Nick Felix

New York, NY

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Education

Columbia University **May 2027**

Bachelor of Arts in Computer Science and Mathematics-Statistics *New York, NY*

- Columbia University Division 1 Track & Field; Columbia Poker club; Competitive Programming club;

Relevant Coursework

- Analysis & Optimization
- Probability Theory
- Calc I, II, III
- Competetive Programming
- Science/Theory of Blockchains
- Advanced Programming
- Data Structures
- Artificial Intelligence
- Computer Architecture
- Linear Algebra
- Discrete Mathematics
- Computer Science Theory

Experience

Claimtek **May 2024 – August 2024**

Software Engineer Intern *Irvine, CA*

- Built web portal for licensees to manage account information, submit support tickets, and complete workflows
- Replaced manual client onboarding by automating legacy phone-base workflows, reducing manual onboarding interactions by 40% and decreasing staff support workload
- Deployed containerized Flask backend on AWS EC2 and provisioned a PostgreSQL instance via Amazon RDS to support HIPAA-compliant medical billing workflows

Columbia University Head TA **Jan 2025 – Present**

Teaching Assistant *New York, NY*

- Graded assignments, scheduled office hours, and organized student discussions for an intro & graduate level CS course

Flow AI **May 2025 – Present**

Co-Founder/Developer *Remote*

- Built after-hours SMS scheduling assistant for local orthodontist using Twilio, & LLM with tool-calling
- Designed a scheduling core with concurrency-safe slotting, guardrails for hours/buffers, and logging system, enabling 24/7 self-booking & reducing front-desk load by 30%

Projects

Automated Arbitrage Betting Market Bot | *Python, Docker, MongoDB* **October 2024**

- Automated identification of arbitrage opportunities from hundreds of markets across betting sites using APIs and WebSockets, packaged results in CSV & discord bot to notify users (Kalshi, Polymarket)
- Wrote filtering algorithm to identify high-confidence correlated betting events, leveraging cosine similarity and large language models (LLMs) to increase efficiency and reduce false positives by over 60%
- Containerized pipeline with Docker. Facilitated a MongoDB schema to store arb events and correlated market data

Cryptocurrency Token Arbitrage - Multichain Arb | *Python, Solidity, Graph Theory* **April 2025**

- Developed a multithreaded arbitrage system to detect and execute profitable token cycles across L1/L2 chains using a modified Bellman-Ford (MBF) algorithm
- Engineered blockchain state listening, graph construction, gas-aware cycle detection, & Flashbots-compatible execution
- Extended system to handle cross-chain execution via Sequence-Independent Arbitrage (SIA) and collateralized lending schemes to facilitate non-atomic currency pair transactions

Blackjack | *C++* **December 2024**

- Programmed Blackjack game/library from scratch to simulate 1M+ games to assess EV of different game strategies

Hand Gesture Classifier Machine Learning | *Keras, Python, Pandas, Google Colab* **November 2024**

- Implemented a CNN architecture with one-hot encoding, translating hand gestures to text with over 99% accuracy
- Incorporated dropout layers to address overfitting, enhancing performance by $\approx 10\%$ on validation data

Sudoku Solver | *C++, Python* **September 2024**

- Solved 100% of valid Sudoku puzzles with backtracking/forward checking algorithm with MRV heuristics

Technical Skills

Languages: C/C++, Python, Java, JavaScript, HTML/CSS, Swift, Solidity, R, Git, Typescript, Ruby
Tools/Libs/Concepts: VS Code, Vim, Github, Keras, sk-learn, Matplotlib, REST APIs, WebSockets, NLP, Statistical Modeling (NumPy/Pandas), Optimization, Linear regression, Probability, FLP Theorem, Blockchain, Consensus Protocols
Technologies/Frameworks: React, Node.js, Tailwind CSS, Bootstrap, MongoDB, Django, Flask, Docker, Kubernetes, AWS, PostgreSQL, Azure
Interests: Running, Surfing, Salsa, Bachata, Tennis, Pickle-ball, Sailing