

Shengwen (Stella) Ma

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EDUCATION

Master of Software Engineering , University of California, Irvine	Dec. 2023
Master of Science, Botany , University of Chinese Academy of Science, China	Jun. 2010
Bachelor of Science , Biological Science, Liaoning Normal University, China	Jun. 2007

SKILLS

Programming Languages: Python, SQL, C++, Java

Tools: IntelliJ Idea, Visual Studio, PyCharm, MySQL, Oracle Live SQL, Keras/TensorFlow, Jupyter Notebook, Numpy, Matplotlib, Junit5, Mockito, TravisCI, Git/Github, Tmux, Flask, Figma, Excel

Competence: Data Structures and Algorithms, Concurrent Programming, Network Programming, Web Programming, Testing and Debugging, Security, Deep Learning, Windows OS, Mac OS, Linux OS

EXPERIENCE

Research Assistant, University of California, Irvine Apr. 2018 – Present

- Trained Convolutional Neural Network(CNN) with Keras/TensorFlow to solve regression and classification problems for elementary particle detection, achieved a 40% performance improvement with traditional methods.
- Evaluated CNN inputs and performances by visualizing them with plotting library Matplotlib in Jupyter Notebook.
- Converted concise data collected by particle detector into HDF5 file with Numpy library for CNN training.

Part-time Lecturer(remote), Molecular Biology, Beijing Union University Oct. 2019 – Dec. 2020

Chess Coach, University Hills, University of California, Irvine Dec. 2016 – Apr. 2018

Stay-at-home Mom, Como Student Community Co-op, U of M, Minneapolis Aug. 2012 – Jun. 2016

- Volunteered as community events host and apartment building coordinator

Lab Manager and Analyst, Botanical Institute, Chinese Academy of Science Jul. 2010 – Jul. 2012

- Customized a budget template in Excel for a \$3,670,000 grant of botanical scientific research subcontracted with twenty-three collaborative labs, giving out opinions as a consultant in specialized software development.
- Transferred experimental data of rice deficiency selection and GMO into MySQL system, making it maintainable by procedural language and APIs to access through both command-line interface and GUI.

Research Assistant, University of Chinese Academy of Science Sep. 2007– Jul. 2010

- Crafted 4000+ 3µm permanent slices with microtome and captured mass data with Metamorph for analysis.
- Measured genome size of *Ph. Americana* with Computer-based Image Cytometry and published in the database.
- Performed in-situ hybridization of *Ph. Americana*'s genome and built its evolutionary tree (binary tree) with C++.

PROJECTS

<https://github.com/StellaMaUCI/>

Bank App: Security – Python, Flask Mar. 2022 – Jun. 2022

- Created a basic bank web app with Flask framework that allows customers to register and maintain accounts.
- Designed weaknesses and vulnerabilities intentionally aligned with the CWE list, exploited, then fixed them.

Teammates: Testing and Debugging – Java, Junit, Mocking, Static Analysis Dec. 2021– Feb. 2022

- Designed Finite-State Model and added corresponding functional test cases, making it integrated into the project.
- Inserted Junit component tests and mocking tests with Mockito increasing coding coverage in Java files.
- Established continuous integration with TravisCI to sync projects and test codes in minutes.
- Analyzed statically with PMD/CheckStyle to find design deficiencies and fixed codes by making them testable.

Network Application – Java Sep. 2021– Dec. 2021

- Developed a client-server model of socket communication on top of TCP and UDP.
- Resolved unreliability and data size limit of UDP by modifying break-down data chunks and implementing additional acknowledgment messages between client and server to realize reliable network file server.

Concurrency Testing and Debugging – Java Sep. 2021– Dec. 2021

- Identified thread safe/unsafe code by reading programs and corrected thread unsafe conditions.
- Made single-threaded web server and word counter multi-threaded through Executor's framework to handle multiple requests simultaneously and ensure thread safety.