

Anutam Sethuraman

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EDUCATION

University of California, Berkeley

BS, Computer Science

Berkeley, CA

Aug. 2021 – Fall 2024

TECHNICAL SKILLS

Languages: Java, Python, Matlab, C, C++, PostgreSQL, Golang, Ruby/Rails, HTML/CSS, Javascript, React, Node.js

Developer Tools: Git, Docker, Kubernetes, GitLab CI/CD, Visual Studio, IaaS, PaaS

Libraries: pandas, NumPy, Matplotlib/Seaborn, scikit-learn, PyTorch, NLTK, SpaCy, HuggingFace, SciPy

EXPERIENCE

Systems Engineering Intern

June 2023 – Present

Sandia National Laboratories | W80-4/B61-12 JTA Systems

Livermore, CA

- Developed LSTM model to identify signal anomalies in a complex flight test system, improving detection accuracy by **140%**, thereby enhancing operators' ability to monitor and flag errors, reducing overall testing costs by **15%**.
- Utilized Docker to containerize application suite, ensuring seamless data communication and preventing breaks during updates, resulting in a reliable, production-ready analytics pipeline, minimizing downtime by **250%**.
- Coordinated with 4 agencies to organize data-driven flight test plans to augment mission assurance. Designed test parameters to explore data boundaries, and drafted and provided quarterly testing reports to USSTRATCOM
- Utilized Regex and NLP techniques to read PDF text data into MySQL database, saving at least **\$200,000** yearly on developers hand-curating data from archived test data and facilitating historical mission analyses
- Designed a secure data transfer communication architecture between air-gapped systems using Matlab, collaborating with security teams to ensure reliability, significantly simplifying developers' workflow by **300%**.
- Incorporated cryptographic encryption and signatures to implement software level hardening during mission-critical workflows to guarantee integrity and authenticity against MITM adversaries.

Software Engineering Intern

June 2022 – June 2023

Sandia National Laboratories | Airborne Radar ISR Analysis and Apps

Albuquerque, NM

- Led end-to-end Matlab implementation of highly scalable radar data collection and analysis package, capable of managing and analyzing **millions** of 3D geospatial data points. Implemented denoising and anomaly detection.
- Spearheaded design of front-end user interface to Radar Mod/Sim program, reducing onboarding time by **120%**.
- Implemented CI/CD pipeline to verify code integration, reducing overhead of SAR image build by **45%**.
- Designed visualization toolkit using graph libraries to dynamically model software architectures.
- Led offensive security process on codebase to demonstrate security flaws and kickstarted hardening solution.

Machine Learning Intern

Feb 2022 – Apr. 2022

Ascendion

Basking Ridge, NJ

- Researched machine learning architectures and dimensionality reduction techniques to solve computationally difficult problems in self-driving cars, LLMs, digital signal processing, and recommendation algorithms.
- Conducted systematic statistical analyses to determine intrinsic data features to provide tailored recommendations to customer engineers, greatly improving product delivery speed and quality.
- Built and tested ML model to predict building prices in NJ to provide data-driven construction solutions.

PROJECTS

RookieDB | *SQLite3, Java, Maven*

Jan 2024 - June 2024

- Designed and implemented E2E custom DBMS architecture with query optimization, transaction concurrency, write-ahead logging, recovery, and multi-granularity locking features, mimicking modern architectures.
- Utilized ideas from keystone research papers to incorporate concurrency control and recovery modules to allow multi-user interaction and fault-tolerance with DB, tested service with 1000s of users without failures.
- Exposed MapReduce System API to highly parallelize dataflow executions (i.e Apache Hadoop).
- Enforced fault tolerance by implementing Raft protocol, and significantly increased horizontal scaling by sharding.

Nanorobotic Neural Stimulator | *Python, Matlab, AutoCAD, Docker*

Aug 2023 – Dec 2023

- Designed nanoscale electric stimulator to treat neural degeneration using ultrasonically actuated magnetoelectric nanoparticles in hydrogel delivery complex using industry standard fabrication techniques.
- Led a team of student researchers through 3 design refactors and 2 Berkeley consortium presentations.