

# Yan Sun

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## EDUCATION

**University of Michigan**, Ann Arbor, Michigan, United States

*Bachelor of Science, Computer Science, College of Engineering*

*Relevant Coursework:* Web Systems, Database Management Systems, Compiler Construction

*Cumulative GPA:* 3.83/4.0

*Sep 2019-May 2021*

**UM-SJTU Joint Institute**, Shanghai Jiao Tong University, Shanghai, China

*Completed 82 credits of general education curriculum as a computer engineer*

*Sep 2017-Aug 2019*

## RESEARCH PROJECT

**General Motors Heat Sink Design Project**, University of Michigan

*Jan 2020-Present*

- Working in a team of seven students with diverse backgrounds to deliver an end to end program with Python that can automatically generate heat sink design under constraints of thermal performances, dimensions, weights, and manufacturability to help GM make the design process more efficient and explore non-tradition designs of heat sinks
- Applying space colonization algorithm to reduce the parameters needed to represent a 3D heat sink design and using the genetic algorithm as a gradient-free approach to optimize these parameters to improve generated heat sink designs

**Multimodal Monitoring of Driver's Alertness**, University of Michigan

*Dec 2019-Present*

- Simulating the driving process and collected data of driving performance and facial conditions under different distractors
- Using Python with Open Face library to analyze the data of drivers' facial reaction with different distractors and with Seaborn library to visualize the statistical data

## PROJECT

**Photo Sharing Social Networking Service**

- Built posts, comments and likes functions with React/JS and Flask REST API to update the page contents after users' operations without refreshing
- Supported login, logout, create accounts and delete accounts functions with password encrypted by hash algorithms
- Supported infinite scroll and the browser history when with React and History API to offer smooth user experiences
- Designed the templates with HTML, Jinja, and CSS to make the website more intuitive and user-friendly

**Social Media Database System**

- Designed the schema of the database system of a social media platform
- Built several efficient functions of the database, such as finding users with specific first names, finding nearby users, and friends recommendation based on the existed friendship, hobbies, and locations with JDBC

**Compiler of Object-Oriented Language Decaf**

- Built a preprocessor to handle comments and macros and a scanner to identify tokens with lex and regular expression
- Used shift/reduce parsing method to generate abstract syntax trees based on the tokens matched
- Implemented scope checking by building symbol tables and type checking by applying inference rules
- Currently working on IR generation, IR optimization, code generation and optimization process of the compiler

**Log Management System**

- Provided efficient time, keyword and category search functions using Binary Search Tree
- Implemented Excerpt List able to efficiently append, search and modify previous log search results with Hash Table

## EXPERIENCE

**Innovation and Entrepreneurship Club**, Shanghai Jiao Tong University

*Co-Founder; Minister of Human Resource Department*

*June 2018-June 2019*

- Resolved the problem of inefficiency in daily operations such as weekly meetings, online collaboration, and finance by adapting enterprise communication and collaboration platform Ding Talk
- Managed the information of around 1000 club members efficiently with a CRM platform
- Organized first entrepreneurship camp on campus and successfully attracted 55 students and generated ten project teams

**UM-SJTU Joint Institute TA Group**, Shanghai Jiao Tong University

*Teaching Assistant of the Course Honor Math III*

*May 2019-Aug 2019*

*Teaching Assistant of the Course Calculus I*

*Sep 2018-Dec 2018*

- Conducted Recitation Class for more than 180 students and held Office Hour in English weekly
- Received positive feedbacks and rewarded as "Outstanding Teaching Assistant" based on students' evaluations

## SKILLS

**Languages:** C, C++, Python, MATLAB, Java, JavaScript, HTML, CSS, SQL

**Tools:** Git, Terminal, Vim, MySQL, SQLite, XCode, VS Code, PyCharm, Android Studio

**Frameworks:** Flask API, React/JS, Jinja, OpenGL GLUT