Ju Hong Kim

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EDUCATION

Carleton University September 2021 - Present
- HBMath in Mathematics

Activities: Math Teaching Assistant (2022-2024), Web and Content Designer for Math Society (2023-2024)

University of Toronto Mississauga September 2015 - June 2020
- HBSc in Computer Science with Distinction, Overall CGPA: 3.35/4

West Carleton Secondary School September 2011 - June 2015

Highschool Diploma, Ontario Scholar

EXPERIENCE

AMD - Diagnostic Design Intern May 2025 - August 2026
- TBA
- TBA
- **Technologies:** Linux, C++

Ericsson - Software Developer Intern May 2024 - April 2025
- Developed an interactive dashboard to visualize resource consumption on software running on Linux-based radios, enabling the analysis of code changes on internal radio startup times, CPU, and memory consumption
- Integrated an internal analytics framework to automate test failure tracking, correlating failures with known errors and enhancing visibility through Kibana dashboards

Blackberry - Systems Software Developer Intern May 2023 - August 2023
- Developed a Protobuf plugin for Fluent Bit in C, optimizing data serialization and achieving a 50% reduction in data size, while also decreasing transmission time per message
- Optimized performance of the Protobuf plugin by leveraging Callgrind, perf, and flamegraphs for performance analysis, significantly improving execution efficiency

Blackberry QNX - Student Support Developer January 2022 - April 2022
- Delivered QNX and POSIX C debugging and design support to clients, helping resolve development blockers
- Assisted with compilation, API/utility usage, networking, and debugging for QNX and POSIX C environments
- Used GDB and Valgrind to debug memory and execution issues and leveraged Wireshark and tcpdump for network analysis

IBM - Db2 Build DevOps Developer July 2020 - August 2021
- Improved developer efficiency by creating Perl & Python-based build automation tools, optimizing the development pipeline
- Assisted in transitioning legacy build infrastructure to a secured zone by identifying and resolving Perl & C dependencies and adapting scripts to align with new constraints
- Mentored 4 junior developers and interns, improving team efficiency and knowledge retention

IBM - Build DevOps Intern May 2018 - August 2019
- Managed builds across UNIX/Linux platforms running on 32/64-bit CPU architectures (x86, Itanium, PowerPC, SPARC), isolating breakages across complex multi-commit build histories
- Enhanced build infrastructure and Perl-based automation tools to provide developers with stable, up-to-date code
- Led server migration efforts, coordinating the setup and validation of all Perl and PHP programs to ensure smooth transition with minimal downtime and improved deployment reliability

Ericsson - Student Assistant to the Standards Advisor February 2015 - June 2015
- Assisted in configuring and migrating a server
- Maintained and debugged servers and programs to ensure services were available with minimal downtime

TEACHING AND LEARNING ASSISTANT EXPERIENCE

Carleton University
- MATH 1004: Calculus for Engineering or Physics — Fall 2022, Fall 2023, Fall 2024
- MATH 1104: Linear Algebra for Engineering or Science — Winter 2023, Winter 2024
- MATH 1152: Introductory Algebra 1 — Fall 2022
- MATH 2107: Linear Algebra II — October 2022 - April 2023
  - – Learning Assistant in the Math & Stats Learning Assistance Program[1]

[1] This is not a TA position

PROJECTS

Desktop Passwordless Continuous Authentication System

- Developed an Android-based Bluetooth authentication system, replacing passwords with seamless desktop login
  - Lead developer on the authentication module to continuously authenticate the smartphone via Bluetooth
  - Aided in the development of the Android app to communicate with the desktop via Bluetooth
- **Technologies:** C, Kotlin, Linux Bluetooth Library Stack (Bluez), Linux PAM, D-Bus

Progress Report Card Generator

- Implemented a progress report card generator as a potential product for a school to be mobile-friendly and intuitive
  - **Technologies:** PHP, HTML, CSS, and Javascript

Student Enrollment & Instructor History Analysis

- Designed a website that analyzes enrollment trends, generating data visualizations for educational insights
- **Technologies:** Perl, Python, React

16-bit Assembler Implementation

- Developed an assembler in C for a 16-bit architecture, converting Hack assembly to machine code

Chemical Research Patent Makeover

- Collaborated on the development of a front-end prototype for an existing chemical research patent web application, focusing on improving user experience (UX) by creating an intuitive interface and minimizing user actions
  - **Technologies:** React, Node.js, and SQL

SKILLS

- **Programming:** C, C++, Python, Perl, Bash, Java
- **Web Design:** HTML, CSS, Javascript, PHP, JQuery, React, NodeJS
- **Database:** SQL, NoSQL (MongoDB)
- **Markup and Typesetting Languages:** Latex, Markdown
- **OS:** Linux, UNIX, QNX

PRESENTATIONS AND PAPERS

Capstone Papers

- ProxyAuth: A continuous authentication scheme for a Linux GNOME Desktop Environment using a Mobile Device with Bluetooth Connection
  - https://github.com/zakuArbor/proxyAuth/raw/master/kim_proxyauth_paper.pdf

Informal and Non-Academic:

- Blackberry - "An Introduction to Adaptive Partitioning Scheduler and How to Bankrupt Partitions" April 2022
  - Blog Version: `https://zakuarbor.github.io/blog/qnx-aps/`
- IBM - "What Happens When You Press the Play Button - The Compiler Toolchain" May 2021
  - Blog + Presentation Slides: `https://zakuarbor.github.io/blog/building-code-presentation/`
- IBM - "What does the Build Team Do - An Overview of Builds and DevOps" May 2021
  - Blog Version: `https://zakuarbor.github.io/blog/build-team/`

BLOG (Samples)

Topics: Programming, Math, and School

- Deriving Double Angles through Matrix Rotations June 2022
- Rust - Exploring the Assembly Code between Mutable and Shadow Variables May 2022
- QNX - An Introduction to Adaptive Partitioning Scheduler and How to Bankrupt Partitions April 2022
- C Programming - Variable Length Array (VLA) June 2021
- What is Name Mangling July 2021
- Error Loading Shared Library Even If File Exists May 2021
- What Goes On When You Press the Play Button- The Compiler Toolchain April 2021
- Bias UTM CS Course Review July 2020

Course Reviews (Samples)

Topics: Programming, Math, and School

- MATH2107 - Linear Algebra 2
- MATH2052 - Calculus and Introductory Analysis II
- PHYS1004 - A Review on Introductory Electromagnetism and Wave Motion
- Bias UTM CS Course Review

- Over 4800 students, parents, TAs, and professors have read the post[2]
- **Courses:** MATH1052, MATH2000

VIDEOS

- Deriving Double Angles through Matrix Rotations
  - https://youtu.be/hRs0t8G0ef0
  - **Tools:** Python and Manim
- Pokemon Yellow and Silver Walkthrough (Gameboy Color)
  - Over 251,300 views with 138 comments [3]

CERTIFICATES

- Coursera - Build a Modern Computer from First Principles: From Nand to Tetris (Project-Centered Course)
- IBM - Cloud Core
- Coursera - IoT (Internet of Things) Wireless & Cloud Computing Emerging Technologies

VOLUNTEER

- Carleton University Math Society - Website and Content Designer — August 2023 - April 2024

HOBBIES

- Reading Light Novels and Manga
- Plastic Models (Gunpla)
- Computer Programming

[2] As of December 17 2023: 4541 views on Wordpress and 279 clicks to Github Page mirror according to Google Search Console
[3] Source Date: May 16 2024