Tushar Gona

813-390-6766 | gonatushar@berkeley.edu | linkedin.com/in/tushar-gona | github.com/tgona

Education

University of California - Berkeley Berkeley, CA
Bachelors in Computer Science, Bachelors in Applied Mathematics *Aug. 2022 – Present*

Experience

Software Engineer Intern May 2024 – August 2024
Palo Alto Networks *Santa Clara, CA*
- Developing a C-based CLI feature for debugging the PAN-OS firewall dataplane, to be released in next release version
- Produced classes and functions for analyzing high dataplane CPU consuming applications and users on a Next-Gen Firewall

LLM Training Contractor March 2024 – September 2024
Google Deepmind *Remote*
- Developed specialized competition-level math problems across various difficulties and subject areas for Google Deepmind's internal LLM training dataset

Data and Research Engineering Intern August 2023 – January 2024
The CommonsXR *San Diego, CA*
- Applied Power BI, SQL, and Python to organize and identify patterns across ¿100 million lines of data, as well as manage and remove degenerate data
- Restructured data storage and organization system for improved data analysis

Undergraduate Student Researcher - EECS August 2022 – May 2023
University of California - Berkeley *Berkeley, CA*
- Worked on designing a 3D procedural CAD tool used for programmatically creating geometries with a shape description language
- Assisted in the construction of a C-based language with functionality unique to the JIPCAD/NOME application.

Math Researcher May 2020 – July 2022
University of South Florida *Tampa, Florida*
- Developed an application and advanced algorithm in C++ to generate T0 topologies, applying multi-threading to university supercomputers
- Decreased time and space complexity of previous programs drastically, allowing for more efficient computation and the discovery of all existing quandle topologies of higher orders
- Publication link: https://publicaciones.unex.es/index.php/EM/article/view/1795

Projects

Mathemagix: Reinforcement Learning-based Adversarial Agent Training | *PyTorch* June 2023 – July 2023
- Built a custom-made game environment and display for a math-based puzzle game using Pyglet and python
- Implemented 2 DQNAgents using PyTorch for training adversarial agents, with agents using epsilon-greedy action selection and replay memory for efficient convergence and exploration-exploitation trade-offs
- Integrated model persistence to save and load trained DQN models. Allows seamless continuation of training and loading of trained agents.
- Developed an intuitive GUI using Tkinter for human-game interaction.

Air Pollutant Dispersion Analysis | *Python, Maya, C*
- Analyzed data of polluted water flumes with Python using computer vision and matplotlib to identify trends across metrics in fluid dynamics
- Constructed virtual models of various city layouts using Autodesk Maya, to analyze dispersion rates and patterns
- Simulated dispersion of gaseous pollutants using AQI

Technical Skills

Languages: Java, Python, C/C++, SQL (Postgres), JavaScript, HTML/CSS, R, MATLAB, Rust, Go
Frameworks: React, Node.js, Flask, Django, WordPress
Developer Tools: Git, Docker, Azure, Google Cloud Platform, VS Code, Visual Studio, PyCharm, IntelliJ, Eclipse
Libraries: pandas, NumPy, Matplotlib, PyTorch, Keras