# Andy Zhang

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## TECHNICAL SKILLS

**Languages:** C/C++, Java, Python, MATLAB, R, SQL(Postgres), JavaScript
**Web Technologies:** HTML, CSS, Bootstrap, Flask, Node.js
**Tools/Frameworks:** Git, Linux (Ubuntu), Windows, Docker, Valgrind, CMake, MongoDB

## EDUCATION

**Simon Fraser University**                                      Jan 2023 – Sep 2026 (Expected)
*Bachelor of Science*
*Honours in Computing Science with Minor in Statistics, 3.97 GPA*

## WORK EXPERIENCES

**SFU MAGPIE Lab**
*Undergraduate Research Assistant*                                        May 2024 – Current
  - Conducted cluster analysis on tuberculosis (TB) cases in Malawi, applying advanced methods such as SNP-cutoff and phylogenetic tree construction to analyze 11k patients' metadata.
  - Applied innovative pair-wise logistic regression to predict cluster dynamic over time, integrating patient information into genetic sequence clusters. Model published in **Microbial Genomics**, 2023, doi:10.1099/mgen.0.000929.
  - Utilized R and Python for data cleaning, visualization, and analysis, employing machine learning techniques for quantitative predictions using epidemiological and sequencing surveillance data.

**Lenovo**
*Student Research Intern - Intelligence Infrastructure Service Department*        Jun 2022 – Aug 2022
  - Researched VR/AR technologies and society's approach to the metaverse, creating detailed reports and presentations using Microsoft tools.
  - Conducted business analysis for metaverse adoption, contributing to strategic planning and receiving positive reviews in biweekly meetings.

## PERSONAL PROJECTS

**Personal Portfolio Website**
*React, JavaScript, HTML, Tailwind CSS*                                        July 2024 – Current
  - Initiated the development of a personal portfolio website with the aim to create an interactive and visually appealing platform to showcase personal projects and professional accomplishments.

**ScholarSerpent Application**
*Python, Tkinter, SQLite, ttkbootstrap, RESTful API*        ⭕ <u>Source Code</u> | May 2024 – Current
  - Developed a comprehensive grade management app, implementing a grade calculator, data input validation, and dynamic UI updates using Python and Tkinter.
  - Integrated SQLite for data storage, designing database operations to store and retrieve user grades, ensuring data integrity and enabling historical analysis.
  - Implemented user authentication and tracking, planning user login functionality to enable personalized data storage, grade history review, and performance analysis.

**Bank Simulation Program**
*C++, Makefile*                                        <u>Source Code On Demand</u> | Mar 2024 – May
  - Developed a C++ application using event-driven simulation to manage dynamic priority queues and track customer service metrics, optimizing binary heaps and queues for efficient real-time bank transactions.
  - Designed and executed unit and stress tests to ensure the accuracy, reliability, and robustness of the simulation under high transaction loads.

## ACTIVITIES AND INTERESTS

**Competitive Programming Club**                                        May 2023 - Current