Nicholas Hoffs

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Education

University of Virginia, Charlottesville, VA **August 2022 - Present**
Computer Science B.S. / Mathematics B.A.
- Computer Science degree from School of Engineering and Applied Sciences
- Math degree from School of Arts and Sciences with financial concentration
- 3.913 Cumulative GPA

Laguna Beach High School, Laguna Beach, CA **September 2018 - June 2022**
High School Diploma
- 4.57 Weighted GPA; 3.97 Unweighted GPA
- 35 ACT; National Merit Scholar Semi-Finalist; AP Scholar with Distinction

Stanford University Summer Session, Palo Alto, CA **Summer 2021**
Math 51
- Rigorous 8 week program covering linear algebra and multivariable calculus

Palo Alto High School, Palo Alto, CA **September 2019 - June 2020**

Experience

Cavalier Autonomous Racing, *Perception/Motion-Planning* **May 2024 - Present**
- Researching and implementing path prediction and computer-vision algorithms to improve robustness and generalization to unforeseen road conditions
- Interfaced programs with ROS2 to facilitate communication between various components of autonomous driving stack

Caju AI, *Staff AI Engineer* **May 2024 - August 2024**
- Researched, architected, and implemented comprehensive evaluation suite for AI software, including RAG (Retrieval-Augmented Generation) pipelines, classification models, and entity extraction systems

Unbox, *Website Development and Designer* **June 2020 - February 2021**
- Created website and set up hosting to provide critical information on public food infrastructure to families in need (www.unboxproject.org); thousands of active users
- Led frontend development initiatives in collaboration with a team of 15+ members

Fiverr, *Freelance Writer* **February 2019 - July 2019**
- Freelance authored web development and videogame content, averaging 10-100k views per post

Projects

- Building tensor backend for TinyGround - a WebGL-accelerated tensor automatic-differentiation website for quickly training, executing, and sharing neural-network based architectures
- Implemented MNIST handwritten-digit network and training with custom tensor library in C using standard library
- Reproduced results from papers in mechanistic interpretability to reverse-engineer neural networks' learned algorithms
- Executed custom, large-scale GPT pre-training run in the TinyGrad deep learning framework

Extra Curricular Activities

- High-School/College Water Polo: 4 year Varsity starter at Top-10 nationally ranked high-school team; Assistant-Coach/Player for UVA Men's Club Water Polo program
- Practitioner of Brazilian Jiu-Jitsu at Gracie Charlottesville and Judo Club San Sebastian

Technical Skills

- Machine Learning and Data Science: PyTorch, TinyGrad, Pandas, LangChain, OpenAI API, FastAPI, Embeddings
- DevOps Tools: Git, GitHub, GitLab, Docker, Jira, AWS Lambda, AWS Step Functions, AWS EC2
- Programming Languages: Python | C++ | Javascript | TypeScript | Java | C | MATLAB | PostgreSQL
- Robotics Software/Hardware: ROS2, LIDAR, RADAR, Camera