Cooper Charles

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EDUCATION

University of Tennessee, Knoxville | Knoxville, TN **Expected May 2028**

B.S. in Computer Science, Minor in Machine Learning | GPA: 3.7/4.0

- **Relevant Courses:** Software Engineering, Introduction to Machine Learning, Systems Programming, Computer Organization, Data Structures, Algorithms, Algorithm Analysis
- **Honors:** Dean's List

TECHNICAL SKILLS

Languages: C++, Python, JavaScript, Swift
Frameworks/Libraries: React, React Native, Next.js, Flask, SwiftUI, PyTorch, pandas, NumPy
Tools/Platforms: Git, Linux, Supabase, Raspberry Pi, ESP32, REST APIs, CUDA

RELEVANT EXPERIENCE

Computer Science Intern | Boys & Girls Clubs of Middle Tennessee **Nashville, TN | Summer 2026**

- Developed and integrated a production-grade administrative analytics dashboard within an existing iOS application using Swift and SwiftUI.
- Analyzed an existing codebase, debugged integration problems, and collaborated through code reviews and iterative feature development.
- Worked within an Agile development environment, contributed to sprint planning, testing, and release workflows for deployment through the Apple App Store.

PROJECTS

Real-Time Sports Scoreboard Platform | *ESP32, C++, Python, Raspberry Pi, Flask, React Native*

- Built an end-to-end networked sports scoreboard system using custom embedded C++ firmware, Raspberry Pi servers, Flask APIs, and a 64x32 RGB LED matrix.
- Designed REST endpoints for live scores, device settings, heartbeat monitoring, and per-device configuration.
- Developed a React Native mobile interface to manage brightness, refresh rate, sport selection, and team settings.

Geospatial Image Classifier | *Python, PyTorch, ConvNeXt, pandas, CUDA*

- Trained a ConvNeXt-Tiny computer vision model on approximately 200,000 geolocation images across 20 country classes, achieving over 92% test accuracy.
- Built a full preprocessing, training, validation, and testing pipeline to classify countries from visual geographic features.

Sports Analytics and Ranking Platform | *Next.js, React, Python, Supabase, Raspberry Pi* | *zsl.coopercharles.me*

- Built an automated sports analytics pipeline that collects over 5,000 games, computes custom team rankings for five professional sports leagues, and publishes updated results daily from a Raspberry Pi.
- Designed a Supabase-backed data architecture to store computer rankings and make current results available to a deployed web application.
- Developed a responsive Next.js and React interface for viewing and comparing team rankings across all supported sports.

LEADERSHIP EXPERIENCE

Book to Build | University of Tennessee, Knoxville **October 2025 - Present**

Computer Science Liaison

- Lead a team of over 100 students by organizing programming workshops and technical events for the college's engineering community.
- Oversee recruitment, communication, and coordination of subcommittees focused on project development and outreach.