Jiarui Liu

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Education

Columbia University Expected Dec 2022
Master of Science in Computer Science | GPA: 3.75 *New York, NY*

- Concentration in Machine Learning.
- Coursework: Computer Networks, Databases, Software as a Service, Cloud Computing, Deep Learning, Computer Vision, Natural Language Processing, Reinforcement Learning, Cryptography, Blockchain Technology.

University of California, Los Angeles Jun 2021
Bachelor of Science in Mathematics of Computation | GPA: 3.82 *Los Angeles, CA*

- Honors: *Cum Laude*.
- Relevant Coursework: Object-Oriented Programming, Data Structures and Algorithms, Optimization, Linear Models, Monte Carlo Methods, Numerical Analysis, Machine Learning, Artificial Intelligence.

Experience

VIZIO Jun 2022 – Aug 2022
Software Engineer Intern *Seattle, WA*

- Constructed image retrieving and loading pipelines using MongoDB, Amazon S3, and Databricks.
- Built a ResNet encoder with Siamese Networks and Contrastive Learning to generate image embeddings.
- Developed a deep learning image recognition system with PyTorch to determine similarities among movie posters.
- Achieved 90% accuracy on 110k movie posters and applied Grad-CAM to produce visual explanations of the model.

Center for Vision, Cognition, Learning, and Autonomy (VCLA) Nov 2019 – Nov 2020
Research Assistant *Los Angeles, CA*

- Applied deep Q-learning algorithm to optimize agent decisions to coordinate and survive in a designed environment.
- Created characters' 3D models, skeletons, and animations with UV Editor and Skeleton Creator in Maya.
- Conducted culture studies covering 10 major social values to generate training samples for knowledge graphs.

Chuangze Intelligent Robot Jun 2019 – Aug 2019
Machine Learning Engineer Intern *Shandong, China*

- Designed test experiments for the NLP chatbot Pandorabots by comparing with the Arabic chatbot Botta.
- Augmented text corpus for various scenarios with Artificial Intelligence Markup Language (AIML).
- Trained and optimized ConvNet models on the CIFAR-100 dataset with both PaddlePaddle and TensorFlow.
- Assessed the most suitable machine learning platform for robots by comparing training error and run-time cost.

Projects

Real-Time Chat Application Mar 2022 – Apr 2022

- Implemented multi-threading functions to exchange real-time and offline messages between users.
- Designed a reliable transport protocol on UDP sockets with Python to handle package loss.

Residual Attention Network for Image Classification Oct 2021 – Dec 2021

- Built Residual Attention Network modules from scratch with TensorFlow for image classification.
- Optimized the original model to reduce training time without significantly decreasing the performance.
- Trained the model on CIFAR-10 and CIFAR-100 on Google Cloud and achieved 88% and 65% accuracy, respectively.

NBA Stats Database Sep 2021 – Nov 2021

- Designed entity–relationship diagram for the database and mapped it to a relational schema in PostgreSQL.
- Developed a web application that allows users to analyze game/player details and visualize NBA statistics.
- Built pipelines to convert user queries into SQL commands and retrieve records from database using Python Flask.

Technical Skills

Languages: Python, C++, SQL, Java, R, C#, MATLAB, Solidity, LaTeX
Libraries: TensorFlow, PyTorch, Tidyverse, Flask
Software: Amazon Web Services, Google Cloud, Unity, Maya, Confluence, Jira