Charles Ison

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https://github.com/charles-ison

Experience

Machine Learning Engineer, HP
February 2026 - Present
40 hours per week
Corvallis, OR

- Pending

Machine Learning Engineer Intern, HP
June 2025 - November 2025
40 hours per week
Corvallis, OR

- Reduced inference latency of image segmentation model by 90% , while also improving downstream classification model accuracy by 18.75%
- Fine-tuned Conditional DETR object-detection model for custom use case
- Helped guide dataset curation for training and testing of computer vision models

AI & ML for Air Traffic Management Intern, NASA Ames Research Center
January 2025 - May 2025
40 hours per week
Mountain View, CA (Remote)

- Worked on representation learning system for historical air traffic management initiatives
- Co-authored and presented paper in Digital Avionics Systems Conference 2025
- Leveraged variational autoencoders (VAEs) and gated recurrent units (GRUs) to create compressed time-series embeddings for input into downstream classification and nearest neighbors models
- Developed interactive visualization application for subject matter experts to explore VAE latent space
- Recipient of Shining Star award, the highest honor given to NASA interns

Graduate Research Assistant, Oregon State University
June 2023 - December 2024
20 hours per week
Corvallis, OR

- Developed computer vision system for wildlife detection and counting on camera trap images for Oregon Department of Transportation
- Model performance surpassed currently published state-of-the-art for camera trap wildlife counting

Graduate Teaching Assistant, Oregon State University
Sept 2022 - June 2023
20 hours per week
Corvallis, OR

- Guided undergraduate students during the development of their senior capstone projects using previous industry experience

Software Development Engineer II, Amazon
Oct 2021 - Sept 2022
40 hours per week
Seattle, WA

- Project lead for 8 person team working on a multiyear initiative to rearchitect a business critical, monolithic backend service into microservices
- Collaborated across multiple teams for extensive research and design on long-term architectural vision
- Became a subject-matter expert for business domain and provided feedback for others working in the area through design reviews, code reviews, and weekly office hours
- Improved service caching and thread pool tuning
- Provided mentorship through weekly meetings with junior software development engineers

Software Development Engineer I, Amazon
July 2019 - Oct 2021
40 hours per week
Seattle, WA

- Worked closely with business team to design components for legacy Java service that met business requirements while also reducing latency and removing technical debt

- Rewrote build system in Gradle to reduce build times by 50% and save four plus hours of cumulative engineer time per day
- Served as a dedicated mentor for two interns and onboarded several new hires onto the team
- Delivered time sensitive changes to unblock multiple major project launches
- Gave presentations on pipelines and test automation within team

Software Development Engineer Intern, Amazon — May 2018 - Aug 2018, 40 hours per week, Seattle, WA

- Developed internal Ruby on Rails and SQL system for Amazon Music playlist curators
- Tool enabled curators to automate the generation of playlists using historical customer listening data
- Communicated with a wide range of stakeholders to design a streamlined system that reduced a partnering team's weekly workload by 37 hours

Athletic Academic Services Tutor, Clemson University — Jan 2018 - May 2018, 10 hours per week, Clemson, SC

- Tutored student athletes in discrete mathematics, computer organization, and business calculus

Undergraduate Teaching Assistant, Clemson University — Aug 2017 - Dec 2017, 10 hours per week, Clemson, SC

- Assisted during labs for Software Development Foundations
- Graded exams and lab assignments

Software Engineering Intern, Avid Technology — June 2017 - July 2017, 40 hours per week, Berkeley, CA

- Worked on team responsible for Pro-Tools, industry standard for digital audio workspaces
- Developed C++ application using JUCE framework to validate third-party developer's AAX plugin's compatibility with Pro-Tools

Education

MEng **Oregon State University**, Computer Science — 2022 - 2025, Corvallis, OR

- GPA: 4.00/4.00
- Coursework: Deep Learning, Machine Learning, Geometric Processing, Algebraic Topology, Differential Geometry, Topological Data Analysis (TDA), Scientific Visualizations, Algorithms, High-level Synthesis (HLS), and Theory of Computation

BS **Clemson University**, Computer Science — 2015 - 2019, Clemson, SC

- Graduated Magna Cum Laude and a member of the Honors College
- GPA: 3.92/4.00
- Minor in Mathematical Sciences
- Scholarships: Palmetto Fellows, Presidential Scholarship, Clemson Scholar

Projects

A Multi-Planar Graph Visualization of Transformer Multi-Head Attention — 2023

- Worked on creating a novel, interactive visualization for Tranformer neural network multi-head attention
- Implemented as a wrapper for the Pytorch Transformer implementation

AlphaGo Zero Lite — 2023

- Developed a light-weight implementation of AlphaGo Zero that can be trained and run on a personal laptop to play board games through a command-line interface
- Implemented in PyTorch

Visualizing the Loss Landscape of Neural Nets 2022

- Trained CNN models on the CIFAR-10 dataset and visualized the weights during backpropagation as a scalar field using dimensionality reduction
- Inspired by the 2018 NeurIPS paper from Hao Li et al.

Technical Skills

Languages: Java, Python, C++, C, R, Ruby, JavaScript, HTML, CSS

Machine Learning Libraries: PyTorch and TensorFlow

Databases: SQL and NoSQL

Cloud Computing: Familiar with AWS tools: Lambda, DynamoDB, S3, API Gateway, CloudFront, CloudFormation and CDK

Graphics: OpenGL and Blender

Application Development: Qt and JUCE

Continuous Integration and Continuous Deployment: pipelines, unit testing, integration testing, functional testing, stress testing and canary testing

Software Development: object-oriented programming, design patterns and multithreaded computing

Hobbies

Backcountry Skiing: AIARE - Level 1 Avalanche Training

Mountain biking: Treasurer for the OSU Cycling Club

Music production