Xinze Feng

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EDUCATION

Rice University *Houston, TX*

Bachelor of Science in Computer Science Expected Graduation: May 2026

Bachelor of Arts in Mathematics **GPA: 3.91 / 4.0 (President's Honor Roll)**

Honors/Awards: AMC 12 Distinguished Honor Roll (top 1% globally), ARML China National Golden Team Award (top 1), USAMO Qualifier, Berkeley Math Tournament Power Round Global Top 4 Team

Relevant Coursework: Reinforcement Learning, Reasoning about Algorithms, Tools & Models - Data Science, Concurrent Program Design Introduction to Operating System, Honor Calculus III/IV, Honor Linear Algebra, Probability and Statistics

PROFESSIONAL EXPERIENCE

OptimaLab *Houston, TX*

Undergraduate Researcher Apr 2023 – Present

- Conducted research in classical/quantum optimization under the supervision of Dr. Anastasios Kyrillidis; specifically investigated different initializations' the potential enhancement to quantum algorithm's performance on non-convex, combinatorial problems.
- Worked in a team with other two Ph.D. students to devise 100+ comprehensive experiments evaluating the performance difference between Warm-Started QAOA and conventional QAOA on solving Max-Cut problems.
- Implemented original Low-rank Approximation algorithm producing higher Max-Cut score on 500+ graph instances than prevailing algorithms such as Goemans Williamson algorithm; visualized all algorithms' performance on Max-Cut through Matplotlib in Python.

WorldStrides *Houston, TX*

Summer Programming Instructor Intern May 2023 – Aug 2023

- Led a team of four instructors from Rice University, University of Chicago, and Emory University; spent 40+ hours devising and practicing teaching two courses for 500+ high schoolers: "C++ Programming in Rocket Science" and "Internet of Things: Machine Learning"; worked 40+ hours per week and achieved a 100% pass rate in both classes.
- Devised C++ guide for solving advanced aerodynamic physics problems; taught students to utilize external API to collect real weather data from 2016 to 2020 and then predict The Great Texas Freeze 2021 through machine learning algorithms in SciKitLearn Python library.

HackRice *Houston, TX*

Board Member Apr 2024 –Present

- Spearheaded creation of tracks and led workshops for Rice University's annual 36-hour hackathon, HackRice, with 500+ participants
- Utilized Python's asynchronous libraries Pygame and Panda3D to write starter code for first-timers; hosted beginner workshop catering to over 300 participants about Git vision control system and Web Development.

PROJECTS

Hexagon *Houston, TX*

Co-founder & Back-End Developer Sep 2023 – Present

- Collaborated with a team of four university students to develop a cutting-edge Carbon Index Fund Recommendation Engine devised for companies seeking to meet their carbon credit quotas by reducing risk and minimizing cost.
- Programmed Mixed Integer Program based on users' preferences and constraints; utilized GUROBI, the optimization engine, to derive an optimized solution from the Integer Program for our customers; deployed website enabling users to interact with Hexagon through real-time data input and output; visualized eventual, optimized carbon credit portfolio through Seaborn python plotting library on the website.
- Won MathWorks Challenge: Best Use of MATLAB and SLB Challenge: Best Project that Addresses Climate Change (Top 1/43 teams) during HackRice 13; placed second in the Chevron track during HackRice 13.

AI-generated texts detector *Houston, TX*

Project Lead & Back-End Developer Dec 2023 – Feb 2024

- Led with a team of three university students from Rice University and Edinburgh University to devise and implement an advanced machine learning model called Holmes for detecting texts generated by AI/LLM.
- Created and collected external, supplementary datasets from 10+ distinct sources including Proprietary LLMs, Open source LLMs, Existing LLM generated texts, etc; trained and implemented Custom Tokenizer mixing with MLM to label more than 14000+ datapoints.
- Participated in the Kaggle Machine learning/AI competition hosted by Vanderbilt University and the Learning Agency Lab; achieved a score of 0.75/1.

Policy-based 20 Questions agent *Houston, TX*

Project Lead & Back-End Developer May 2024 – Present

- Led a team of four university students to implement and deploy a 20 Questions answerer agent powered by a Policy-based neural network and an intermediate reward function for question selection and state transitions.
- Implemented and parameterized a question-selection policy with a neural network mapping current game state to a probability distribution overall available actions (questions); programmed object-targeted reward neural network to estimate each questions' intermediate reward based on the current game state; achieved a win rate of 70% (in simulation).

SKILLS

Programming Languages: Python, C/C++, Java, SQL

Tools: Git/GitHub, VS Code, IntelliJ IDEA, Unix Shell, DataGrip, AWS

Libraries/Frameworks: Pandas, Pytorch, PennyLane, Numpy, SciKitLearn, Matplotlib, Seaborn, PySpark