Sijia (Scarlett) Chen

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EDUCATION

University of Michigan - Ann Arbor   **May 2025**
Bachelor of Science in Computer Science and Mathematics
    GPA: 4.0/4.0
    Awards: James B. Angell Scholar, William J. Branstrom Award (ranked top 5% in school)

SKILLS

- Programming Skills: C++/C, Python, Java, JavaScript, SQL, HTML, CSS, Latex, ARM assembly.
- Tools: GitHub, Matlab, Xcode, VS Code, Visual Studio, R Studio, Jupyter Notebook, Tableau.
- Languages: English, Mandarin.

WORK EXPERIENCE

Dana Incorporated   **Jun 2023 - Aug 2023**
Software Intern   *Novi, Michigan*
- Executed software validation and regression testing for electrical vehicle sensors, using tools such as Typhoon HiL and Vector CANape to simulate the behavior of power electronics.
- Compiled software and system requirements for Coolant Temperature and HVDC Voltage, and reviewed hardware and software input connections.
- Designed test cases for more than 10 features and developed Python scripts to perform software testing automatically, according to the ASPICE standards.
- Improved the performance of Electrical Control Units (ECU) and reduced manufacturing defects by diagnosing issues and writing software testing reports.

CreditSpectrum Corp   **Jun 2022 - Aug 2022**
Software Engineer Intern   *Remote*
- Implemented the backend infrastructure for Accidental Structurer Game (ASG) using C++ and Python to simulate how structuring can be achieved without asset information, which allows risk officers to practice and learn structural finance knowledges online.
- Developed a Graphical User Interface using Visual Studios, which established the base GUI framework for the team to build upon.
- Computed ratings for ABS bonds of different classes, following Back-of-the-Envelope (BOE) method.
- Proposed and designed game roadmap, success metrics, and project plan together with the team.

PROJECT EXPERIENCE

Web Development Project   **Aug 2023 - Present**
- Employed Python, JavaScript, and SQL to develop a simplified version of Instagram, which supports features such as infinite scroll, double click to like, and login with sessions.
- Dynamically created web pages and performed URL routing using Python Flask library, and designed Jinja2 templates for all pages using HTML and CSS.
- Implemented a client application in JavaScript that runs in the browser, which makes asynchronous calls to the REST API and modifies the DOM tree using React library.
- Built a SQL database to store user data, including one-way hashed password and uploaded files.

Game Designs in Different Programming Languages   **Sep 2021 - Apr 2023**
- Designed a C++ program to emulate a basic relational database with an interface based on a subset of a standard query language, making use of multiple interacting data structures.
- Implemented a console-operated *Elevators* game with a complicated structure and multiple corresponding AI algorithms that solve the game with various strategies, using C++.
- Built a program that simulates the Euchre Card Game, supporting both AI players and Human players via polymorphism, in C++.
- Programmed a *Bouncing Ball* game with an interactive interface that allows users to control the racket, using Python.

RESEARCH

Research on Antibiotics Administration   **May 2022 - Jun 2023**
- Constructed confidence intervals for the proportion of inappropriate antibiotic usage across five surgical specialties, aiming at providing improvement suggestions to reduce surgical site infections (SSI).
- Filtered the data from Michigan Medicine using R-Studio to exclude rows with missing data and categorized data based on surgical procedures.
- Established multiple regression models to validate the effectiveness of Michigan Medicine Antimicrobial Stewardship Program (2010).