Krish Nathan

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Experience

INTERCONTINENTAL EXCHANGE | Software Engineer Intern | C++, Python

May 2024 - Present | Atlanta, GA

- Profiled high-throughput function calls using perf and optimized data structure usage in hot path to yield **2.06x speedup**
- Created C++ logging utility to reduce duplicate messages written to log files by about **12,000 messages per day**
- Patched memory leak & buffer overflow issues, **eliminating 14% of vulnerabilities** in production C++ code

SLACK | Software Engineer Intern | Hack, SQL, Grafana

May 2022 - Aug 2022 | San Francisco, CA

- Created dashboard measuring adoption of Slack's automation API, resulting in **faster identification of pain points**
- Rearchitected unit testing framework for Slack workflows to use builder patterns, saving developers time for each new test
- Added monitoring to high traffic endpoints in Slack's automation API with Prometheus, providing a clearer view of bottlenecks

IBM | Software Engineer Intern | Javascript, React, MongoDB

May 2021 - Aug 2021 | Durham, NC

- Developed webapp to identify programs in a tech stack which perform the same task, saving consultants hours per new client
- Computed overlap in functionality between programs in Javascript, revealing **25 new consolidation opportunities**
- Dockerized app and deployed to vanilla Kubernetes cluster through SSO, providing secure access to IBM consultants worldwide

Projects

MAPREDUCE

- Designed a simplified version of MapReduce, a popular distributed computing framework, in C++ using gRPC
- Implemented dataset sharding, job scheduling between worker and master nodes, and fault tolerance

TOMASULO SUPERSCALAR

- Simulated an out-of-order superscalar processor in C++ using Tomasulo's algorithm for instruction scheduling
- Implemented a five stage execution pipeline with a future register file to increase instruction level parallelism
- Tuned architecture parameters to achieve **2.28 instructions per cycle** on the Leela chess engine benchmark

Education

GEORGIA INSTITUTE OF TECHNOLOGY | M.S. Computer Science | GPA: 3.67 / 4.0

Aug 2023 - Dec 2024 | Atlanta, GA

- Coursework in Operating Systems, Database Implementation, Computer Architecture, Programming Languages, Algorithms
- As a teaching assistant for CS 4641: Machine Learning, I hold weekly office hours to teach students ML theory and create Python automations which **reduced assignment bug reports by 57%** in our **800+ student** class

GEORGIA INSTITUTE OF TECHNOLOGY | B.S. Computer Science | GPA: 3.85 / 4.0

Aug 2020 - May 2023 | Atlanta, GA

- Coursework in Networks, Computer Systems, Machine Learning, Robotics, Linear Algebra

Skills & Awards

- **Programming Languages:** C++, Python, SQL, Javascript, Java, Scala
- **Technologies:** C++ STL & Boost, gRPC, libvirt, PyTorch, NumPy, Pandas, scikit-learn, React, Node.js
- **Patent:** Designed an inexpensive device which measures thyroid hormones to reduce the cost of treating hypothyroidism. Granted **utility patent** for "DEVICE FOR QUANTITATIVE MEASUREMENT OF THYROID HORMONES" (USPTO 16/750,446) effective August 2022