

# Brian Kim

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## EDUCATION

### MSE, Electrical and Computer Engineering

Expected May 2025

The University of Texas at Austin – GPA: 3.33/4.0

- Thesis: “Custom User Metric Scoring for Privacy Policies” (In Progress)

### BS, Electrical Engineering

May 2023

The University of Texas at Austin – GPA: 3.73/4.0

(Integrated BSEE/MSE)

## PROJECTS

### MAD-Community

October 2024 – December 2024

- Created novel Multi-Agent Debate framework utilizing LLM agents organized in interconnected communities
- Designed directed graph network structure where communities debate and refine responses through multiple stages
- Implemented system prompt engineering techniques to enhance debate quality and conciseness
- Achieved 39% increase in accuracy over GPT-4 based model in original benchmark paper with optimized network design using significantly cheaper GPT-4o mini agents

### NEAT-PSO: Hybrid CNN Architecture Evolution

October 2024 – December 2024

- Developed hybrid neural network architecture evolution technique by combining NeuroEvolution of Augmenting Topologies and Particle Swarm Optimization
- Optimized NEAT hyperparameters using multi-objective PSO, targeting error reduction and parameter efficiency
- Doubled accuracy with fittest individual over worst individual over 50 generations on CIFAR-10 image classification

### Reinforcement Learning Trading Agent Exploration

March 2024 – April 2024

- Developed deep Reinforcement Learning model integrating CNNs with established frameworks for stock trading
- Compared metrics such as Sharpe ratio, return, and volatility of RL algorithms A2C, PPO, DDPG, and their ensemble
- Outperformed 4 major market indices using ensemble model and CNN over 5-year period (Jan 2018 to Jan 2023)

### MuSentiment

October 2021

- Placed 2nd for the 2021 TAMU Datathon Data Synthesis Challenge
- Performed NLTK sentiment analysis on web scraped lyrics of 1,500 Billboard Hot 100 songs from 2006 to 2020
- Analyzed yearly lyric sentiment and CDC depression and drug usage data to discover any correlations

## WORK EXPERIENCE

### Graduate Research Assistant, UT Center for Identity – Austin, TX

September 2023 – Present

- Co-authored 1 published research paper and 1 currently accepted research paper
- Assisted 2 senior capstone teams on PrivacyCheck™ project with onboarding and planning

### Cybersecurity Intern, United States Automobile Association – San Antonio, TX

May 2023 – August 2023

- Transitioned 8 legacy Detica rulesets to SAS, contributing to the decommissioning of Detica systems
- Enhanced code efficiency by minimizing false positives and optimizing matching algorithms
- Collaborated with onsite and offshore teams to ensure proper requirements were met

## SKILLS

**Technical Tools:** OpenAI API, PyTorch, TensorFlow, Scikit-Learn, Linux

**Languages:** Python, Java, SAS, SQL, C/C++, LaTeX