

# Erika Sy

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## EDUCATION

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| University of Wisconsin - Madison   B.S. in Computer Science (Honors)    Minor: Mathematics & Business    GPA: 3.5 | Aug. 2026            |
| Coursework - Operating Systems, Database Management, Artificial Intelligence, Honors Computer Graphics             |                      |
| University of Illinois - Chicago   B.S in Computer Science   | Aug. 2022 - May 2024 |
| Coursework - Software Design, Data Structures, Programming Practicum   |                      |

## SKILLS

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

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

**Tools:** Git, Docker, PostgreSQL, Redis, Vercel, Conda, Postman, Figma, Power BI, Unreal Engine, Snap Lens Studio, SolidWorks

## EXPERIENCE

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| University of Wisconsin - Madison   Undergraduate Research Assistant   | Sep. 2024 - Present   |
| <ul style="list-style-type: none"><li>Used <b>evolutionary search optimization</b> with <b>CMA-ES</b> and <b>parallel computing</b> through <b>CHTC</b> to optimize reward weights for RL agents.</li><li>Performed <b>robotic motion analysis</b> in SimRobot to optimize gait patterns, enhancing walking speed, stability, and responsiveness in simulation.</li><li>Used <b>Unreal Engine 4</b> to generate <b>high-fidelity synthetic data</b> using Unreal Engine 4 for referee <b>gesture detection</b> and real-time vision training.</li></ul>  |                       |
| AbbVie   Business Technology Solutions Intern  | May 2025 - Aug. 2025  |
| <ul style="list-style-type: none"><li>Built a <b>Neo4j</b> graph database to automate mapping of <b>200+</b> document workflows, creating a <b>single source of truth</b> for sources and dependencies.</li><li>Developed an <b>AI onboarding and knowledge retention system</b> designed to streamline team transitions, reduce stress, and enhance productivity.</li><li>Developed a <b>Python</b> script to parse keywords from a decentralized archive of spreadsheets, reducing data retrieval time from hours to minutes.</li></ul>  |                       |
| NASA - NPWEE (Project Group)   Lead Software Engineer  | Jan. 2025 - May 2025  |
| <ul style="list-style-type: none"><li>Led technical direction for <b>GMAPS</b>, an AI-driven mission scheduling tool for <b>NASA Gateway</b>.</li><li>Designed the tech stack (<b>React</b>, <b>FastAPI</b>, <b>PostgreSQL</b>, <b>Docker</b>, <b>OR-Tools</b>) and managed a team of <b>4</b> across frontend, backend, and ML components.</li><li>Created a <b>12-month</b> roadmap with <b>Agile</b> sprints and <b>Gantt</b> milestones; assigned writing and dev tasks for proposal and prototype phases.</li><li>Co-authored a <b>15+</b> page technical <b>proposal</b> outlining system architecture, <b>AI</b> contingency planning, and <b>UI/UX</b> design for human-in-the-loop ops.</li></ul> |                       |
| Snap Inc.   Augmented Reality Development Extern   | Sep. 2024 - Nov. 2024 |
| <ul style="list-style-type: none"><li>Developed <b>4 lenses</b>, including a <b>multi-user</b> Halloween costume lens with synchronized <b>3D animations</b>, <b>custom scripts</b>, and <b>spatial tracking</b>.</li><li>Presented technical design, creative vision, and use-case applications to <b>Snap engineers</b> during the final extern showcase.</li></ul>  |                       |
| AbbVie   Business Technology Solutions Intern  | May 2024 - Aug. 2024  |
| <ul style="list-style-type: none"><li>Identified and implemented <b>end-to-end automation</b> opportunities <b>within</b> the <b>ServiceNow</b> platform to enhance efficiency and reduce costs.</li><li>Led <b>8</b> employee workshops, used <b>Spreadsheets</b> to document <b>12</b> processes, and utilized <b>Visio</b> to map out <b>5</b>.</li><li>Assisted in rebranding and rebuilding the <b>AI landing page</b>, including information and resources about AI, and presented our MVP 1 to a <b>VP</b>.</li><li>Evaluated <b>5 LLMs</b> (Claude, Iliad, Gemini, Llama, GPT-4) through smoke testing to build a prompt engineering library.</li></ul>  |                       |

