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Nil Mamano, PhD

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Experience

Beyond Cracking the Coding Interview

Author 2025

- Co-wrote the official sequel to Cracking the Coding Interview with Gayle L. McDowell et al. #1 Best Seller in Data Structures & Algorithms on Amazon (amazon.com/dp/195570600X).

Google

Senior Software Engineer Nov 2022 – Aug 2024

- Part of a team that migrated the bandwidth ordering system from a quarterly manual process to an on-demand service with daily resolution, giving internal teams more flexibility and improving WAN utilization. (C++, Go, Python, SQL)
- Built and owned the bandwidth allocation and validation components. Designed time-series-based algorithms for distributing the projected available bandwidth among products, balancing prioritization, fairness, and continuity constraints when demand exceeds capacity.
- Point of contact in a cross-functional effort to rapidly provision network capacity for Gemini. Quickly prototyped and then standardized a new mechanism for specifying and prioritizing business-critical traffic while minimizing impact to other traffic.

Software Engineer Feb 2021 – Nov 2022

- Designed a rollout scheduler for config changes to Google's global WAN (Wide Area Network), parallelizing deployments across continents to halve deploy time while reducing outage risk.

Pathrise

Tech Interview Consultant Apr 2020 – Jan 2021

- Designed and taught the DS&A curriculum for coding interview prep. Taught 100+ students.

Education

PhD + Master's in Computer Science University of California Irvine, GPA 3.83/4 Sep 2015 – Dec 2019

- Co-authored 9 peer-reviewed papers on algorithm design, including as main author in tier A conferences like ICALP and ISAAC. The papers describe new algorithmic improvements in graph theory (routing), computational geometry (clustering, matching, TSP), and computational biology (network alignment) (scholar.google.bg/citations?user=LIuligEAAAAJ).
- Led a research project from inception to publication: came up with an original problem, engaged 3 colleagues to work on it, and collaborated with them to solve it and write a paper. We invented an algorithm for the knight's tour problem (cited by Knuth).
- Led 100+ sessions and guest lectures with 50+ students. Led a 120-student study on the effect of immediate automated feedback on learning outcomes.

B.E. in Computer Science Polytechnic University of Catalonia, GPA 3.8/4 (99th percentile) Sep 2011 – Jul 2015

- Created SANA, a C++ biological network alignment tool that uses simulated annealing. 100+ citations; actively maintained for 10+ years by 50+ collaborators, with 2,000+ commits (github.com/nmamano/SANA).

Projects

DSA Toolkit dsatoolkit.com 2025

- A companion DS&A toolkit for Beyond Cracking the Coding Interview. Built an automated pipeline to parse, test, and generate articles for all 1,440 code solutions across 5 languages. (Next.js, TypeScript, Python)
- Built LLM orchestration pipelines for large-scale codebase changes, e.g., translating 288 book solutions from Python to Go with few-shot prompting and test-driven retry loops, using local models and APIs.
- Co-designed an AI interviewer for the book problems, with tens of thousands of interviews completed (bctci.co/ai).

Wall Game wallgame.io 2025

- A full-stack online board game supporting AIs as first-class citizens via an AI integration protocol/client. (React, TypeScript, Tailwind, shadcn, PostgreSQL, MongoDB, WebSocket)
- Trained multiple AlphaZero-style models for different board sizes and rule sets via self-play on consumer GPUs. (C++, PyTorch, TensorRT, ONNX, WebAssembly)

Technical Blog nilmamano.com/blog 2025

- 30+ articles on algorithms, data structures, AI, CS research, and software engineering.