Srikar Boggavarapu

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EDUCATION

Rutgers University   New Brunswick, NJ
Bachelor of Science in Computer Science, Minor in Data Science   *May 2025*
GPA: 3.51 — Dean's List
Relevant Coursework: Deep Learning, Intro to Artificial Intelligence, Discrete Mathematics, Data Structures, Computer Architecture, Algorithms, Randomized Algorithms, Internet Technology, Linear Optimization

EXPERIENCE

Research Assistant   April 2023 − November 2023
Rutgers University   *New Brunswick, NJ*
- Implemented graph connectivity algorithms in **C++** that integrated with the existing distributed processing framework utilizing linear sketching data structures for efficient graph representation.
- Analyzed academic research papers on graph algorithms and linear sketching techniques, developing pseudocode implementations from theoretical descriptions and presenting findings to the research team.
- Gained hands-on experience with distributed systems concepts including worker coordination, large-scale data processing, and efficient graph data retrieval from disk storage.
- Participated in bi-weekly research meetings with graduate students and post-doctoral researchers, discussing implementation progress and analyzing potential new approaches from current research literature.

PROJECTS

Restless Learning ↗ | *Python, Javascript, PyTorch, ReactJS, FastAPI, TailwindCSS*

- **Awarded First Place** at the HackRU Spring 2024 Hackathon in the Education Track out of 100+ teams.
- **Multi-Layer Perceptron** visualization aid, allowing users to configure hyperparameters and train models interactively via a web interface with real-time feedback on model accuracy.
- Used **PyTorch** to train the network on the MNIST dataset on a backend server, with **ReactJS** and **Tailwind CSS** for the frontend, interfaced with **FastAPI** to track live changes in accuracy.

notawhiteboard ↗ | *Cloudflare, Go, Javascript, HTML, CSS*

- Built a real-time collaborative canvas where users can draw and see live updates across clients using **WebSockets**, with a backend server written in **Go** for synchronization and high concurrency.
- Employed incremental server updates to avoid conflicts, with server acknowledgements to ensure data consistency.
- Deployed and managed the application on a **VPS**, using **Nginx** for reverse proxying and Cloudflare as a DNS, CDN, and for SSL management.

RayZig ↗ | *Zig*

- Developed a fully functional ray tracer in pure **Zig** to explore **graphics programming** and learn a new programming language, optimizing performance with low-level memory management.
- Implemented ray reflections, shadows, anti-aliasing, various material finishes (glass, metal) and a positionable, focusable camera for realistic scene rendering.

Bomb Defusing Model | *Python, Pillow, Scikit-Learn, Pytorch, Numpy, Pandas, Matplotlib*

- Created training and testing data consisting of 20x20 pixel images with 3-6 overlapping wires of various colors using **Pillow** and utilized **Pandas** DataFrames to store the data set.
- Trained a logistic regression model using **Scikit-Learn** to classify whether a wiring diagram was dangerous based on the order in which the wires were laid.
- Created a new softmax regression model using **Pytorch** to predict which wire (color) should be cut given a dangerous wiring diagram, optimizing the cross-entropy loss using stochastic gradient descent (**SGD**).
- Analyzed loss metrics and graphed them using **Matplotlib** to find insights and tune hyperparameters, improving testing accuracy to **99%** for both models.

TECHNICAL SKILLS

Languages: Python, Go, C++, TypeScript, JavaScript, Zig, SQL
Technologies: Git, Linux, Cloudflare R2, AWS (S3, Glue, EMR), MongoDB, PostgreSQL, Pandas, PyTorch, NLTK, Scikit-Learn, FastAPI, ReactJS, Matplotlib