

Barrett Ruth

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EDUCATION

University of Virginia

Bachelor's of Computer Science

Charlottesville, VA

Aug. 2022 – May 2026

GPA: 3.99/4

- **Coursework:** Advanced Algorithms, Operating Systems, Algorithmic Economics
- **Activities:** ICPC, theCourseForum, Cavalier Autonomous Racing, HooHacks 2x Winner

EXPERIENCE

DRW

June – August 2025

Software Developer Intern

Houston, TX

- Implemented “Exchange Equivalence,” a portfolio analysis tool that hedges risk exposures of FTR trades
- Developed “Constraint Exposure”, a suite of FTR arbitrage tooling
- Optimized dynamic spanning tree data structure used across all market simulation runs, saving $\approx$ \$10,000/mo

Ramp

September – December 2025

Backend Software Engineering Intern

New York City, NY

- Developing internal bulk fraud credit card dispute processor, est. saving $\approx$ \$100,000/yr, CX $\approx$ 10,000 hours/yr

UVA Insight Computer Architecture Lab

January – May 2025

Hardware Profiling Research Assistant

Charlottesville, VA

- Profiled memory hierarchy of NVIDIA GH200 Superchip, specializing in large-scale GEMM

TRB Capital Management

May – August 2024

Software Engineering Intern

Charlottesville, VA

- Developed frameworks and algorithms for medium-frequency trading application with TWS API
- Implemented SWIG backtesting, CI with Catch2/gcov, and strategy deployment

VISA

May – August 2024

Software Engineering Intern

Austin, TX

- Piloted “GenAI Support Assist,” automating resolution of global authentication support issues, reducing team’s weekly debugging time by 8 hours and selected by Senior VP of Payment Solutions
- Sole intern to deploy to internal cloud platform CloudView, utilizing GenAI APIs (Ada-002, GPT) to poll real-time production data, storing embeddings/logs in VectorDB/MySQL, and authenticated frontend for support staff

Nth Venture Studio

February – August 2023

Data & AI Intern

Austin, TX

- Implemented technical MVP for CERTD (employee upskilling seed startup)

PROJECTS

Cavalier Autonomous Racing | ROS, C++, CMake

April 2024 – Present

- Refactored state machine to handle emergency racing scenarios using ROS2 and in-house YAML validator
- Migrated GUI to Qt C++, increasing data throughput by 25% enabling asynchronous monitoring of car metrics

theCourseForum | Django, PostgreSQL, JQuery, AWS

August 2022 – May 2025

- President of largest university course and grade analytics platform serving 20,000+ students (85% student body)
- Implemented trigram/reverse-indexing search algorithm supplanting Elasticsearch, saving \$150/mo

none-ls | C, Lua, Plenary

- Core maintainer of NeoVim’s largest (2.9k+ stars, 10k users) LSP integration framework

guard | Lua, libuv, busted

- Developed first NeoVim asynchronous formatting and linting utility (6k users) with Lua coroutines

TECHNICAL SKILLS

Languages: Python, C, C++, Java, JavaScript, TypeScript, HTML/CSS, SQL, Lua, Shell, Bash

Technologies/Frameworks: React, Node.js, Next.js, Git, Docker, AWS, GCP, Redis, Protobuf, Jenkins