Abdelrahman ElShafay

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Education

Carleton University Ottawa, ON

B.C.S Honours Computer Science, specializing in AI and ML (CO-OP) *Sept 2022 – June 2027*

- 2024 − 2025 Dean's List Award
- CGPA: 10.06/12.00, Major CGPA: 10.50/12.00

Work Experience

Solace Kanata, ON

Software Engineer Intern | C/C++, Linux, TCP/IP, Concurrency *Incoming Winter 2026*

- Will engineer and optimize distributed, fault-tolerant systems within the PubSub+ Message Broker's persistence layer, leveraging C/C++ in Linux to enhance reliability, scalability, and throughput.

Ribbon Communications Kanata, ON

Software Developer Intern | Angular, REST, Node.js, jQuery, Bootstrap *Sept 2025 - Dec 2025*

- Engineered a reusable form-validation and alert component in Angular, enabling plug-and-play handling logic across multiple forms and reducing duplicated code across the frontend by **40%**.
- Resolved multiple UI/UX bugs and enhancement tickets in Jira, improving frontend–backend integration stability by **30%** and contributing to a **20% faster** feature delivery rate within agile sprint cycles.
- Streamlined validation workflows by encapsulating input rules, error states, and dynamic alerts into a reusable component adopted by multiple teams, cutting form-related defects by **25%**.

Carleton University Ottawa, ON

Undergraduate Teaching Assistant | C++, Linux, Data structures & Algorithms *Jan 2025 – April 2025*

- Leading weekly tutorial sessions designed to reinforce course material, provide in-depth explanations of C++ concepts, and guide students through hands-on problem-solving activities to enhance their understanding and application of programming principles.
- Leading weekly office hours, explaining core C++ concepts such as object-oriented programming, data structures, and debugging, while providing one-on-one assistance with assignments and troubleshooting code.
- Designed and implemented a grading automation tool that reduced evaluation time by **64%**, streamlining workflow and improving turnaround for student feedback.

Technical Skills

Languages: Java, Python, C/C++, SQLite, JavaScript, TypeScript, HTML/CSS, R, Scheme, Prolog
Technologies: Angular, React, Node.js, Rest API, openCV, Cython, TCP/IP, I^2C, Linux Kernel
Developer Tools: Git, Docker, Kubernetes, VS Code, IntelliJ, Qt Creator, BitBucket, JIRA

Projects

iTunesfy | *JavaScript, TypeScript, Node.js, Angular, SQLite, Rest API* *Sep 2024 – Dec 2024*

- Developed a full-stack web application with Angular for the Front-end and Node.js with SQLite for the Back-end, allowing users to store and manage song and user information seamlessly.
- Implemented robust SQL security features, including authentication, access control, and encryption, to protect sensitive user data.
- Created a platform fostering a vibrant online music community, enabling users to store songs in playlists, create and publish new songs, and explore a library of content.
- Integrated user authentication workflows for secure account creation and management.
- Utilized the iTunes search API via a RESTful interface to dynamically fetch song, album, and artist data.

BMP280 device driver | *Linux Kernel, C, I^2C, sysfs, Raspberry Pi, BMP280* *June 2025 – July 2025*

- Developed a Linux kernel I^2C driver module for the BMP280 temperature and pressure sensor, including sensor reset, register configuration, and sysfs user interface.
- Implemented calibration logic for BMP280 using datasheet-based compensation formulas to compute accurate temperature and pressure readings.
- Implemented proper handling of device probing, register initialization, and I2C communication using $i2c\_smbus\_*$ APIs.
- Exposed real-time sensor data to userspace via sysfs attributes, following standard Linux driver conventions.