Shuhao Gao

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EDUCATION

University of California, Davis (UC Davis) Davis, CA
Bachelor of Science in Computer Science & Applied Mathematics, Bachelor of Arts in Economics Sept. 2021-March 2025
Overall GPA: 3.8/4.0
Achievements: Dean's Honor List (Winter 2024); Member, Phi Beta Kappa (Apr. 2024)
Selected Coursework: Data Structures, Algorithms, & Programming; Algorithm Design & Analysis; Special Topics in Computer Science: Artificial Intelligence; Special Topics in Computer Science: Databases; Operating Systems & System Programming.

RESEARCH EXPERIENCE

Google MT3 Project, UC Davis Davis, CA
Research Assistant & Team Leader, Supervisor: Prof. Joshua McCoy Apr. 2024-Jan. 2025
- Utilized TCN, Vision Mamba, and Vision Transformer models to enhance the performance of Google's MT3 model, specifically aiming to increase the F1 score and improve the accuracy of audio-to-MIDI conversion. This approach builds on the original Transformer architecture, laying the groundwork for future improvements in model precision.
- Organized a 6-person group and led weekly group meetings to coordinate team efforts, track progress, and delegate tasks. Provided regular updates to the professor, presenting project milestones and ensuring alignment with academic expectations.

Charity Blockchain System Project, Exploratory Systems Lab (ExpoLab), UC Davis Davis, CA
Research Assistant & Team Leader, Supervisor: Prof. Mohammad Sadoghi Jan. 2024-Jan. 2025
- Leveraged ReactJs, ExpressJs, and ResilientDB to build the Charity Blockchain System, efficiently handling a user base expected to exceed 1,000 to donate and receive money.
- Led a 4-person team, organizing group meetings, making plans, distributing tasks, providing solutions for team members' feedback, mediating conflicts, enlightening team members, and reporting the progress to our supervisor.

Sentiment-to-Stocks Project Remote
Research Assistant, Supervisor: Prof. Patrick Houlihan, Columbia University Sept. 2023-Dec. 2023
- Employed an LSTM model to predict stock prices and analyze news sentiment, identifying daily stock market trends.
- Enhanced the BERT model for sentiment analysis, achieving a prediction accuracy of 69% for stock market fluctuations, outperforming convolutional neural networks (CNN) by 8.6%.
- Applied economic principles to explain stock prediction methods and provide rational insights into stock trends, examining the relationship between market sentiment and price movements.
- Demonstrated the practical application of combining deep learning and economic theory to improve stock market prediction accuracy.

PROFESSIONAL EXPERIENCE

UC Irvine, Irvine, CA Remote
Software Developer & AI Calculus Grader, Supervisor: Prof. Yifeng Yu Sept. 2024-Jan. 2025
- Utilized OCR technology to recognize handwritten calculus answers and convert them into mathematical symbols.
- Integrated ChatGPT API to learn the grading rubric used by math TAs for calculus exams.
- Compared the AI grading results with human grading to evaluate accuracy and effectiveness.
- Expected to improve the learning experience of 2,000 calculus students per quarter.

A Round Entertainment, Jersey City, NJ Remote
Software Engineer, Front-end, Department of JOOPI Jun. 2024-Aug. 2024
- Conceptualized and implemented a new Help Center feature using JavaScript and CSS in Visual Studio Code, allowing users to easily find solutions to common issues and usage guides. This significantly improved user satisfaction and enhanced customer support efficiency.
- Analyzed user feedback to redesign the dating app's user interface using a Lo-fi portfolio in Figma, and implemented the design with JavaScript and CSS in Visual Studio Code. This redesign enabled users to navigate and utilize the app's features more intuitively, enhancing user experience and engagement.

UC Davis Davis, CA
Math Tutor, Prof. Luze Xu's Introduction to Abstract Mathematics Class Sept. 2022-Dec. 2022
- Monitored and optimized teaching progression to facilitate 60 students' comprehension of abstract mathematics.
- Collaborated with the professor to identify and resolve teaching challenges, thereby enhancing the overall quality of instruction.
- Addressed students' inquiries and difficulties in abstract mathematics, providing immediate solutions and reporting persistent confusions to the professor for further clarification.

SELECTED PROJECTS

Charity Blockchain System, UC Davis Davis, CA
Team Leader Sept. 2023-Jan. 2025
- Developed a secure authentication system with encryption to protect user credentials while building a blockchain-based charity platform using ReactJS, ExpressJS, and ResilientDB, efficiently supporting over 10,000 users for secure donations and fund distribution.

- Implemented backend integration with MetaMask for facilitating donations in Ethereum (ETH), ensuring the confidentiality and integrity of user data through secure transactions.

Producer and User Interface: Survival (2D Action-adventure Game), UC Davis Davis, CA
Team Leader Apr. 2023-Jun. 2023

- Initiated and facilitated comprehensive discussions, leading a 5-person team in the modification of critical game elements, including movement/physics, user interface, animation, and audio.
- Conceptualized and implemented a user-friendly interface system for both the in-game character and in-game monsters, a key contribution that notably improved gameplay dynamics.

PUBLICATION

Sirui He. Qianhao Meng. Bingqian Chen. Xuekun Jiang. **Shuhao Gao**. Sentiment to Stocks: Rule-Based and Deep Learning Sentiment Analysis for LSTM-Driven Stock Prediction. ICMRED 2024. *Advances in Economics, Management, and Political Sciences*. ISSN 2754-1169. (**Accepted**)

SKILLS

Technical Skills: Programming Languages: C, C++, Python, Java, C#, JavaScript, CSS, SQL. **Frameworks**: PyTorch, BERT. **Database**: MySQL. **Platforms**: Visual Studio Code, Eclipse, PyCharm.
Languages: Chinese (Native), English (Fluent).