

Jacob Zhu

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EDUCATION

The University of British Columbia | 4.0 CS GPA | Year 3

Vancouver, BC

BSc. in Computer Science; Software Engineering Option

Sep. 2022 – Expected May 2027

- Undergraduate Research - *Determining the Albedo of the Earth via Relative Photometry on the Moon*
- Science One enriched honours program - Arthur Whitehead Memorial Scholarship

PROJECTS

Trek | Collaborative Trip-Planning Website

Typescript, React/Redux, MongoDB, Node.js, Axios/Express.js, Jest

- Designed responsive React frontend with Mantine UI & Tailwind CSS, used Redux to dynamically update client state with polled data from backend
- Developed REST API endpoints to integrate with Amazon S3 and Atlas MongoDB, performed authentication with Auth0
- Implemented realtime collaborative rich text editor with TipTap and HocusPocus
- Hosted website using AWS ES2, set up GitHub actions for automated test execution and deployment
- Integrated MapBox, OpenAI, OSM/Photon, and other APIs using SOLID-compliant modules to integrate chatbot and map functionality

Creatables | Instruction-Sharing Community Forum

MySQL, PHP, JavaScript

- Designed a relational schema for a MySQL database from ER diagrams, implementing weak entity sets, ISA hierarchies, and normalized tables
- Implemented prepared statements, password hashes, and other basic security features, as well as integrity constraints on processed data to maintain data quality
- Integrated email-messaging and discussion functionality for increased user interaction, as well as image upload and display features

PixelPivot | Renderer for Panoramic and 360° Images

Java, JUnit, OpenGL, Swing, Git

- Built a Java application with OpenGL to convert and project 2D images onto an interactive Swing GUI
- Established user stories to divide coding tasks and guide further project development
- Employed test-driven development (TDD) philosophy to ensure modular, well-specified code

EXPERIENCE

Undergraduate Teaching Assistant

September 2023 – Present

UBC Computer Science

Vancouver, BC

- Work with over 100 students in lab sections to administer and review technical and software design problems
- Hold regular office hours to clarify course material, provide debugging support, and perform code analysis and review
- Explained programming concepts in Java including OOP, test writing, design patterns, and type hierarchies

Robotics - Build Team Lead

Sep. 2017 – June 2022

FIRST Robotics Competition, Team 6390

Surrey, BC

- Mentored and worked alongside team of 20 students for 35 - 45 hours each week during competition season
- Iteratively designed, troubleshooted, and adjusted the communication, sensors, and transmission system of 125 lb. robot
- Assessed budgeting needs and resolved scheduling and other conflicts with administration and programming teams
- Accolades: 2018 Champions at Canadian Pacific Regional, 2022 Regional Chairman's Award

TECHNICAL SKILLS

Languages: TypeScript/JavaScript, Postgres/MySQL, MongoDB, Java, C/C++, PHP, Python, HTML/CSS

Tools and Frameworks: Git, React, Redux, Mantine, Tailwind, Node.js with NVM/Yarn, jQuery, Axios, Express.js, Auth0, ESLint

Testing: Mocha, Chai, Jest, JUnit, GDB, Valgrind