



# Joseph Garwood

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## PROFILE SUMMARY

A dedicated Computer Programming student, currently gaining experience at Innovation, Science and Economic Development Canada (ISED). I'm especially interested in industries that contribute to Canada's national interests, and I enjoy working closely with others to solve problems. Seeking new graduate opportunities starting September 2025.

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## TECHNICAL SKILLS

**Languages:** Java (JavaFX, Swing, JUnit), C, C++, Python, PHP, SQL (MySQL, PostgreSQL, Oracle), HTML, JavaScript, CSS, Dart  
**Tools & Platforms:** Linux (Debian, Arch), Git, Jira, GCC, Docker, OpenShift/Kubernetes, Azure, AWS, Jenkins, Eclipse, VS Code, PHPStorm, VMware, QEMU

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## PROFESSIONAL EXPERIENCE

### Junior Software Developer

*Sept. 2024 - Present*

Innovation, Science and Economic Development Canada (ISED)

- Contributed to several key projects, including:
  - One-to-Many Chatbot Module: Designed and developed a module to allow the integration of multiple chatbots, streamlining support across ISED sites.
  - Drupal Commerce Integration: Worked on replacing legacy QuickPay solution, which was being sunset, with a custom solution built on Drupal Commerce, improving payment processing.
  - Access Control Enhancements: Developed a module for password-protecting individual nodes on ISED sites, enhancing security.
- Maintained and supported 157 ISED websites, addressing technical issues and ensuring consistent functionality.
- Deployed software to OpenShift cloud environments for development and testing.
- Gained hands-on experience with agile methodologies, participating in daily stand-ups, sprint reviews, and sprint retrospectives.

### Electronics Repair Technician

*Apr. 2023 - May 2024*

Mobile Klinik

- Diagnosed and repaired software, hardware and firmware issues on phones, laptop, desktops and consoles.
- Maintained proper documentation for every work order.

### Automotive & Heavy Equipment Technician

*Sept. 2020 - Mar. 2023*

- Diagnosed and repaired complex mechanical and electrical systems, applying analytical and problem-solving skills.
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## PROJECTS

### Tribology Test System Migration

- Rebuilt a legacy Windows-based data acquisition (DAQ) system for Linux-based platforms using C++.
- Read analog signals from two channels using an A-D converter
- Logged real-time force data to monitor lubricant breakdown in Qt charts
- Triggered .tct file generation when normal force exceeded a threshold
- Saved test parameters to .pra files for reuse in future tests

### Custom Unix Shell

- Developed a custom command-line shell in C with core functionalities.
- Handles execution of built-in commands (cd, exit) and external commands with error handling and process management using fork(), execvp(), and waitpid().
- Stores and retrieves previously entered commands using the GNU readline library.
- Users can create session-specific aliases or define persistent aliases in the shell's .jshrc configuration file.

### RFID Access Control System

- Built a Raspberry Pi-based access control system using multiple RC522 RFID readers on a shared SPI bus.
  - Used GPIO-controlled polling to activate one reader at a time over CE0 without SPI conflicts.
  - Developed backend logic in Python to read RFID tags, hash them (SHA-256), and check access permissions.
  - Used PostgreSQL to manage users, roles, and access points, and to log access attempts.
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## EDUCATION

### Computer Programming

*Sept. 2023 - Sept. 2025*

Algonquin College, Ottawa, ON

3.9/4.0 CGPA

Dean's Honour List (Fall 2023, Winter 2024, Spring/Summer 2024)

## CERTIFICATIONS

### Secret Security Clearance

Government of Canada

- Granted for roles involving access to sensitive information; includes thorough background checks and adherence to strict confidentiality protocols.

### Linux System Programming and Introduction to Buildroot

University of Colorado Boulder

- Topics covered: Linux system calls, process control, file I/O, multi-threading, cross-compiling for AArch64, and the GNU toolchain.

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## EXTRACURRICULARS

### Hackathon Team Lead

*Mar. 14 2025 - Mar. 16 2025*

cuHacking

- Led a team of four participants to develop an app to connect people in Ottawa with nearby food and shelter resources in 36 hours.
- Utilized Python, Flask, SQLite and Leaflet to quickly prototype and deploy the application.
- Coordinated tasks, managed time, and ensured project delivery within the competition's time-frame.

### Open Source Contribution

*Mar. 25 2025 - Mar. 27 2025*

Drupal WxT

- Made my first open source contribution by submitting a patch that modified a YAML configuration file in the Drupal WxT project.
- Familiarized myself with the open-source contribution process, including creating patches and issue tracking.
- Gained experience in community collaboration and open source software development workflows.