## PERSONAL PROJECTS

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| <a href="#">Path-Mind</a>   <i>Arduino, C++, Python, Q-Learning, PyTorch, Matplotlib</i>  | Mar. 2025 - Present   |
| <ul style="list-style-type: none"><li>Built a robot with <b>ultrasonic</b> and <b>IR sensors</b> to autonomously solve mazes, using <b>C++</b> for motor control, sensor fusion, and serial communication.</li><li>Developed a <b>Q-Learning</b> agent in <b>Python/PyTorch</b> that learned optimal navigation strategies through exploration and reward feedback.</li><li>Visualized agent trajectories in <b>Matplotlib</b> and benchmarked performance against wall-following, reducing average completion time by <b>23%</b>.</li></ul>                  |                       |
| <a href="#">Stride</a>   <i>Python, TypeScript, Next.js, TailwindCSS, FastAPI, PostgreSQL, Redis</i>  | Mar. 2025 - Present   |
| <ul style="list-style-type: none"><li>Made a <b>FastAPI backend</b> with <b>PostgreSQL</b> and SQLAlchemy, secure JWT login, form-based auth, protected API routes, and token validation.</li><li>Developed task creation, reactions, and dark-themed UI using <b>Next.js</b>, <b>Zustand</b>, and <b>TailwindCSS</b> for smooth cross-platform <b>UX</b>.</li><li>Integrating <b>WebSocket live task feed</b> with <b>Redis pub/sub</b>, streak leaderboards, push reminders, friend circles, and a mobile app via <b>React Native</b>.</li></ul>            |                       |
| <a href="#">PlantDocNet</a>   <i>TensorFlow, Keras, MobileNetV2, scikit-learn, Python</i>   | Apr. 2025 - Apr. 2025 |
| <ul style="list-style-type: none"><li>Trained a deep learning <b>MobileNetV2 classifier</b> on <b>20K+</b> leaf images from a dataset, achieving <b>89.1% validation accuracy</b> across <b>16</b> diseases.</li><li>Designed a full ML pipeline with <b>image augmentation</b>, <b>data splitting</b>, <b>transfer learning</b>, and <b>early stopping</b> to ensure stable convergence.</li><li>Assessed performance using <b>scikit-learn's</b> accuracy, precision, recall, and confusion matrix to analyze model robustness and class balance.</li></ul> |                       |

## LEADERSHIP & AWARDS

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| MadHacks   Organizer   | Apr. 2025 - Present  |
| <ul style="list-style-type: none"><li>Contributing to the planning and coordination of the University of Wisconsin-Madison's <b>24-hour hackathon</b>.</li></ul>   |                      |
| LOGICA   Community Coordinator & Outreach Chair  | Jul. 2023 - May 2024 |
| <ul style="list-style-type: none"><li>Planned and executed <b>6 events</b>, including UIC's first Tech Week, and managed merchandise rebranding to increase engagement.</li></ul>                                |                      |
| Women in Computer Science   Newsletter Chair   | May 2024 - Aug. 2024 |
| <ul style="list-style-type: none"><li>Produced <b>10</b> bi-weekly <b>newsletters</b> and supported the execution of <b>16+ events</b> to drive participation in the computer science community.</li></ul>       |                      |
| SparkHacks   Organizer   | May 2023 - May 2024  |
| <ul style="list-style-type: none"><li>Orchestrated a <b>300-person hackathon</b>, securing <b>\$35,000</b> in sponsorships, coordinating judges, managing logistics, and leading community activities.</li></ul> |                      |
| Code Your Dreams   Best Community Outreach Award   | Apr. 2024            |
| <ul style="list-style-type: none"><li>Awarded for designing an accessible <b>STEM event calendar prototype</b> to increase engagement opportunities <b>for underrepresented groups</b>.</li></ul>                |                      |