

Barrett Ruth

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EDUCATION

University of Virginia

Charlottesville, Virginia

Bachelor's, Computer Science, Economics; GPA: 3.99/4.00

Expected May 2026

- **Clubs & Activities:** ICPC, Cracking the Interview, Google DSC, ACM, Open-Source Software
- **Coursework:** Data Structures, Algorithms, Operating Systems, Software Development, Discrete Math, Cybersecurity

EXPERIENCE

VISA

Austin, TX

Software Engineering Intern

May 2024—August 2024

- Incoming on the Global Marketing and Authentication Portal (GMAP) Team

UVA Department of Computer Science

Charlottesville, VA

Undergraduate Research Assistant

January 2024—Present

- Independently developed auto-grader generator integrated with grading, LMS, and student feedback systems
- Partnering with faculty to streamline homework design process, expecting a 50% reduction in creation time, average increased grades by 20%, and improved student code quality with formative feedback

Nth Venture Studio, CERTD

Austin, TX

Software Engineering Intern

February 2023—August 2023

- Implemented an assessment platform to validate employee skills with FastAPI, PostgreSQL, Celery, and OpenAI transformer technologies, reducing content creation time by 80%, shared with and approved by CEO and investor board
- Designed job-handling and batching to increase client iteration speeds by 20% using event processing with Redis and RQ

GoTransverse

Austin, TX

Software Engineering Intern

August 2022—February 2023

- Pioneered and implemented internal environment release management system with using Swagger, Flask and PostgreSQL
- Reduced the time to dispatch jobs by 25% by revamping frontend UI with ReactJS and TailwindCSS technologies
- Implemented cloud billing solutions, communicating with international teams during school year for 16 consecutive months

PROJECTS

TRB Capital Management

Incoming Software Engineer

May 2024—Present

- Developing low-latency quantitative asset manager with C++

Cavalier Autonomous Racing

Safety & Autonomy Software Engineer

April 2024—Present

- Manage real-time racing GUI and car state using ROS2 and Qt, directly interfacing with sensor hardware

Course Forum | Django, HTML/CSS, jQuery, DigitalOcean, Google Cloud Platform (GCP)

President

August 2022—Present

- Lead development of the University of Virginia's premier course review platform, serving 41,000+ users (85% student body)
- Direct 50+ members across software development, UI/UX design, and digital marketing teams for timely releases
- Implemented trigram/reverse-indexing search algorithm saving \$150 monthly and increasing user retention by 15%

Proficio AI | React.js, Daisy UI, Amazon Web Services (AWS), Google Auth, OpenAI, Selenium

- Developed technical and behavioral interview preparation assistant, placing 2nd at HooHacks (Virginia's largest hackathon)
- Implemented personalized resume-specific advice via Amazon Textract and industry-specific preparation with GPT-4
- Deployed to AWS using Lambda to run user code, API Gateway Websockets for real-time feedback, and DynamoDB

Atlas | Next.js, D3.js, TailwindCSS, Latex

- Develop and maintain machine learning research journal, focusing on cutting-edge transform technologies and the interpretability of novel black-box algorithms (VQ-VAE, GPT, Diffusion)

TECHNICAL SKILLS

- **Languages:** Python, Java, HTML/CSS, JavaScript, TypeScript, C, C++, PostgreSQL/MySQL, Lua, Bash, R
- **Frameworks:** React, Flask, Django, Node.js, JUnit, Next.js
- **Technologies:** Git, Docker, Linux, AWS, GCP, Redis, Zookeeper, Kafka, gRPC, ROS 2, Selenium, Protobuf