

# Yi-Ju Tsai

## Senior Student

A passionate and self-motivated person who is fluent in both Mandarin and English. Currently looking for an internship and also planning to apply for the graduate school.



## Education

2018-09 -  
2022-03

### Bachelor of Science: Computer Science

*University of California - Irvine, CA*

**Overall GPA: 3.78/4, Major GPA: 3.82/4**, Dean's Honor List

- Relevant Coursework Completed: Calculus, Discrete Math for CS, Linear Algebra, Data Structure and Algorithm, Computer Organization, Software Engineering, Information Retrieval, Artificial Intelligence, Data Mining, HCI, Computer Networks, System Design, Information Visualization



## Projects

### Search Engine

- Built the inverted index from the tokenizer where the tokenizer has the functionality of removing stop words, identifying tokens using RegEx.
- Wrote a search engine that's capable of handling huge number of documents/web pages and returning the top 5 relevant pages (URLs) in 200ms based on the tf-idf calculation and cosine similarity measure.
- Designed the GUI for our search engine, and facilitated team meetings to communicate project status

### Othello AI (C++) / Checkers AI (Python)

- Wrote AIs that were capable to choose reasonable moves by the tree-based, MCTS, UCB algorithm.
- Applied optimizations to AIs, including strengthening evaluation functions and did simulation to modify functions and boosting the win rate.
- Analyzed how well the program works using complexity measurement.

### Networked Client/Server Application

- Wrote the client and server programs which can run as two separate processes which are invoked by the user in a shell
- Applied the knowledge of socket and connections to complete the program that can receive the query and respond with a message containing the requested information

### Multi-threaded File Server

- Wrote a concurrent servers with C which can manage the multiple requests and perform file operations at the same time.

### Connect Four (with Graphical User Interface)

- Applied the architectural pattern Model-View-Controller (MVC) to



## Contact

### Address

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## Skills

### Python

Excellent

### C/C++ programming

Very Good

### Algorithm implementation

Very Good

### MySQL

Very Good

### R

Good

### A/B Testing

Good

### Excel

Good

### Social media proficiency

Excellent

- separates an application into three logical components
- Design the board which can deal with various sizes, used the modules in Python, and wrote programs that are made up of more than one module



## Relevant Experience

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- Demonstrated proficiency with algorithms and data structures through implementations of linked lists, hash tables, AVL trees, priority queues, BFS, DFS etc.
- Utilized SQL to create a database as well as code procedures, views, triggers, and queries.
- Trained a Random Forest/Neural Network model through optimizing the hyperparameters such as max depth, min split, hidden layers, max iteration, and activation function.



## Work History

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2020-08 -  
2020-11

### Computer Graphic Design Intern

*National Cheng Kung University, Tainan, Taiwan*

- Independently responsible for poster design of public speeches and announcements and create visual concepts and increased engagement rate by 20%
- Creating images and layouts by hand or using design software
- Used MS Excel to process large number of student data and analyze trends

2021-01 -  
2021-03

### Undergraduate Learning Assistant

*UC Irvine, Irvine, CA*

- Held weekly office hours answering students' questions.
- Cooperated with lead professor to create exam for students.
- Participated in lectures that had 150+ people and discussed course topics with them

2020-03 -  
2020-06

### Lab Tutor

*UC Irvine, Irvine, CA*

- Monitored lab activity with TA for up to 50 students
- Performed basic software troubleshooting.
- Assisted students to debug, guided students to explore and solve problems from their existing code



## Extracurricular Activities

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**Member of Child Service Team - Qigu District, Tainan City**

- Accompanying children from disadvantaged families in after-school program
- Participating in educating the child who lack educational resources due to transportation in winter/summer vacation
- Utilized simple props and objects in nature to teach children about the science



## Leadership

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*Chief Marketing Officer - UC Irvine, Taiwan National Organization*

*Summer 2019 - winter 2021*

- Hosted the events which had more than 100 participants.
- Headed the marketing strategy, graphic design, social media management.
- Member recruitment.