

# Shaoyu Tu

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## EDUCATION

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### University of California, Riverside

B.S. in Computer Science

Minor in Mathematics

Sep 2019 - March 2022

GPA: 3.9/4.0

## RESEARCH EXPERIENCE

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### Artificial Intelligence Chatbot Project

June 2022 - Present

- Worked on Front-End Development tasks using ReactJS that improved and benefited the current code for SmartBot360 startup.
- Programmed in javascript using ReactJS to parse HTML from clipboard and keeping only the "a" tags and keywords.
- Analyzed and debugged code that did not work as intended and developed a fix for the bugs.

### Convolutional Neural Network for Object Detection

February 2022 - Present

- Researched 4+ of the current state-of-the-art methods for object detection neural network strategies such as YOLO, and YOLO3.
- Worked with CARLA Simulator to generate images that allows for unlimited image creation for object detection.
- Collaborated with fellow peers interested in the machine learning field to better understand how object detection neural networks are built.

## CODE EXPERIENCE

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### Data Science Institute: Data Science Challenge with LLNL

June 2022 - July 2022

- Collaborated in teams of 4 to tackle the problem of properly identifying ligands that will bind to SARS-COV-2 receptors through the use of machine learning methods.
- Programmed using python to help data preprocessing, standardizing datasets, and classifying the ligand data using 10 unique classifiers.
- Analyzed real datasets that consisted of 2000+ samples and 200+ features.
- Learned how to properly assess data with machine learning along with the breakdown of 3D-CNNs, and achieved to maximize every performance metric up to 82%+
- Presented our final findings to the staff and fellow peers who were also a part of the program.

### Skoruz Technologies: Internship

June 2019 - August 2020

- Learned and able to store and retrieve data within MySQL and Oracle SQL servers.
- Created a python script in directing incoming data from servers into the Hive database with the help of Apache NiFi.
- Collaborated with 3 other fellow interns in a change data capture project with good results.
- Researched and programmed a python script that converts python data types to available data types in the Hive database.

## PROJECTS

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### Arbitrage Bot

July 2022 - Present

- Collaborated in building an automatic crypto trading bot and implemented 3+ algorithms in determining what type of future trades should be made.
- Developed in python and used binance trading apis to retrieve live market data that is necessary for algorithm calculations.
- Researched 3+ indicators that are built in the algorithm for live trading.

### Full Stack Search Engine

April 2022 - June 2022

- Collaborated with 4 other classmates to build a search engine that also utilized crawled data from websites.
- Crawled over 3GB of data to be used as part of the search engine results.
- Assisted in developing the Rest Api from Java Spring Boot framework.
- Developed the front-end UI with the help of Svelte Kit javascript framework that included an animated logo along with 15 searched results displayed and a choice of results listed from either pagerank indexing or the built-in BM25 indexing.

## LEADERSHIP

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### US Taekwondo Chino Hills: Teaching Assistant

Jun 2012 - Sept 2015

- Instructed students through complex forms and techniques in the art of Taekwondo.
- Led class warm-ups and assisted with activities with appropriate equipment needed.
- Communicated efficiently with parents regarding their child's progress in both Mandarin and English.

## AWARDS & PRESENTATIONS

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- **DSC with LLNL Presentation:** [Predicting Ligand Binding](#)
- **SDM'22 Travel Award:** Awarded the SIAM Data Mining Conference Travel Award by the National Science Foundation (NSF)

## TECHNICAL SKILLS

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**Programming Languages:** C++, Python, Java, MATLAB, HTML, CSS

**Databases:** PostgreSQL, MySQL, MongoDB

**Developer Tools:** Visual Studio Code, Vim, ERD

**Libraries:** C++ STL, Pandas, Numpy, Scikit-Learn, BeautifulSoup, Praw, ReactJS

## LANGUAGE

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- English - Fluent
- Mandarin Chinese - Fluent