

# Logan Nitzsche

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[Personal Website](#) | [LinkedIn](#) | [GitHub](#)

## Skills

Python, C/C++, JavaScript, TypeScript, PHP, MySQL, React, Next.js, Node.js, Apache Spark, Git, Docker, Google Cloud Platform

## Education

### Master of Science in Computer Science

Expected 12/2025

*Southern Illinois University Edwardsville | Edwardsville IL*

- Accelerated Combined Degree Program Participant

### Bachelor of Science in Computer Science

Expected 05/2025

*Southern Illinois University Edwardsville | Edwardsville IL*

- Minor in Mathematics
- Founder and President, Machine Intelligence Community

## Projects

### NWA Pinball Website (Next.js, Node.js, React, TypeScript, GCP, Docker)

- Built and deployed a containerized web application on Google Cloud, leveraging Next.js with SSR and SSG for optimized performance
- Implemented API Integrations with Node.js, handling requests for the Facebook API, Pinball Maps API, Google Drive API, and Google Apps Script API
- Led agile development sprints, utilizing Jira for workflow management and k6 for load testing, ensuring system scalability under varying traffic conditions

### Event Tracking Platform (PHP, JavaScript, MySQL, GCP, Docker)

- Built and deployed a web application on Google Cloud to log and manage event attendance with secure user authentication and encrypted passwords
- Implemented full CRUD functionality for admin controls and configured DNS for custom domain setup

### Algorithmic Trading Framework (Python, Apache Spark, Scikit-Learn, Pandas, Matplotlib)

- Developed a scalable trading framework with two ML execution modes: PySpark with MLlib for distributed data handling of large-scale market data and Scikit-Learn with Pandas for efficient in-memory modeling
- Implemented Decision Tree, Linear Regression, Random Forest, and SVM to power prediction-based trading strategies (Mean Reversion, Moving Average Crossover, RSI Overbought/Oversold, and Threshold-Based Momentum) with JSON parsing for configurable parameters
- Retrieved market data using the Yahoo Finance API and visualized model predictions, trade performance, and market trends with Matplotlib

### News Scraper and Article Generator (Python, BeautifulSoup, OpenAI API)

- Developed an automated web scraper using BeautifulSoup to extract data from HTML and XML files
- Implemented AI-driven article generation, leveraging the OpenAI API for content creation while securely managing API keys via an environment file (.env)

### Word Analysis Website (JavaScript, HTML, CSS)

- Developed a real-time spell-checking and word analysis tool, managing 460K+ words and integrating 2.3M+ external resources (dictionaries, thesauruses, Google Trends, and RhymeZone), deployed on GitHub Pages

## Experience

### Graduate Teaching Assistant

08/2024 - Present

*Southern Illinois University Edwardsville | Edwardsville, IL*

- CS 456: Analysis of Algorithms
- CS 590: Digital Image Processing

### Undergraduate Research Assistant

07/2023 – 05/2024

*Southern Illinois University Edwardsville | Edwardsville, IL*

- Developed and deployed an interactive corn growth simulation on GitHub Pages, leveraging JavaScript for dynamic visualization