

# Oliver Perrin

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## EDUCATION

### Appalachian State University

B.S. Computer Science, Minor in Mathematics, Data Science Certificate

Boone, NC

Expected May 2026

- Relevant Coursework: Applied Machine Learning, Data Structures & Algorithms, Database, Numerical Methods
- Projects: Mathematical language interpreter (Haskell), Y86 pipelined CPU simulator (C/C++), 2D game engine (Java)
- Team Captain, University Esports Club

## EXPERIENCE

### Data & Systems Engineering Intern

Triaxis Power Consulting LLC

June 2023 – August 2024

Charlotte, NC

- Deployed IoT monitoring system with Raspberry Pi 4, thermocouples, and potentiometers to track pipe temperature and thermal expansion in fossil fuel power plants for predictive maintenance
- Built Python pipeline to process and visualize sensor telemetry with automated cloud sync and remote access via PiTunnel for continuous monitoring across multiple plant sites
- Engineered NAS-to-SharePoint integration with automated folder sync, reducing manual transfers by 80% and centralizing 500GB+ of engineering data

### Data Science Participant

The Global Career Accelerator

May 2025 – July 2025

Remote

- Analyzed production datasets from Intel, Lyft, OpenAI, Spotify, and The Recording Academy across international teams of 6+, delivering data-driven business insights
- Applied SQL for complex queries on multi-million row datasets and Python (Pandas, Plotly) for statistical analysis and interactive visualizations

## PROJECTS

### Multi-Task Transformer for Document Analysis | PyTorch, Transformers, Python

In Progress

- Building custom Transformer for abstractive summarization, emotion classification, and topic clustering on literary and article datasets (Project Gutenberg, news corpora)
- Implementing encoder-decoder architecture with attention mechanisms and multi-label classification for emotion detection with user-defined compression levels
- Developing interactive interface with attention weight visualization for model interpretability

### F1 Race Outcome Predictor | Python, Scikit-learn, Streamlit, Pandas, Seaborn

Nov 2025

- Built end-to-end ML pipeline to predict Formula 1 race outcomes using FastF1, processing qualifying and race data across multiple seasons with automated data collection and feature engineering
- Trained Random Forest regression (MAE 1.78 grid positions) and Logistic Regression classifiers (93.8% accuracy) to predict finishing positions and qualifying performance with scenario planning for upcoming races
- Deployed interactive Streamlit dashboard with model diagnostics, historical analysis, and future race simulations

### PlayAxis: Full-Stack Events & Sports Platform | React.js, FastAPI, PostgreSQL, Docker

Sep 2025

- Built platform aggregating real-time schedules, scores, and data for events and sports by integrating 3+ external APIs with FastAPI backend (Pydantic validation) and PostgreSQL database
- Containerized with Docker; automated CI/CD via Netlify (frontend) and Koyeb (backend), reducing deployment time by 60%.

## TECHNICAL SKILLS

**Languages:** Python, C/C++, Java, SQL, JavaScript, Haskell, Assembly, Maple

**ML & Data:** PyTorch, Transformers, TensorFlow, Scikit-learn, Pandas, NumPy, Matplotlib, Plotly

**Systems & Web:** FastAPI, React.js, PostgreSQL, Node.js, Docker, Git, Linux, REST APIs, CI/CD, TailwindCSS