SAMUEL L. RANDALL

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Education

Stanford University, MS. Computational & Mathematical Engineering
DGSAC Exceptional Master's Student Award.

- Computational Geometry course with Dr. Leonidas Guibas; built 3D computer vision systems and computer graphics.
- Parallel Computing course (CUDA, OpenMP) with Dr. Eric Darve, Advanced Software Development in C++, used boost library to build physics mesh simulator, end-to-end robotics project to navigate a robot through a maze (including mapping, path-planning, camera calibration, computer vision)
- Robotics Research in Bohg Lab, Unsupervised Learning Research in Hazy Lab.

Johns Hopkins University, BS. Applied Mathematics and Public Health. Minor in Computer Science and Environmental Science.

Experience

BlueLightAI, *Lead Solutions Architect & Principal Scientist* September 2024 — Present

Innovated algorithm to identify error patterns of ML models (by analyzing embeddings) resulting in ~5x reduction in time for data scientists improving model performance.

- Evaluated algorithm on BODMAS (cybersecurity), RedPajama (text dataset, LLM training), Food101 (pictures of food), banking77 (customer requests), transactional data for fraud), with various models (Llama, BERT, ResNet, Random Forest), multiple domains (NLP, CV, predictive analytics).

Innovated algorithm to group novel data types, demonstrated on banking chatbot in production (intent recognition task); used outputs to find similar data in data lake; combined data sources to improve model performance, impressing investors and client, leading to pilot opportunity with client.

- Co-directed PoV for Global 500 customer, resulting in long-term contract.
- Applied software to compare embedding models on Google Shopping Product Recommendation dataset, leading to blog post with partner.

Lead Software Engineer March 2024 — September 2024

- Designed schema for software product (libs: numpy, pandas, PyTorch, transformers, sklearn)
- Co-managed software lifecycle (established unit/integration testing standards, maintained engineering standards with PR reviews), resulting in accurate & maintainable code base.
- Mentored new hires.

Software Engineer January 2023 — March 2024

- Improved graph layout algorithm to separate connected components & animate transition between graphs, implemented data science backend endpoints. Wrote clear specifications; leading to an efficient process where another engineering team integrated these endpoints.

Athena Security, *iOS Engineer* 2020 – 2022

- Integrated sensors, computer vision model & opencv into fever detection iOS app in 6 weeks.
- Engaged in rapid feedback loop with prospects & customers to engineer product to suit needs, making necessary third-party integrations and satisfying new feature requests.

PHICOR, *Research Analyst* 2017 – 2020

- Scripted the execution & analysis of simulation runs; automating a labor-intensive process.
- Streamlined labor-intensive download / organization process of large (>1500 files) dataset.

STEM Teaching & Tutoring Experience

Ordinary Differential Equations, *Course Assistant* 2022
Software Development for Engineers and Scientists, *Course Assistant* 2021
Juni Learning, *Computer Science Tutor for children aged 5-18* 2019 – 2020

Skills

SWE: Python, Java, Javascript, Swift, C/C++, PyTorch, git, CUDA, OpenMP, Data Structures, Algorithms.
Data: Machine Learning, Computer Vision (CV), Natural Language Processing (NLP), scikit-learn, LLMs.
Math: Graph Theory, Discrete Mathematics, Applied Topology, Computational Geometry, Convex Optimization.