

# MADLINE C. BUSSE

[madbusse@gmail.com](mailto:madbusse@gmail.com) | [madbusse.com](http://madbusse.com) | [github.com/madbusse](https://github.com/madbusse)

*Client-focused software engineer blending AI/ML, creativity, and business understanding to build scalable products and data systems that drive impact for global clients including Nike.*

## EDUCATION

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**The University of Chicago** | Chicago, IL 2021–2025

*Bachelor of Arts, Double Major in Computer Science and Philosophy & Allied Fields.*

- **GPA:** 3.7 | National Merit Scholar.
- **Relevant Coursework:** Algorithms, Data Science, Discrete Math, Security/Privacy, Systems, Robotics.

**AI Ethics Seminar at Duke University** | Durham, NC June 2024

- Sole undergraduate selected for intensive seminar on ethics of AI design and deployment.

## SKILLS

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- **Languages & Frameworks:** Python, JavaScript (React), C, R, Dart (Flutter), HTML/CSS.
- **Machine Learning:** TensorFlow/Keras, PyTorch, OpenAI API (LLM integration).
- **Cloud & Development:** Git, AWS, Docker, Jira, Agile Development, Confluence.

## EXPERIENCE

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**PMG, AI Software Engineer** | Dallas, TX June 2025–present

- Engineered an LLM-powered **dashboard generator** to create data visualizations from prompts, leveraging **LangChain agents** and **cache-augmented generation (CAG)** to reduce latency and cost.
- Architect full-stack data pipelines for TikTok and Pinterest **REST APIs**, storing data in **BigQuery cloud** and surfacing trending keywords in real-time **Looker dashboards** to cut Nike strategy cycles by ~20%.
- Build responsive front-end applications with **React** and **Ant Design**, applying component-based architecture to guarantee application reliability and maintainability.
- Automated **Nike North America's** media reporting via bespoke workflows uniting **Pandas** scripts and **Slack API**, eliminating ~50 analyst hours annually during peak season.

**Zenblen, Front-End Software Engineer Intern** | Chicago, IL July 2024–September 2024

- Managed and executed **end-to-end redesign** of a robotic kiosk UI, prototyping in **Figma** and implementing in **Flutter** to meet stakeholder specifications and ADA accessibility guidelines.
- Embedded a loyalty program into the kiosk via **interactive pop-ups**, collaborating with CEO and marketing to align **UX** with brand identity.

**Human Robot Interaction Lab, Research Intern** | Chicago, IL June 2023–August 2023

- Integrated a humanoid NAO robot with **ChatGPT API** and **ROS** to enable real-time speech and motion.
- Achieved **<1s dialogue latency** with hybrid static and AI-generated response algorithm.
- Automated **Python/R** data pipelines for 150+ participant experiments, running **ANOVA and LMER** statistical tests with **Matplotlib** visualizations for instant insights.
- Combined technical writing with accessible analysis in research paper presented to 50+ faculty and peers.

## PUBLICATIONS & PROJECTS

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**Computers in Human Behavior** June 2023–September 2025

- **The Impact of a Robot's Agreement (or Disagreement) on Human-Human Interpersonal Closeness in a Two-Person Decision-Making Task.** *Ting-Han Lin, Yuval Rubin Kopelman, Madeline Busse, Sarah Sebo, Hadas Erel.* Computers in Human Behavior.

**DanceBot** April 2024–May 2024

- Built a real-time ML system for **Turtlebot3** to recognize sign language with **98% accuracy (OpenCV, TensorFlow/Keras)**, mapping gestures to **ROS** control loops for dynamic robot motion.

## COMMUNITY INVOLVEMENT

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Volunteer at Dallas Animal Services; Fundraised \$1,000 for the 2024 Chicago Marathon, benefiting By the Hand Club for Kids; Served as a College Orientation Leader and Co-President of University Ministry.