William JH Cheng

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Computer Science Major, University of British Columbia (UBC)

SKILLS

Languages: Python, Java, JavaScript/TypeScript, Scala, R, C++, C, C#, SQL, PHP, HTML/CSS, Assembly Language

***Frameworks*:** PyTorch, NumPy, SciKitLearn, Node.js, Express.js, React.js, Spring Framework, Apache Kafka, Akka

Software/Environment: Jupyter, Amazon Web Services, Kubernetes, Docker, Firebase, Oracle Database, Jenkins, Gradle, Android Studios, Unity, Unix, Selenium, LabView, Github Actions

EDUCATION

B.Sc (Bachelor of Science), Major in Computer Science (**GPA**: 93% for 4 years) (September 2020 – April 2025)
University of British Columbia, Vancouver, BC, Canada
Science Scholar/Dean's Honour List (2020 – 2024)

International Baccalaureate (IB) Diploma (September 2017 – June 2020)
Western Canada High School, Calgary, Alberta, Canada

ACHIEVEMENTS AND LEADERSHIP

UBC Trek Excellence Scholarship for Continuing Students (2021 - 2023)

- Awarded for top 5% students in Computer Science

UBC Dean of Science Scholarship **(**2021 – 2023)

UBC Presidential Scholars Award and UBC Tuum Est Experiential Award **(**2020 - 2024)

Western Canada High School Geography Club • *Club Leader* (September 2018 – June 2020)

- Organized weekly meetings, The Canadian Geographic Challenge, and The International Geography Olympiad (iGeo)

The Royal Conservatory of Music (RCM), First Class Honours with Distinction for Piano Level 10 (2010- 2017)

RESEARCH EXPERIENCE

Independent Research supervised by Dr. Mi Jung Park (CPSC 448) (May 2024 - Present)
University of British Columbia, Vancouver, BC, Canada

- Research proposal – Exploring Reconstruction Attacks and differential privacy in machine learning, machine unlearning, and generative modelling, including areas in deep neural network training and image generations
- PyTorch coding for transfer learning techniques, convolutional neural networks, and vision transformers

UBC Machine Learning Research Club (February 2024 – Present)
University of British Columbia, Vancouver, BC, Canada

- Conducted research with members on latent manifolds with image generation models, such as GAN and Diffusion Models with applications in fashion

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TECHNICAL WORKING EXPERIENCE

Undergraduate Teaching Assistant
University of British Columbia, Vancouver, BC, Canada
CPSC 304 (Relational Databases) (July 2024 - August 2024)
CPSC 210 (Software Construction) (September 2023 – December 2023)

- Tutored students in Java, SQL, relational databases, object-oriented programming, debugging, and design patterns
- Hosted tutorials and office hours for problem solving and for the students' group projects
- Collaborated with the professor and other TAs to refine the course structure, materials, and grading standards

Software Engineer Co-op (May 2023 – December 2023)
Planview (formerly Tasktop Technologies Inc), Vancouver, BC, Canada

- Executed end-to-end full-stack development with React.js as frontend and Spring framework and Akka as backend
- Designed and implemented GitHub Action workflows for enhanced automation, performance, and maintenance, improving application build times from an average of 20 minutes to 8 minutes
- Led data migration efforts by refactoring frontend and backend with AWS databases such as AWS Redshift for enhanced compatibility and concurrency, resulting in a 35% improvement in overall API performance
- Developed well-documented REST endpoints and effective streaming with Kafka
- Contributed to Planview's Hackathon training a Large Language Model to parse Datadog Logs and offer solutions from Confluence

Software Automation Engineer/Developer Co-op (January 2022 – August 2022)
Delta-Q Technologies, Vancouver, BC, Canada

- Improved the efficiency of regressions by 30% by developing a centralized test automation system with Python, LabView, and RESTful API
- Developed and maintained software and hardware tools with Hardware-In-Loop to allow automation of test scripts
- Learned about communication protocols such as CANOpen, MODBUS, J1939, and HTTP
- Performed automation regressions after every software release
- Conducted root cause analysis and troubleshooting

Software Tester (May 2021 – September 2021)
Rentrax Software Inc, Vancouver, BC, Canada

- Analyzed user stories and use case requirements for validity and feasibility
- Applied quality engineering principles throughout the Agile product lifecycle
- Supported product documentation through technical support and edited user manuals
- Provided timely solutions for software defects and postproduction issues

PERSONAL PROJECTS

Ricochet Rage: A Collaborative 2D Video Game (September 2024 – December 2024)
Video Game Course Project

- Developed a 2D top-down shooter with OpenGL and C++
- Designed enemy AI with A* and context steering pathfinding, and projectile physics for immersive gameplay
- Contributed to project planning and sprint review to deliver milestones on time

IntroInvert: An Android Chat Application with Google Firebase Backend (January 2022 – May 2023)
Android Java Project

- Utilized XML, Gradle, and binding features to allow Java Activities to interact with layout designs
- Used asynchronous functions to develop multiple user connections between the application and Firebase database
- Developed authentication for accounts and used tokens to process the user activity via Share Preferences

Kitchen Nightmares: Unity 2D Game for Itch.io's 2022 - 2024 GMTK Game Jam (July 2022 – July 2024)
Game Developer

- Applied skills from Unity and C# to build a game with a team environment in under 48 hours
- Developed the main game mechanics, scripts, and GUI for every scene
- Managed version-control files to review the source code of the game

DigiBOP: a Java Music Studio program (February 2021 – April 2021)
Java Course Project

- Applied abstraction to form clear and concise code
- Utilized external libraries such as JFugue and Swing for back-end and GUI construction
- Evaluated systematic problems in code with Unit Tests and provided debugging solutions

MapSquad.org: Mapathon Website made from HTML/CSS and JavaScript. (May 2020 – September 2021)
Volunteer Website Designer and Developer

- Organized computer networks for online collaboration and coordinated mapping events to improve mapping data for disadvantaged communities
- Developed a website for a Geographic Information System (GIS) used in humanitarian mapping events
- Communicated with non-profit leaders and users through online chat and surveys