Ju Hong Kim

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EDUCATION

Carleton University   September 2021 - Present
HBMath in Mathematics

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

Carleton University - Math Teaching Assistant   September 2023 - Present
- Strengthen and guided a class of over 40 students in solving Calculus problems

Blackberry - Student Systems Software Developer   May 2023 - August 2023
- Investigated the feasibility and benefits of introducing Protobuf and Avro into the data pipelines which found a 50% reduction in data size and decreased transmission time per message by a few milliseconds
- Simplified Gitlab Pipeline rules to enhance readability and maintainability
- **Languages, Tools, and Environment:** C, Bash, Gitlab, Protobuf, Avro, Fluent Bit, Kafka, Ruby

Carleton University - Math Teaching Assistant   September 2022 - April 2023
- Strengthen students in their analytical and mathematical intuition to tackle problems in Linear Algebra and Calculus
- Develop full solutions to sample problems on PowerPoint for future video recording to increase student success

Blackberry QNX - Student Support Developer   January 2022 - April 2022
- Advised clients on their technical problems from debugging to design relating to QNX, POSIX C, and Momentics IDE to enable customers to remove blockers in their development cycle
- Resolved technical challenges encompassing compilation, API/utility usage, networking, and debugging
- **Languages, Tools, and Environment:** C, SVN, Git, GDB, QNX, and Momentics

IBM Canada - Db2 Build DevOps Developer   July 2020 - August 2021
- Improved developer productivity through the development, debugging, and enhancement of build infrastructure and automation tools, streamlining the development pipeline
- Mentored interns and junior team members, supporting their professional growth and performance
- **Languages, Tools, and Environment:** Perl, Node.js, Python, C, Linux/UNIX, Git, Clearcase, and Jenkins

IBM Canada - Db2 Build DevOps Intern   May 2018 - August 2019
- Ensured the regular release of Unix and Linux nightly and special builds for Db2
- Improved build infrastructure and automation tools to ensure developers have the latest stable code to improve on
- Supervised server migration to eliminate blockers and minimize downtime
- **Languages, Tools, and Environment:** Perl, C, PHP, Clearcase, Linux/UNIX, Jenkins, and Buildforge

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
- MATH 1104: Linear Algebra for Engineering or Science   Winter 2023
- 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]

PROJECTS

- Led a team of students to devise a passwordless continuous desktop authentication system, using a smartphone as a Bluetooth authenticator to replace traditional password-based methods for enhanced convenience
    - 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 and Languages:** C, Kotlin, Linux Bluetooth Library Stack (Bluez), Linux PAM, and D-Bus

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[1]This is not a TA position

- Implemented a progress report card generator as a potential product for a school to be mobile-friendly and intuitive
  - **Technologies and Languages:** PHP, HTML, CSS, and Javascript
- Employed Python for web scraping and Perl for data processing to analyze student enrollment and instructor history, generating JSON data for a web data visualization side project
  - **Technologies and Languages:** Perl, Python, React
- Implemented an assembler in C for a 16-bit architecture to convert Hack assembly to machine code
- 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 and Languages:** React, Node.js, and SQL

SKILLS

- **Systems Programming**: C with exposure to C++ and Rust
- **Web Design**: HTML, CSS, Javascript, PHP, JQuery, React and NodeJS
- **Database:** SQL and NoSQL (MongoDB and Firebase)
- **Scripting Languages:** Perl, Bash, and Regex
- **Other Programming Languages:** Python and Java
- **Markup and Typesetting Languages:** Latex and Markdown
- **Version Control:** Git and Clearcase
- **OS:** Linux, UNIX, and 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

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

VIDEOS

- Deriving Double Angles through Matrix Rotations
  - https://youtu.be/hRs0t8G0ef0
  - **Tools:** Python and Manim
- Pokemon Yellow and Silver Walkthrough (Gameboy Color)
  - Over 246,300 views with 135 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
- UTM Community Event with Evergreen - Tree Planter   September 2015
- Tim Hortons Dragon Boat Festival - Site Cleaner   July 2012
- Ottawa Korean Community Church Summer Camp - Volunteer   July 2010

HOBBIES

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

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[3]Source Date: July 22 2023