Erika Sy

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EDUCATION

University of Wisconsin - Madison | B.S. in Computer Science (Honors)   Minor: Mathematics & Business   GPA: 3.5   **Dec. 2026**

    Coursework - Honors Operating Systems, Database Management, Artificial Intelligence, Honors Computer Graphics, Data Structures

SKILLS

Programming Languages: Python, C++, Java, JavaScript/TypeScript, SQL, C, HTML/CSS, R

Frameworks & Libraries: React, Next.js, FastAPI, TensorFlow, PyTorch, scikit-learn, OpenCV, TailwindCSS

Tools & Platforms: Git, Docker, PostgreSQL, Redis, Neo4j, Unreal Engine, Vercel, CHTC, Figma

EXPERIENCE

University of Wisconsin - Madison | Undergraduate Research Assistant (Dr. Gleicher)   **Sep. 2025 - Present**

- Built a text-embedding and clustering pipeline that converts raw documents into interpretable clusters and visual summaries for analysis.
- Automated quantitative evaluation to compare projection methods and monitor metric drift.
- Produced human-readable cluster summaries and publication-ready visualizations to surface insights for stakeholders.

University of Wisconsin - Madison | Undergraduate Research Assistant (Dr. Hanna)   **Sep. 2024 - Present**

- Accelerated RL agent training by automating reward function optimization with **evolutionary algorithms** and parallel computing on **CHTC**.
- Discovered novel robotic gait patterns in simulation that demonstrated improvements in stability and traversal speed over baseline models.
- Built a **synthetic data pipeline** in Unreal Engine 4, generating **10,000+** labeled images to train and benchmark real-time computer vision models.

AbbVie | Business Technology Solutions Intern   **May 2025 - Aug. 2025**

- Automated mapping of **200+** document workflows with a **Neo4j** graph database, establishing a single source of truth to eliminate manual tracking.
- Designed an **AI-powered onboarding system** prototype to centralize tribal knowledge, targeting a **reduction in new hire ramp-up time.**
- Developed a **Python** script to parse keywords from a decentralized archive of spreadsheets, reducing data retrieval time from **hours to minutes**.

NASA NPWEE Program | Lead Software Engineer   **Jan. 2025 - May 2025**

- Led a team of **4** to architect and develop an **AI-driven mission scheduling tool**, delivering a prototype and a **15-page technical proposal**.
- Designed and implemented the **full-stack architecture** (React, FastAPI, PostgreSQL, Docker) and managed the project lifecycle using **Agile** sprints.

Snap Inc. | Augmented Reality Development Extern   **Sep. 2024 - Nov. 2024**

- Shipped **4** augmented reality lenses; built a multi-user experience with synchronized 3D animations, reaching millions of daily active users.
- Presented technical design, creative vision, and use-case applications to Snap engineers during the final extern showcase.

AbbVie | Business Technology Solutions Intern   **May 2024 - Aug. 2024**

- Reduced operational overhead by an estimated **10 hours/week** by automating manual IT service management processes in **ServiceNow**.
- Led **8** process documentation workshops, analyzing and mapping **12+** business workflows to identify automation opportunities.
- Revamped the AI resource hub and presented **MVP** to **VP**-level leadership, securing buy-in for continued development.
- Systematically evaluated **5** LLMs (GPT-4, Claude, Gemini, Llama, Iliad) through **smoke testing** to establish **prompt engineering** best practices.

PERSONAL PROJECTS

AI Personal Planner | *FastAPI, SQLModel, Next.js, React, Tailwind CSS*   **Oct. 2025 - Present**

- Developed a **full-stack AI scheduler** that integrates Canvas and Google Calendar APIs to synthesize deadlines and generate optimized daily plans.
- Designed a **FastAPI** backend with an **NLP** parser and constraint-based optimizer to resolve scheduling conflicts and prioritize tasks.

Path-Mind | *Arduino, C++, Python, Q-Learning, PyTorch, Matplotlib*   **Mar. 2025 - Present**

- Built an **autonomous maze-solving robot** from scratch, implementing sensor fusion and motor control in **C++** for real-time navigation.
- Trained a **Q-Learning** agent that discovered optimal paths through self-exploration, achieving a **23%** reduction in solve time vs. heuristic baselines.

Stride | *Python, TypeScript, Next.js, TailwindCSS, FastAPI, PostgreSQL, Redis*   **Mar. 2025 - Present**

- Developed a **full-stack social platform** enabling users to share daily accomplishments and maintain engagement streaks with friends.
- Implemented real-time features using **WebSocket/Redis** for live feeds and **JWT** authentication for secure user sessions.
- Built a responsive frontend with **Next.js** and **TailwindCSS**; currently developing a **React Native** mobile app with push notifications.

LEADERSHIP & AWARDS

MadHacks | Organizer   **Apr. 2025 - Present**

- Coordinating logistics and participant experience for UW-Madison's 24-hour **hackathon** with **200+** expected attendees.

SparkHacks | Organizer   **May 2023 - May 2024**

- Orchestrated **300**-person **hackathon**; secured **$35,000** in sponsorship and managed event logistics from judge coordination to community activities.

Code Your Dreams | Best Community Outreach Award   **Apr. 2024**

- **Awarded** for designing an accessible STEM event calendar prototype to increase engagement for underrepresented groups.