Java, C++, HTML/CSS, Arduino IDE, GitHub, Material UI (MUI), VS Code, Microsoft Office Suite

EXPERIENCE

Software Developer Intern

01/2026 — 04/2026

Normative

Waterloo, Ontario

- Built dynamic UI components using React, TypeScript, and MUI, handling complex state and user interactions within a data-driven application
- Integrated type-safe APIs using tRPC, enabling consistent data flow between frontend and backend services
- Designed and implemented database models and queries using Prisma ORM and PostgreSQL to support application features
- Developed interactive features for internal tools, improving usability through structured UI patterns and responsive design

File Management and Digitization

10/2023 – 02/2024

London Life

London, Ontario

- Verified and quality-checked 2,500+ digitized files with less than 1% error tolerance
- Digitized and categorized 2,500+ archival documents into an indexed database, improving retrieval speed for staff

Midnight Sun Team Member

09/2025 – Present

University of Waterloo

Waterloo, Ontario

- Contributing to electrical systems design for a competition-grade solar-powered vehicle
- Collaborating with multidisciplinary engineering teams on CAD and circuit prototyping

Technical Lead

01/2021 – Present

SMSJ

Richmond Hill, Ontario

- Managed and upgraded all AV and networking infrastructure, minimizing technical downtime
- Operated cameras, mixers, and encoders for weekly livestreams reaching 1000+ viewers

PROJECTS

NIMBUS — Real-Time Project Profitability Modeling Tool | *React, MUI, TypeScript* 01/2026 – 04/2026

- Built an interactive hypothesis editor to model project profitability, enabling real-time financial insights from dynamic resource inputs in a data-driven application
- Integrated backend rate card data to map seniority levels to cost and billing values, automating field population and ensuring consistent data flow
- Engineered a reactive calculation system using a custom hook to compute dependent formulas and project-level metrics (COGS, margins, profit) in real time based on user inputs
- Designed state management for complex table data, ensuring independent row updates and preventing unintended UI side effects

Motor Sensor for Delirium Patients | *Microcontrollers, Signal Processing*

09/2025 – 01/2026

- Designed and implemented an ESP32-based embedded system using IMU sensor data to detect unsafe patient movement in real time
- Developed motion classification logic using accelerometer and gyroscope signals to identify abnormal movement patterns
- Integrated Bluetooth communication and buzzer alerts to provide immediate feedback for fall-risk scenarios

Automated Solar Panel | *PCB Design, Arduino, Circuitry*

06/2024 – 09/2024

- Designed and built a solar tracking system using LDR sensors and servo actuation to optimize panel alignment, increasing energy output by 36%
- Implemented closed-loop control logic in C++ to dynamically adjust panel position based on real-time light intensity feedback
- Designed and fabricated a custom PCB and wiring system to integrate sensors, actuators, and microcontroller components