Andrew Schineller

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Education

- **Virginia Tech** — Blacksburg, VA
  B.S. in Computer Engineering, focus in Machine Learning; GPA: 3.66 — *Expected May 2027*

Relevant Coursework: Software Design & Data Structures, Digital Systems, Differential Equations, Discrete Math
Clubs & Societies: IEEE @ VT (University Relations Officer), AI @ VT, Data Structures & Algorithms Club

Experience

- **Hokie Electric Vehicle Team** — Blacksburg, VA
  Connected and Automated Vehicles Lead — *January 2024 - Present*
  - Worked on augmenting a 2023 Cadillac Lyriq with advanced connectivity and autonomous technology features for EcoCAR EV Challenge, achieving **4th overall** and runner-up in "Best Connected & Automated Vehicle Systems"
  - Built a robust perception system with **sensor fusion** and **object tracking** to support adaptive cruise control development via LIDAR and camera sensors in MATLAB and C++
- **Metal Jackets, Team 2068** — Manassas, VA
  Head of Software — *September 2019 - June 2023*
  - Directed software development of the entire organization, collaborated with and managed a team of 8 programmers using agile methodologies & development. Led team to Excellence in Engineering award and qualified for the District Championship **2 years in a row.**
  - Wrote custom C driver for RP2040 board to parse data from I2C and RS-232 connected sensors, sending signal to NI RoboRIO via UART protocol, preventing crashes from bandwidth limitations
  - Developed robot localization library in Java by fusing gyroscope and encoder readings with measurements from computer vision via OpenCV and AprilTag visual fiducials, improving robot tracking performance by **11%**

Projects

MAGNeT.cpp | *C++, Python, GGML, Pytorch*
- Implemented Meta's state-of-the-art MAGNeT machine learning model to create audio samples and music transitions via masked generation with a non-autoregressive transformer
- Improved inference speed by **60%** over reference implementation on CPU and Metal backends by rewriting from scratch in C++ with GGML tensor library
- Ensured correctness with reference implementation by writing unit tests interfacing with C++ to Pytorch implementation
- Quantized model from FP16 to FP8 format, reducing memory consumption by **50%**

HerHousing | *TypeScript, SvelteKit, Python, Gemini LLM*
- Built web application to find off-campus housing for students based on availability, desirability, safety metrics, and user feedback, **reducing search time by 71%** on average
- Created novel ranking algorithm by fine-tuning Google's Gemini large language model on user reviews scraped from 12 sites to determine sentiment feedback for each property

Insights.tf | *Rust, Python, JavaScript, Amazon Web Services, PostgreSQL*
- Created a stats analytics platform for the RGL eSports league, tracking over **1000 users in 60,000 matches** to create data-driven storylines about players
- Developed data solutions infrastructure in the cloud with AWS RDS PostgreSQL database in Rust and Python, able to scan through 500 matches and fetch relevant data in **less than 2 seconds**
- Architected data pipeline and API with AWS SQS and Lambda functions, able to handle throughput of over **1000** game event files concurrently

Technical Skills

Languages: Rust, Python, Java, JavaScript, SQL, C/C++, Verilog/SystemVerilog
Frameworks & Tools: Pytorch, NumPy, Tensorflow, Pandas, Git, GitHub, React, Svelte, Figma, Docker, PostgreSQL
Concepts: REST APIs, Microservices, Distributed Systems, Machine Learning, Data Structures, Algorithms

Awards

President's List (Fall 2023), Dean's List (Fall 2023), Honorable Mention: Best Housing Hack (HackViolet 2024)