Revanth Pothukuchi

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Education

Massachusetts Institute of Technology Cambridge, MA

Bachelor's of Science, Computer Science and Mathematics Sep 2021 — May 2025

- Cumulative GPA: 4.7/5.0
- Relevant Coursework: Design and Analysis of Algorithms, Multicore Programming, Software Performance Engineering, Computer Systems Engineering, Secure Hardware Design, Machine Learning
- Activities & Societies: MIT Entrepreneurship Club, Chess Club

Experience

Nexus Laboratories, Inc. San Francisco, CA

Member of Technical Staff Jun 2025 — Present

- Scaled third test network to 2M concurrent users and 50k+ nodes worldwide; reduced costs by 90% with 0 service incidents
- Installed global CDN API cache and performant local caches; improved performance of asynchronous payment engines
- Led discussion and implementation of cross-team marketing campaigns to increase web traffic by 60%.

Citi Global Spread Products - Credit New York, NY

Algorithmic Quantitative Research Intern Jun 2024 — Aug 2024

- Created optimization engine to optimally hedge trading desk risk (e.g. volatility, tenor, basis), reducing risk by up to 60%; outperformed existing strategy by up to 30% with 50% less cost
- Aggregated data from 4 sources to build data ingestion pipeline for 8 hedging instruments used in model; established foundation for real-time data aggregation
- Optimized engine performance to produce hedges within 1 second for 5,000+ bond portfolio; designed model to expand to complex 15+ factor model

MIT Computer Science and Artificial Intelligence Lab (CSAIL) Cambridge, MA

Security Researcher Nov 2021 — May 2022

- Conceptualized Javascript static code analysis and code rewrite tool to prevent remote code executions within codebase; prevented 90% of code injection attacks in 50 large OSS projects
- Engineered tool to have up to a minimal 1% impact on program performance through novel recursive AST-walking algorithm
- Compiled findings in internal report and presentation to 4 university professors, highlighted benefits compared to previously published results (e.g. simplicity and performance)

Projects

Envious - Compiler Jan 2021 — Present

- Implemented ahead-of-time compiler featuring basic Hindely-Milner type inference, FFI, and terminal live editor using Rust; conducted a thorough review of 15+ research papers on compiler optimization passes and SSA code generation
- Coded custom stack-based virtual machine backed with support for intrinsic function calling and limited garbage collection
- Synthesized best practices and theory to refactor compiler backend from custom stack-based VM to LLVM, improving performance by 30% and reducing memory usage by 20%

Redis Mar 2024 — Apr 2024

- Designed fully compliant asynchronous, multi-threaded, lock-free, multiplexed Redis implementation in Rust; tested implementation using CodeCrafter's platform, passing 100% of standard Redis operation tests
- Developed channel-based event loop to process incoming client TCP streams and RESP3 commands in parallel; supported read-write replication with primaries and replicas, allowing for cluster-based deployment of implementation
- Incorporated on-disk persistence of Redis cluster using RDB format with support for keys, values, and expiration

Skills

- **Technical Skills**: Advanced in Java, Python, Rust, Node.js, Typescript, REST API, Compilers; Proficient in SQL, C, AWS, Redis
- **Certifications**: Oracle Professional Java SE 11 Developer (presented April 21, 2021)