Shirley Zhang
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Education

- **Stanford University** — Palo Alto, CA
  Master of Science in Civil & Environmental Engineering; ***GPA: 3.96/4.0*** — *Expected Apr. 2024*
  - **Courses:** Infra Project Development & Delivery, Data Analysis for Urban Systems, Deep Multi-task & Meta Learning, Mining Massive Datasets, AI Applications in AEC, Product Management, Urban Systems Engineering
- **University of Toronto** — Toronto, Canada
  Bachelor of Applied Science in Civil Engineering, Minor in Artificial Intelligence; ***GPA: 3.95/4.0*** — *2017 - 2022*
  - **Courses:** Steel & Timber Design, Reinforced Concrete Design, Structural Dynamics, Structural Analysis, Data Structures, Software Engineering, Intro to ML, Applied Deep Learning, Intro to AI, Data Science for Civil Eng.

Work Experience

- **Digital Engineering Intern** — Los Angeles, CA
  Arup — *Jun 2023 – Aug 2023*
  - Developed tools and actionable metrics to advance digital design delivery on the BART Silicon Valley megaproject.
  - Worked with bridge engineers to deploy data-driven workflows that automate & accelerate the post-processing of FEA models; created Python, SQL and Grasshopper scripts to manage and visualize >1M rows of analysis results.
  - Designed a holistic framework for leadership to measure whether digital initiatives are delivering business results.
- **Graduate Research Assistant** — Stanford, CA
  Stanford University, Our Communities Our Bay project — *Apr 2023 – Jun 2023*
  - Studied the community impact of climate hazards and implemented technologies to protect the health of families.
  - Developed R scripts to collect and analyze real-time air quality sensor and sleep tracker data, then created a Python program to summarize and distribute personalized research findings and recommendations to study participants.
- **Data Science Engineering Intern** — Stanford, CA
  Stanford University, Energy Operations Department — *Oct 2022 – Present*
  - Build data pipelines using data mining and ML techniques to manage energy needs in >1000 buildings on campus.
  - Develop Python and SQL applications to monitor equipment performance, forecast loads, and manage databases.
  - Perform exploratory data analysis, data wrangling, and statistical analysis to extract insights for plant engineers.
- **Civil Engineering Intern** — Toronto, Canada
  Terrestrial Energy Inc. — *Sept 2020 – Aug 2022*
  - Contributed to the development of the Reactor Auxiliary Building (RAB) layout, conducted seismic analysis of RAB and the reactor vessel, and designed the reactor vessel support structure and other safety-related structures.
  - Performed aircraft impact analysis by researching methodologies and developing Python scripts that interfaces with structural design software through an API; presented novel findings at a global nuclear conference.
- **Structural Engineering Intern** — Toronto, Canada
  Arup — *Jun 2020 – July 2020*
  - Designed retrofit strategies to mitigate damages from crowd-induced floor deflection for 1,700-seat conference room.
  - Developed computational modules for a C# application that automates engineering calculations and streamlines iterative design processes via dynamically generated web APIs to accelerate project delivery by 10%.
- **Software Developer Intern** — Toronto, Canada
  Rocscience Inc. — *May 2019 – Aug 2019*
  - Researched & implemented computational features for a 3D geotechnical analysis, design, & visualization software.
  - Designed backend and UI using C++ to compute seismic-induced foundation settlement and compare ground improvement techniques, leading to 2 successful software updates reaching hundreds of engineers / users in industry.

Skills

- **Programming**: Python, MATLAB, C++, SQL, R, C#, Spark, HTML/CSS, JavaScript, Java, Excel VBA
- **Analysis & Modelling**: SAP2000, ETABS, Midas Civil, GSA, AutoCAD, Revit, SketchUp, Abacus, ANSYS, ArcGIS