

# Brady Wozniak

woznia93@msu.edu | (586) 604-0983 | [www.linkedin.com/in;bradywozniak](https://www.linkedin.com/in;bradywozniak) | <https://github.com/wozniak93>

## EDUCATION

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**Bachelor of Science, Computer Science**  
Michigan State University – East Lansing, MI

**Expected Graduation: April 2027**

## EXPERIENCE

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**MES Intern - Magna International, Troy, MI** May 2025 – Aug 2025  
- Developed AI-driven automation using Copilot Studio, Runn's API, and Azure services to streamline scheduling and engineering workflows, improving productivity by 30%.  
- Designed and implemented backend APIs and integration testing for a scalable MES architecture supporting future AI/ML automation.  
- Built automation pipelines with Node-RED and Flow Fuse to reduce manual ticket triage and bug resolution workloads by 40% and accelerate deployment cycles.

**Research Assistant - Michigan State University, East Lansing, MI** Feb 2024 - Current  
- Assembled an MLP-based autoencoder in PyTorch to reconstruct molecular structures with 99% accuracy, enhancing representation learning for biophysics datasets.  
- Converted a PyTorch LLM to PyTorch Lightning, reducing training complexity by 50% with automated loops, checkpointing, and reproducible workflows.  
- Optimized data preprocessing (normalization and denoising) and collaborated with researchers to refine deep learning models for improved performance and accuracy.

## PROJECTS

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**Carry Me - Valorant-Inspired Risk-Based Elo System** (Python, MongoDB, Flask) Jan 2025 – Feb 2025  
- Implemented a custom risk-reward Elo matchmaking system using Python to balance competition across mixed skill levels.  
- Built a scalable Flask + MongoDB backend and optimized query performance, reducing leaderboard update and stat retrieval latency by ~30%.  
- Designed a ranking pipeline integrated with MongoDB for handling large competitive workloads efficiently.

**Educational Website** (React, Flask, SQL) June 2024 – Aug 2024  
- Built a full-stack educational website for international students using React, Flask, and SQL, featuring user authentication, account management, and secure backend logic with database integration.  
- Integrated social media APIs to expand platform engagement and used Git for version control to support collaboration and maintain a clean development history.

**Mario Speed Run Assistant** (Python, KD-Trees) Sept 2023 – Oct 2023  
- Built a real-time Python path optimization engine for Super Mario 64, analyzing character state, environment data, and constraints to compute fastest routes and speedrun strategies.  
- Implemented KD-Tree nearest-neighbor lookups to quickly identify obstacles and platforms, significantly reducing computation time and improving system responsiveness.  
- Developed collision and terrain validation using bounding boxes and raycasting, refining movement heuristics and eliminating false-positive paths through gameplay testing.

## SKILLS

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**Programming:** Python, Java, C++, SQL, JavaScript, Typescript

**Frameworks/Libraries:** PyTorch, ReactJS, NumPy, Pandas, Flask, Node-RED

**Other:** Linux, Git, CSS, MongoDB, Azure, Docker, Terraform