Yang (Garry) Gao

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Technical Experience

Software Development Engineer @Amazon.com, Inc. ***Seattle, WA | April 2025 - Current***

- Developed full-stack features for an internal planning tool that tracks people movement and operational costs across hubs using Java, React, GraphQL, and DynamoDB. Implemented a Backend-for-Frontend (BFF) service to simplify data access and strengthen permission control, contributing from prototyping to launch readiness.
- Leveraged AI-assisted tools such as Cline during development for fast prototyping, testing, and code review, significantly improving iteration speed and overall development efficiency.

Machine Learning Engineer @Lawrence Berkeley National Lab (Affiliated) ***Berkeley, CA | May 2024 - April 2025***

- Trained a multimodal model integrating low-resolution images and text descriptions to enhance resolution quality, demonstrated model versatility by preserving essential physical and mathematical properties across data types.
- Pre-trained a cascaded diffusion network using simulated fluid flow data, achieving 8x super-resolution. Utilized LoRA techniques for efficient model adaptation and showcasing its effectiveness in diverse data scenarios.

Game AI Algorithm Intern @NetEase, Inc. ***Hangzhou, China | June 2023 - August 2023***

- Processed and visualized over 1.2 million data entries from a popular SLG game using SQL and Python, and designed an ML classifier using SHAP to analyze causal effects between gaming habits and willingness to pay.
- Constructed the ideal parameters of in-game AI robots, fine-tuned an LLM decision-making model to formulate military action plans for robots to boost MAU and player LTV, and demonstrated results to the client company.

Software Engineering Intern @Dahua Technology Co., Ltd. ***Hangzhou, China | June 2020 - August 2020***

- Automated the facial recognition data ingestion pipeline using Python and SQL, achieved efficiency improvements.
- Optimized the real-time image processing technique implemented in visualization based on hardware limitations.

Education

The University of California, Berkeley, Berkeley, CA ***August 2023 - May 2024***

Master of Engineering, Concentration in Control of Robotic and Autonomous Systems ***Cumulative GPA: 3.92***

Grinnell College, Grinnell, IA ***August 2019 - May 2022***

Bachelor of Arts, Computer Science & Physics (Honors) ***Major GPA: 4.0 | Cumulative GPA: 3.89***

Skills

***Programming Languages*:** Python, Java, TypeScript, C, C++, Scheme, SQL, R
***Tools & Technologies*:** AWS, Git, TensorFlow, PyTorch, HDFS, Matplotlib, Keras, CatBoost, SHAP

Research Experience

Prof. Allison Jaynes ELIPSIS Lab ***Iowa City, IA***

Research Assistant on Pulsating Aurora Detection using ML ***June 2022 - June 2023***

- Developed a new image acquiring and processing streamline from THEMIS imager array to significantly accelerate the aurora video/image processing and improve the video/image quality for ML model training.
- Designed a new aurora ML classification model using a CNN-RNN hybrid architecture, automated the aurora video spatial and temporal information extraction process, and increased the precision to over 90%.

Eliott's Bio-inspired AI Research Lab ***Grinnell, IA***

Research Assistant on Moral Reasoning Modeling ***June 2021 - December 2021***

- Implemented cascading failure effects using evolutionary game theory on multiple network structures with 10,000+ agents to show the superiority of cooperative strategy in a large community. Published a paper on this topic.
- Simulated and investigated behaviors of empathy-driven robots trained with Deep Learning and Reinforcement Learning algorithms via CoppeliaSim, Kilombo, and Webots.

Publication

- He, M., Gao, M.*, **Gao, Y.***, Eliott, F. (2021, November) **Cascading Failures and the Robustness of Cooperation in a Unified Scale-Free Network Model.** In *International Conference on Complex Networks and Their Applications*. (pp. 365-376). Springer, Cham. *The authors were invited to have an oral presentation at the conference*.
- Erichson, N.B., Mikuni, V., **Gao, G**., Lyu, D., Liu, J., Hegazy, K., Mahoney, M.W., Lim, S.H., & Azencot, O. (2024, October). **FLEX: A Multi-task Diffusion Model for Fluid Flows**. *Manuscript under review.*