Abhishek Satpathy

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EDUCATION

University of Virginia — Charlottesville, VA
B.S. Computer Science, B.A. Math — *Aug 2023 – May 2027*
GPA: 4.0
Relevant Coursework: Data Structures and Algorithms II, Computer Systems and Organization II, Algorithmic Economics, Cryptocurrency, Linear Algebra, Probability, Introduction to Reinforcement Learning, Machine Learning.

EXPERIENCE

Fullstack Engineer — Aug 2024 – Present
Forge — *Richmond, VA*
- Refactored Firebase cloud functions to address critical security vulnerabilities, resulting in a 78% reduction in failure rate for Airtable API queries and 35% improved response times.
- Modernized mission-critical Next.js applications including an applicant tracking system and a resume builder portal serving 500+ users with 99.8% uptime.

Artificial Intelligence Research Assistant — Jan 2024 – Jan 2025
Link Lab — *Charlottesville, VA*
- Developed a NLP Named Entity Recognition (NER) benchmarking system based on state of the art research and used it to validate various configurations of medical LLMs.
- Implemented a real-time hand keypoint detection system with sub-100ms latency, achieving 4x performance improvement over previous in-house solutions by optimizing multiprocessing on a NVIDIA Jetson Nano.

Backend Engineer — May 2024 – Aug 2024
Voltus — *San Francisco, CA*
- Refactored and parallelized a containerized ETL service on AWS, implementing CI/CD pipelines that reduced critical failure rate by 91%.
- Migrated a Delta Lake file uploader service from Databricks Spark clusters to an internal, custom-built Go API, reducing cloud costs by $60,000 annually and improving throughput by over 10x.
- Led documentation overhaul initiative for mission-critical ETL service that dramatically decreased onboarding time to the ETL project and reduced support tickets for the service by 38% through stakeholder consultation and data-driven user research.

PUBLICATIONS

DKEC: Domain Knowledge Enhanced Multi-Label Classification for Diagnosis Prediction

Proceedings of the 2024 Conference on Empirical Methods in Natural Language Processing (EMNLP)

Xueren Ge, **Abhishek Satpathy**, Ronald Dean Williams, John A. Stankovic, Homa Alemzadeh

10.48550/ARXIV.2310.07059

PROJECTS

CPR Tracking with Kinect Video | *Python, Open3D, PyTorch, NumPy, Docker* — Oct 2024 – Dec 2024
- Engineered a high-precision CPR benchmarking system using Open3D and PyTorch that achieved 95% accuracy in real-time rate and depth measurements from Kinect video streams, integrating depth-sensor data to establish ground-truth benchmarks and quantitatively evaluate performance of the pipeline.

FoodPools | *Express.js, Supabase, Postgres, React.js, Stripe* — Mar 2025
- Engineered a cost-saving campus food delivery platform that reduces student expenses by 60% and decreases carbon emission by over 90% on food delivery orders, leveraging Supabase for authentication and data persistence, Express.js for a RESTful API backend, and React.js for a responsive frontend.

TECHNICAL SKILLS

Languages: Python, Java, Rust, Javascript, C, Bash, SQL.
Frameworks/Libraries: PyTorch, Polars, FastAPI, Django, Flask, React, Next.js, Postgres.
Tools: Postman, Burp Suite, Linux, gdb, Valgrind, Git.