Nicholas Polischouk

Ottawa, Ontario, (647) 771-2449, nickpolischouk@cmail.carleton.ca,
https://www.linkedin.com/in/nicholas-polischouk-10294a1a7/

EDUCATION

Bachelor of Engineering – Software Engineering, Co-op Stream   **Sep 2019 – April 2024**
Carleton University, Ottawa, ON

RELEVANT SKILLS, EXPERIENCES AND ACCOMPLISHMENTS

Tools and Skills
- Python (Flask, Django), C/C++ (SDL2), JavaScript (React.js, JSX), Java (JavaFX, SpringBeans), HTML/CSS, MySQL, Git, Linux (Bash, Shell Scripting), XML/JSON, IntelliJ, ViM, Apache, Git, Microsoft Azure, QEMU, Digital Circuits

WORK EXPERIENCE

Co-op Engineer   **May 2021 – Aug 2021 / Jan 2022 - Apr 2023**
AMD, Ontario

- R&D in the area of Machine Learning. Implemented ML data processing SW for Power and Performance Data Analysis application. The SW was developed during my previous co-op cycle in which I implemented back-end and front-end for database-centric tool for VLSI chip design analysis.
- ML Clustering for similarity search among available power and performance analysis data
- R&D for optimal database structure to accommodate back compatibility and generic project data.
- R&D in the area of chip design "Big Data" analysis:
    - Front-end, Back-end, Server interface implementation, Database structure selection for optimal data population and retrieval. Based on MySQL database, Python back-end, React.js interface, GUI front-end, data visualization. Deployed on Apache server and made available for AMD design community.
    - Collaboration with project architects to define optimal data retrieval and processing limits.

ACADEMIC/WORK PROJECTS

- **Online CAD Tool (Skills Used:** React.js (JavaScript), Flask (Python), HTML, MySQL, apache)
    - Created a web-based tool that analyzes, stores, and visualizes hardware reports.
    - Ran on a Flask Backend, and React.js/Vanilla HTML frontend, from an apache server.
- **Online Storefront (Skills Used:** Spring Beans (Java), Microsoft Azure, git/github, maven)
    - Worked on an online storefront with a focus on standard software development techniques such as git, and other forms of continuous integration.
- **Custom Web Browser (Skills Used:** C (SDL2), xmake, git, tcp, systemd (to create an automatic daemon)

- o Worked on a web browser, including designing a new programming language, communications interface, and server backend.
  - o Various other C libraries such as cjson were used to give backend features.
- **Security prototype security application (Skills Used:** Linux (/dev/random), OpenSSL, C)
  - o Project involved salting and using OpenSSL to hash passwords, and making sure only authorized logins get retrieve certain information.
- **Texas Instruments MSP-EXP432P401R Microcontroller Programming (Skills Used:** C**)**
  - o Programmed various different functions such as responding to button/gpio input.
  - o Required understanding of low level C programming (direct access to registers/memory, bitwise operations), as well as understanding of real time system programming.
- **Simple Monopoly Game (Skills Used:** Java, Swing, Ant builder)
  - o Class group project, written in Java using Swing, built with Ant.
  - o Allowed for Variable Board Sizes/Space names, read from a JSON file.
- **2D top-down Adventure game (Skills Used:** Java, JavaFX)
  - o Written in Java using JavaFX, focusing on Object-Oriented Development techniques.
- **Designed an ARM based CPU using Logisim**
  - o Using concepts and understanding of digital circuits and transistors.

PERSONAL PROJECTS

- **Built and setup a PC running Arch Linux** (**Skills Used:** PC Building, Linux/Arch Linux)
  - o PC built from scratch, including several upgrades and rebuild periods.
  - o Arch was installed without the use of archinstall or other automatic scripts.
  - o PC was first built in 2015 (slowly upgraded since), Arch was installed in 2021, remained my daily driver for school, work, and gaming since then.
- **Installed Gentoo on an external Hard Drive** (**Skills Used:** Linux, gcc, portage compiler flags)
  - o Installed Gentoo on an external hard drive for the sake of trying it out.
  - o Involved compiling a custom Linux kernel and debugging issues relating to misbehaving drivers.
  - o Compiler flags were chosen based on minimalism and only compiling what I needed.
- **Setup a graphics card passthrough system to run a QEMU Windows Virtual Machine** (**Skills Used:** Linux, QEMU, BIOS config)
  - o This was done in order to run high performance Windows software on an Arch Linux based PC.
  - o Main software were games that required windows, and had issues running on wine
- **Setup a Web Server deployed to a Raspberry Pi** (**Skills Used:** Linux, Apache, Flask (Python))
  - o Raspberry pi ran on Alarm (Arch Linux ARM).
  - o Web server used as a website for the purposes of using it as a personal cloud storage space.
- **Developed a Discord bot** (**Skills Used:** Python, basic data structures, systemd)
  - o Bot written in Python, functions include storing deleted messages, playing music.
  - o Runs on my Raspberry Pi webserver, setup as a daemon for easy start/stop
- **Developed a mod for the video game Minecraft.** (**Skills Used:** Java, Gradle)
  - o Written in Java, compiled using gradle. Mod involved implementing complicated tech systems such as energy levels, batteries, and machines.
- **Developed a command line simple chess game** (**Skills Used:** C++)
  - o Written in C++ to practice C++ Object Oriented Programming fundamentals.