# Lucas Swierad

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## EDUCATION

**University of Michigan** | Ann Arbor, MI **Dec 2026**
**Bachelor of Science in Engineering (B.S.E), Computer Science and Robotics — GPA: 3.3/4.0**
**Relevant Courses:** Intro to computer organization, Data Structures, Discrete Math, Multivariable Calculus

## TECHNICAL SKILLS

**Programming Languages: Python, C++, JavaScript, SQL, Verilog, HTML/CSS**
**Frameworks & Libraries: React.js, Node.js, Express.js, LangChain, scikit-learn, NLTK, Pandas, Matplotlib, Sequelize**
**Tools & Platforms: Git, JWT, Gradio, SolidWorks, Figma, Streamlit**

## PROJECTS

**Semantic Book Recommender using LLMs | Personal** **June 2025**
***Technologies: Python, OpenAI, LangChain, Gradio, ML***

- Created a semantic book recommendation engine using OpenAI embeddings to transform book descriptions into vector representations and retrieve similar titles via cosine similarity.
- Leveraged LangChain for LLM workflow orchestration and Gradio to deploy an interactive UI.
- Applied advanced NLP techniques to outperform traditional keyword-based recommenders.

**Self-Driving Car with Neural Network | Personal** **June 2025**
***Technologies: JavaScript, HTML5, CSS, Custom Neural Network***

- Developed a self-driving car simulation in JavaScript from scratch without external libraries, implementing physics-based driving mechanics, collision detection, and sensor systems.
- Trained a custom neural network to control the car's steering decisions based on sensor input.
- Visualized neural network behavior in real time to demonstrate learning and decision-making processes.

**Full Stack Web Application | Personal** **June 2025**
***Technologies: React.js, Node.js, Express.js, MySQL, Sequelize, JWT***

- Constructed a full stack web application with a React.js frontend and a MySql, Node.js, Express.js backend.
- Implemented user authentication and authorization using JSON Web Tokens (JWT) and secure password hashing.

**Twitter Sentiment Analysis | Personal** **June 2025**
***Technologies: Python, NLP, ML, scikit-learn, NLTK, Pandas, Matplotlib***

- Built a machine learning pipeline to classify tweets as positive, negative, or neutral using NLP techniques.
- Preprocessed raw tweet data through tokenization, stopword removal, stemming, and TF-IDF vectorization.
- Trained and evaluated multiple classifiers to optimize model accuracy and F1-score.

## PROFESSIONAL EXPERIENCE

**Kroger | Ann Arbor, MI** **May 2025 - Present**

- Maintained fresh, high-quality produce displays by rotating stock, checking for spoilage, and following proper food safety procedures.
- Assisted customers with produce selection and provided information on product availability and freshness.

## EXTRACURRICULAR EXPERIENCE

**Michigan Data Science Team:** **January 2025 - Current**

- Developed a machine learning model to predict flight prices using historical data, providing valuable insights into the factors influencing ticket costs using ML (Tabular) and Streamlit