Ansh Nagwekar

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University of Pennsylvania

Bachelor of Science, *Computer Science (NETS), Minor in Mathematics & Statistics* **2021 - 2025**
GPA: 3.9/4 | Key Courses: Analysis of Algorithms, Operating Systems, Scalable Cloud Computing, Optimization Theory, Applied Probability Models, Bayesian Methods, Stochastic Processes, Theory of Networks*, Algorithmic Game Theory*.

Master of Science, *Computer Science, Concentration in Artificial Intelligence* **2024 - 2025**
GPA: 3.9/4 | Key Courses: Statistics for Data Science, Machine Learning, Ethical Algorithms, Convex Optimization, Deep Learning, Computational Learning Theory, Large Language Models, Uncertainty Estimation, Distributed Systems*.

Professional Experience

Susquehanna International Group, *Quantitative Developer Intern* **Jun 2024 - Aug 2024**
Tech Python, RipTable, Jupyter, GitLab, TypeScript, Airflow, gRPC
- Worked in *Strategic Options Trading* specialized pod for platform and strategy development in systematic trading.
- Implemented harness app to gracefully support intraday strategy changes with versioning, autofill, and validation.
- Collaborated with market-making group to compute and deliver live data feeds for volatility surface modeling.
- Performed statistical analysis to predict the health of critical feeds by trading open and set up monitoring tools.

Ion Protocol, *Blockchain Research Engineer* **Sep 2023 - Mar 2024**
Tech Go, Solidity, Rust, PostgreSQL, Azure, Grafana, JSON-RPC
- Engineered gas-optimized smart contracts to power DeFi products (e.g., lending markets, yield oracles) for LSTs.
- Assembled zero-knowledge verification tools for proof-of-reserve by investigating Ethereum storage layout rules.
- Led data engineering efforts for protocol surveillance system to verify financial invariants, monitor AMM (automated market-maker) liquidity pools, and systematically adjust parameters to maintain protocol solvency.
- Designed performant (<**5ms**) Rust bot under Artemis framework that runs swap simulations and fires automated arbitrage strategies on live AMM activity in order to prevent counterparties from draining Ethereum liquidity.

Tesla, *Software Engineer Intern* **May 2023 - Aug 2023**
Tech Python, MySQL, Redis, Docker, Jenkins, Kubernetes, Splunk, Elasticsearch
- Worked under *Applications Engineering* team to build and monitor services that handle pricing and configuration of Tesla products in 42+ global markets. Worked with DevOps to reduce response times for core APIs by ∼**40%**.
- Integrated pricing contexts for Tesla Insurance into used-car valuation service and wrote scalable algorithms to extract cheapest vehicle comps to reduce fees to third-party vendors (estimated annual impact of **$6M**).

VO2 Fans, *Founding Software Engineer* **May 2022 – Nov 2022**
Tech JavaScript, MERN, AWS, ThirdWeb SDK
- Harnessed web3 technology and "engage-to-earn" model to improve sports fan engagement by enabling fans to become stakeholders in their favorite athletes (raised **$350K** in pre-seed, **Techstars '22** Sports Accelerator)
- Built and designed backend stack and shipped software features relating to securing APIs, handling crypto transactions, and developing reward mechanisms for core platform (**5000+** monthly visits).

Research and Part-Time Experience

ESE @ Penn Engineering, *Deep Learning Research* **Sep 2024 – Present**
- Studying optimization theory and its applications to deep learning under Nikolai Matni's Unstable Zeros group.
- Exploring higher order optimization algorithm design for efficient representation and feature learning tasks.
- *Recent Academic Research Topics*: spectral dynamics of latent spaces, split conformal prediction and calibration methods, CTR prediction and liquid welfare guarantees for autobidding systems, LLM post-training quantization

Open Core Ventures, *Open-Source Investment Research* **Jul 2022 – Present**
- Performing technical due diligence and market research on **200+** open-source software projects across various industries (e.g., DevOps, gaming, GenAI). Advised **$2M** seed investments such as DeepMake, Kedify, Locust.
- Implemented various software and automation tools to reduce backlog in the investment research pipeline by **33%**.

Penn Labs, *Software Back-End Development* **Feb 2022 – Jan 2024**
- Co-managed **20,000+** LoC codebase (Python Django, PostgreSQL) and interface with front-end engineers to handle exceptions and create RESTful APIs. Community software products used daily by **12,000+** Penn students.
- Implemented schedule-sharing feature on Penn Course Plan which involved significant backend design changes.

Skills and Interests

PLs/Libraries: Python (pandas, sklearn, torch, tensorflow), JavaScript, Go, Java, C, OCaml, Bash, SQL, Solidity, Rust
Research Interests: optimization theory, NLP, statistical learning theory, blockchain infrastructure, DeFi, open-source
Hobbies: tricking, educational outreach, hip-hop dance, SF Bay Area sports, chocolate milk, canoeing, poker, spikeball