

## EDUCATION

---

### University of California San Diego

La Jolla, CA

M.S. in Computer Science and Engineering, 2022-2024 (expected)

Planned Thesis: "Usability analysis of autocomplete", Advised by Michael Coblenz

### University of Wisconsin-Madison

Madison, WI

B.S. in Computer Science, GPA: 4.00/4.00, Graduated 2021 with distinction in the Major

## RESEARCH EXPERIENCE

---

### Graduate student researcher — University of California San Diego

Jan 2023–Sept 2023

- Worked with Michael Coblenz on the usability analysis of autocomplete
- Designed and executed an experiment with 32 participants using an eye tracker to evaluate the costs and benefits of IDE-based autocomplete features to programmers who use an unfamiliar API; analyzed data using JMP; and wrote a paper for the study.
- Found that participants who used autocomplete learned more about the API while spending less time reading the documentation; Found autocomplete did not significantly reduce the number of keystrokes required to finish tasks
- Acquired fundamental skills in conducting empirical research studies and learned various methods for handling and understanding the implications of eye-tracking data.
- Successfully designed an experiment with well-formed hypotheses and a comprehensive knowledge test suite to accurately capture the benefits and costs of autocomplete. Additionally, designed procedures and produced scripts to analyze data from various sources, including a substantial amount of data from a consumer-level eye tracker.

### Usability of PL course project — University of California San Diego

Sept 2022–Dec 2022

- Worked on investigating whether Python Type Hints are helpful for competitive programmers(CP).
- Designed and executed the experiment with 4 participants;
- Did not find Python type hints to be significantly more useful for competitive programming in terms of task completion time and debugging time. Survey results indicate that programmers also dislike type hints and autocomplete suggestions because they are annoying.

### HCI research course project — University of California San Diego

Sept 2023–Dec 2023

- Investigating whether an avatar appearing in the ChatGPT interface would help create a better communication environment between humans and machines, particularly in terms of alleviating loneliness.

### Research Assistant — Illinois Institute of Technology

Jan 2019–May 2019

- Modified POW (Bitcoin) and POS (EOSIO) blockchain source code for execution on a blockchain emulator, facilitating performance measurement for researchers.

## PUBLICATIONS

---

- Shaokang Jiang and Michael Coblenz. **An Analysis of the Costs and Benefits of Autocomplete in IDEs**. In review, ACM International Symposium on Foundations of Software Engineering (FSE 2024)

## TEACHING EXPERIENCE

---

### Teaching Assistant — University of California San Diego

Sept 2023–now

- Sole TA worked with Michael Coblenz for the usability of the programming language course (CSE291) for one quarter.
- Had discussions with the professor about the content of this course, graded assignments, led some discussions during the main lecture covering specific course content, and provided personalized advice to individual students.
- Offered guidance on group projects covering a variety of topics in the usability of programming language or software engineering. Conducted office hours to assist students and mined for insights while discussing with them.

## Teaching Assistant — University of California San Diego

Jan 2023–Jun 2023

- Major TA worked with Soohyun Liao for Java and data structure courses (DSC30) for two quarters.
- Proposed, designed, and developed entirely new and innovative assignments and projects for the entire course, most of which had never been used elsewhere, in collaboration with the professor. Graded students' assignments. Collaborated with team members to discuss and refine the content of the course.
- Held office hours and conducted all discussion sections to assist students in gaining a deeper understanding of the course topics. Taught some additional but not required concepts during discussion sections.

## Volunteer Tutor — University of Wisconsin-Madison

Jan 2021–May 2021

- Help students with their coursework related to computer science at computer science learning center.

## Teaching Assistant — Illinois Institute of Technology

Aug 2018–May 2019

- Instructed students in lab sessions of Java courses and held office hours to help students best understand class content
- Checked their homework regularly and had discussions with the professor and collaborated with team members about ways to improve this course and solve the major problems of students.

## Student Assistant — Illinois Institute of Technology

Jan 2019–May 2019

- Tutoring and teaching students with their coursework related to computer science in the university's academic resource center

## PROJECTS

---

See full list of projects on [shaokangjiang.github.io/projects/](https://shaokangjiang.github.io/projects/) or on my Github

### An economical computer (Node.js/GAMS, 2022)

- Automatically scrape computer components' performance data weekly and use optimization to find the best configuration

### Covid data report (Node.js, 2021)

- Automatically scrape covid data from various official sites and pushed filtered results to subscribed users

### Energy Simulator (HTML/WebGL/Java, 2020)

- Decision-making by solving linear problem and simulating energy running website/Java GUI with 3D representation

### Seat Arrangement Problem (GAMS/Cplex, 2019)

- Decision-making script that solves a problem about how to arrange seats in an imaginary library

### Wise grader (Javascript, 2021)

- A program aids quicker grading by suggesting scores based on length, N-gram analysis, and topic relevance for dictation questions.

### A Financial Web App (HTML/ejs/Worker, 2020)

- Led group of 4 people to make financial teaching website with useful tools for Capital One, e.g. yearly budgeting tool and quizzes

### Financial Organization App (RN/NLP.js, 2020)

- An app to organize expense and income with voice interaction on locally NLU for Capital One

### HateFate Website (HTML/Jsp/SQL, 2017)

- Led group of 4 people to make a website containing basic functions, e.g. login, signup with email verification, pairing different people

## SKILLS

---

- **Coding:** Java, Python, C, C++, HTML/CSS/Javascript, Matlab, Jsp, Git, L<sup>A</sup>T<sub>E</sub>X, GAMS, Markdown, Haskell, React, Expo, ejs
- **Technologies/Environment:** Windows, Linux, SQL, Github, Cloudflare, Azure, JIRA, Trello, DevOps, Agility, JMP

## SCHOLARSHIPS AND AWARDS

---

- Graduated from UW-Madison with distinction in the Major Spring 2021
- Dean's List of College of Letters & Science at UW-Madison Fall 2019–Spring 2021
- Dean's List of College of Science at IIT Fall 2017–Spring 2019
- International Scholarship at IIT Fall 2017–Spring 2019
- Member of Upsilon Pi Epsilon at IIT