Srikar Boggavarapu

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Education

Rutgers University - New Brunswick — May 2025
Bachelor of Science in Computer Science, Minor in Data Science — GPA: 3.60
Dean's List: 2022-2025
Relevant Coursework: Generative AI for Visual Computing, Deep Learning, Artificial Intelligence, Discrete Mathematics, Data Structures, Computer Architecture, Algorithms, Randomized Algorithms, Internet Technology

Experience

Algorithms Research Assistant | *C++* — April 2023 − November 2024
Rutgers University — New Brunswick, NJ

- Implemented randomized graph connectivity algorithms in **C++** using linear sketching data structures, achieving theoretical limits of efficiency, improving processing speed by up to **42%** in distributed scenarios.
- Analyzed **10+** cutting-edge research papers on randomized graph algorithms and sketching techniques, developing pseudocode implementations from theoretical descriptions and presenting findings to the research team.
- Optimized distributed system performance, developing expertise in worker coordination, large-scale data processing, and efficient graph data retrieval, reducing data access latency by over **15%**
- Collaborated with graduate students and post-doctoral researchers in bi-weekly research discussions, critically evaluating implementation progress and exploring novel algorithmic approaches inspired by the latest literature.

Projects

Video Content Segmentation Engine | *Python, PyTorch, Transformers, BERTopic*

- Developed a video analysis framework to automatically segment and label content using advanced machine learning techniques, capable of processing 2 hours of video in one minute.
- Built a pipeline extracting frames from video, generating embeddings with **CLIP-ViT-B-32**, reducing dimensions with UMAP, clustering with HDBSCAN, captioning segments with **ViT-GPT2**, and analyzing topics with c-TF-IDF to produce representative descriptions.
- Engineered a solution delivering precise video timestamps with semantic topic labels, derived from frame-cluster mappings, enhancing content indexing and automated summarization.

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.
- Created a 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, built a **REST** API using **FastAPI**
- Developed a frontend with **ReactJS** and **Tailwind CSS** for interactive visualization and live accuracy tracking.

Notawhiteboard ↗ | *Cloudflare, Go, Javascript, HTML, CSS, Nginx, Redis*

- 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.
- Deployed and managed the application on a VPS, using **Nginx** for reverse proxying and **Cloudflare** as a DNS, CDN, and also for SSL cert management.

Technical Skills

Languages: Python, C++, Go, TypeScript, JavaScript, SQL
Developer Tools: Git, Linux, Cloudflare, GCP, AWS, MongoDB, PostgreSQL, Redis, Kubernetes
Libraries and Frameworks: PyTorch, Pandas, Matplotlib, Scikit-Learn, FastAPI, ReactJS, SvelteKit, NextJS

Awards and Achievements

Scholarship recepient from Riot Scholastic Association of America
First Place at HackRU Spring 2024 with over 100 participating teams
Dean's List for the past 6 semesters