

# JOEY SHI

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## TECHNICAL SKILLS

**Languages:** Python, JavaScript, TypeScript, C, C++, Bash, Scala, Java, HTML, CSS, PHP, SQL, Datalog  
**Frameworks/Libraries:** Angular, Express, Socket.IO, Flask, Numpy, Matplotlib, ScalaTest, Jasmine, PyTest  
**Tools/Technologies:** Git, Unix CLI, Vim, LaTeX, Android Studio, MATLAB, Microsoft Excel, JDBC, Docker

## EDUCATION

### University of British Columbia

Sep 2018 – May 2023

Bachelor of Science | Combined Major in Computer Science and Math

Vancouver, BC

- Cumulative GPA: 91.1%
- Dean's Honour List (2018W, 2019W, 2020W); Science Scholar (2019W)

## EXPERIENCE

### University of British Columbia

Sep 2022 – Present

MATH 100 UTA I

Vancouver, BC

- Facilitated 2 MATH 100 small class sessions during the 2022 Fall term.
- Managed assignment grading and weekly attendance for both sessions.
- Provided technical guidance for students during in-class exercises.

### Vital Mechanics Research

May 2022 – Oct 2022

Software Developer Intern

Vancouver, BC

- Researched topics in geometry processing under the supervision of Dinesh K. Pai.
- Developed a pipeline in Python for processing geometry data from DXF, glTF, and OBJ files.
- Implemented solutions for various geometry processing problems, such as point-cloud registration and boundary-edge detection for 3D meshes.

### Visier Inc.

Jan 2021 – Dec 2021

Full Stack Web Developer Intern

Vancouver, BC

- Worked in full-stack web development using tools, such as Scala and Angular.
- Implemented Angular UI components for listing and configuring hierarchical tenant content packages.
- Built a Scala backend API with a partner for reporting and correcting data issues in tenant data versions.
- Improved the studio team's overall development speed by mentoring other co-op students on debugging and traversing large code repositories.
- Wrote and fixed extensive unit test suites in ScalaTest and Jasmine.

### University of British Columbia

Jul 2020 – Dec 2020

WebWork Content Developer

Vancouver, BC

- Implemented WebWork questions in Perl for UBC calculus assignments and exams.
- Inspired the use of interactive visuals in MATH 100 WebWork questions today by creating the first set of WebWork questions that were embedded with Desmos plots.
- Collaborated with multiple professors to improve exam length, difficulty, and clarity.

## PROJECTS

### Differential Equation Solver | Python, Matplotlib, Tkinter

Dec 2019 – Present

- Implemented efficient finite difference algorithms to solve ordinary and partial differential equations.
- Designed a graphical user interface in Tkinter and added animated plots for visualizing the generated solutions.
- Built a CI/CD pipeline with PyTest, Tox, and Github Actions.
- Published the application on the Python Package Index.

### Multiplayer Browser Platformer | Angular, p5, Node, Socket.IO

Dec 2021 – Present

- Designed and deployed a real-time multiplayer browser platformer on Heroku.
- Built a backend web socket API to update and broadcast player data.
- Implemented logic for player movement, animation, 2D physics, map design, and tile collision.
- Packaged the application into a Docker container and pushed an image to the Docker Hub registry.

### Linux Desktop Environment | Arch Linux, Zsh, Vim

Mar 2021 – Present

- Configured an efficient keyboard-based tiling desktop environment from scratch using Xorg and bspwm.
- Wrote shell scripts for automating installing assets and linking dotfiles.
- Automated complex multistep desktop actions by writing shell scripts for sxhkd hotkeys.
- Researched and documented how to set up network, bluetooth, speakers, and display monitors in the Github repo.