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, ScalaTest, Jasmine, PyTest
Tools/Technologies: Git, Unix CLI, Vim, LaTeX, Android Studio, MATLAB, Microsoft Excel, Oracle, 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
Teaching Assistant | Department of Mathematics   *Vancouver, BC*
- Faciliated 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 | Department of Mathematics   *Vancouver, BC*
- Implemented WeBWorK questions in Perl for UBC calculus assignments and exams.
- Inspired the adoption of interactive visuals in MATH 100 WeBWorK questions by creating the first set of WeBWorK questions with embedded Desmos plots.
- Collaborated with math professors to determine changes that would improve fairness and clarity in exam questions.

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.

Linux Desktop Environment | *Arch Linux, Zsh, Vim*   Mar 2021 – Present
- Configured an efficient keyboard-based tiling desktop environment from scratch with Xorg and BSPWM.
- Wrote shell scripts for managing program launchers, taskbar status icons, bluetooth connections, and dotfile softlinks.
- Documented installation instructions, configuration options, and package dependencies inside Github repository.

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.