Nam V. Do

Software Engineer

✉ namvdo11@gmail.com • ⬯ namvdo • 🌐 namvdo.ai • 🌐 opensciencesearchpark.com

Professional Summary

Software engineer with 4+ years building high-performance systems—from media streaming applications to search infrastructure serving millions of monthly queries. Currently developing scientific computing tools for pattern analysis using NCD, WebAssembly, and 3D visualization. Experienced in data compression, computer graphics, computational algorithms, and low-level optimizations. Entering MSc Computer Science & Engineering at the University of Oulu to advance research in computational systems. Active technical blogger documenting implementations across computer science fundamentals.

Education

Bachelor of Computer Software Engineering   *2018 - 2023*
FPT University, Vietnam
GPA: 8.43/10.0

- Relevant Coursework: Computer Networking (10/10), Computer Organization & Architecture (9.2/10), Data Structures & Algorithms (9.0/10), Programming Fundamentals (8.9/10), Operating System (8.7/10), Software Architecture and Design (8.5/10), Object-Oriented Programming (8.9/10), Introduction to Computer Science (8.8/10)
- Extracurricular activities: JS Club - Member of the expertise department

Professional Experience

Software Engineer, Petabyte Storage   *October 2024 - Present*
California, USA (Remote)
CompLearn 2.0: Web-based scientific programming tool using Normalized Compression Distance (NCD) to find similarity patterns in any kind of data.

- Compiled QSearch native C++ code to WebAssembly using Emscripten, enabling efficient browser-based execution.
- Built NCD and QSearch workers for matrix calculations and tree visualizations.
- Implemented K-Grid algorithm for clustering visualization with simulated annealing.
- Developed a List Editor supporting multiple input formats, including FASTA sequences, with custom file uploads and translations.
- Created interactive 3D quartet tree visualizations using ThreeJS and Fiber.
- Implemented multi-layer caching to perform faster FASTA animal suggestions retrieval.
- Automated taxonomic group detection and de-duplication for FASTA animal suggestions.
- Integrated compression algorithms (gzip/zlib, LZMA, zstd) to efficiently handle data of varying sizes.
- Cached NCD results with different supported compression algorithms using Content-Addressable Storage (CRC-32) for efficient reuse.
- Designed a FASTA parser supporting file-based and API-sourced inputs with or without headers.
- Wrote extensive unit and integration tests for core components such as parsers, caches, workers, and public Genbank APIs.
- Implemented CI/CD pipelines with Docker, GitHub Actions, and shell scripting for automated builds, tests, and deployments.

Software Engineer, CompaxDigital   *September 2023 - Present*
Hanoi, Vietnam
AAX: Business Supporting System with clients worldwide

- Designed and implemented seamless CI pipelines to enforce working flow and convention from development activities to full automated releases.

- Designed and implemented standard conventional commit format, semantic versioning, and internal format for mobile app project with multiple clients.

- Improved the CI pipelines to achieve at least 3x performance gain by aggressive multi-layer caching, parallel processing, tweaking JVM memory and GC options, Gradle build optimization with proper memory alignment, and limiting supported architectures for Android builds.

- Designed and implemented core components and structures for the multi-client monorepo project, significantly involved in improving UI/UX experience.

- Built a generic library in Java to support data migration in other client-specific projects.

- Participated in the implementation of a Postgres message queue service. Conducted performance tests comparing it with existing message queue services in the system and documented the findings.

- Contributed to the development of the new GUI generation (AAX4).

- Implemented sell campaign exclusion logic using fundamental set operations.

- Wrote a small shared library for asynchrous programming (with support retries, backoff).

Software Engineer, Coc Coc   *September 2021 - July 2023*
Hanoi, Vietnam
Coc Coc Search Engine

- Built a monitoring service for 10+ vertical search components with automatic anomaly detection and notifications.

- Developed a Finance search service with 4 components (banking rates, currency, cryptocurrency, stock prices) handling 1.8M+ monthly queries.

- Created a Job search service processing 120K+ daily listings from multiple sources.

- Implemented an E-Government search service for efficient access to large volumes of government documents.

- Integrated the Olympiads service into the Coc Coc edu ecosystem, improving search results for student contests.

- Automated GitLab CI pipelines and set up Grafana metrics to monitor query volumes over time.

- Maintained vertical components such as Soccer, Weather, Movies, and University Hub.

- Mentored one developer and one intern, supporting task completion.

Software Engineer, Giao Hang Tiet Kiem   *February 2021 - September 2021*
Hanoi, Vietnam
GCall (part of GChat): audio call software enabling communication for both internal employees and external users

- Research different open-source technologies and media stream-enabled technologies from WebRTC, RPT, SMTP, and tools like FFmpeg, containers (webm, mp4), and video/audio codecs (vp8/9, h-264).

- Took part in the development of both the business logic service (Spring Boot application) and the media service (using ion-sfu). Implemented an audio call application integrated into the GHTK chat application for GHTK users on mobile devices.

TECHNICAL WRITING & PROJECTS

Technical Blog   *2019 - Present*
namvdo's blog

- Authored 100+ blog posts on computer science, programming tutorials, and software engineering topics that I've learned and found interesting.

OSS contributions

- **Rust Coding Challenges:** Educational repository to practice computer science fundamental and engineering problems using Rust.
- **Jen:** Image processing, generative photography, cellular automata.

REFERENCES

Dr. Rudi Cilibrasi
Computer Scientist, CompLearn 2.0 Project Lead
California Institute of Technology

Joy Hughes
Senior Computational Geometry Engineer
California Institute of Technology