Jasper Tan

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EDUCATION

The University of Texas at Austin Austin, TX
Bachelor of Science May 2025
Major in Electrical and Computer Engineering; Minor in Business Administration
Cumulative GPA: 3.84/4.0
Relevant Coursework: Reinforcement Learning; Computer Vision; OS; Probability; Algorithms; SWE Lab; DS Lab; Matrices

TECHNICAL EXPERIENCE

University of Texas at Austin - *Activity Recognition Researcher*; Austin, TX Aug 2023 - Present
- Advancing a novel detection model incorporating feature fusion for acoustic and inertial classification in Python
- Enhancing audio data quality through pyannote.audio speaker diarization and visualizing data through Matplotlib
- Exploring various model architectures (YAMNet, MobileNetV1) trained on Google AudioSet to classify sound data

FirstParty - *Data Engineering Intern*; New York, NY Jun 2023 – Present
- Developing Python scripts in AWS SageMaker leveraging GPT3 Text Embeddings models to compute string similarities
- Leveraging cosine similarities and Levenshtein distance algorithms to generate confidence scores for data stored in S3
- Spearheading the implementation of Generalized Ensemble Weight calculations with NumPy to fine-tune the algorithm
- Employing advanced unit testing methodologies and object-oriented programming to design automated data ingestion applications and queries integrated with AWS RDS and PostgreSQL to manage Web Scraped Data in Pandas DataFrames

Texas Spacecraft Laboratory - *Command and Data Handling Researcher*; Austin, TX Aug 2022 – Jun 2023
- Implemented a GPS and EPS interface in C/C++ on an I2C bus to assess the relative pose estimate of a target in space
- Conducted system testing in a virtual machine for 2+ satellite designs to compete in a NASA spacecraft competition
- Formalized 5+ satellite configurations to optimize position and image processing using a fully connected neural network

Rutgers University - *Image Processing Intern*; New Brunswick, NJ Jun 2019 – Aug 2019
- Applied MATLAB scripts in a laboratory environment to conduct a comprehensive analysis of specific adhesion points
- Employed advanced processing techniques on images of fluorescent neurons generating precise FRET-corrected images
- Evaluated the use of Vinculin Tension Sensor for mechanotransduction in cultured cortical neurons from FRET images

PROJECTS

Fin.dec Oct 2023
- Deployed a web app for personalized investment strategy optimization with a Python-based mathematical model
- Designed a user interface in Figma, and implemented it with HTML/CSS, while storing user data on Google Cloud
- Accelerated data visualization with web development frameworks to create a dynamic interface: React.js and Flask

APL Catalog Management System Apr 2023
- Implemented a backend database and management system with Java and an intuitive front-end GUI with FXML and CSS
- Employed socket programming, observers, and multi-threading techniques to facilitate client-server communication
- Leveraged MongoDB to manage item details ensuring smooth data exchanges and continuous database updates
- Innovated custom encryption using salting and MD5 hashing for the security of accounts, enabling multi-device login

Optiver Ready Trader Go Mar 2023
- Developed a high-frequency trading algorithm in Python to compete against 1056 teams in a head-to-head competition
- Engaged in multiple rounds against trading algorithms to generate a max net profit of $12,000 in an OPTI-ETF market
- Utilized logging techniques to assess various algorithms implemented in real-world markets further optimizing trades

Conway's Game of Life Agent Mar 2023
- Trained a TensorFlow Agent to compete in a Reinforcement Learning Competition for the UT ML & Data Science Club
- Deployed a custom environment, Deep Q Network training loop, and weighted rewards to optimize actions
- Fine-tuned strategy by determining the efficacy of various training techniques to compare against the existing model

SKILLS & INTERESTS

Technical Skills: Python, C/C++, Java, JavaScript, Linux, Git, JSX, React.js, PyTorch, Flask, AWS, Figma, HTML/CSS, SQL
Awards: Haliburton Stem Scholarship, IEEE UT Austin Branch Membership Scholarship, AP Scholar with Distinction
Interests: Ultimate frisbee, Spike ball, Photography, Climbing, Biking, Cooking, Human Signals and ML Research