

# Melissa Rajamanuvel

Madison, WI • [rajamanuvel@wisc.edu](mailto:rajamanuvel@wisc.edu) • +1 (651) 270-2368

[LinkedIn](#) • [GitHub](#) • [Website](#)

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**DATA SCIENTIST @ POWER SOLUTIONS INTERNATIONAL (PSI) |**

**BS GRADUATE @ UW-MADISON**

I am a research oriented person passionate about AI, data science, and the next wave of AGI. I've built projects like Datellx and my smart headphone prototype, showing my ability to turn ambitious ideas into practical, useful tools. I love learning beyond my current knowledge and exploring new directions in advanced AI.

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## EDUCATION

### University of Wisconsin Madison

Major: Data Science BS

Sept 2024 - Dec 2025

### University of St Thomas - St Paul MN

Major: Data Analytics with Economics Domain BS

Sept 2021 - May 2024

Dean's List - Spring 2022 - Spring 2024

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## PROFESSIONAL EXPERIENCE

### Power Solutions International (PSI) - WI

**June 2025 - December 2025**

#### Data Science Intern

- **AI-powered automation:** Developed Python scripts integrated with SolidWorks macros to automate repetitive engineering tasks such as exporting Bills of Materials and drawing data—saving engineers significant time and reducing manual workload.
- **Data integration & dashboards:** Cleaned, merged, and structured data from multiple sources into interactive, user-friendly dashboards to support data-driven decision-making.
- **Smart engineering tools:** Built and tested automation tools to streamline workflows, enhance data accessibility, and support PSI's transition toward intelligent, AI-ready systems.
- **Cross-functional collaboration:** Partnered with mechanical engineers and manufacturing teams to identify bottlenecks and deliver customized automation solutions that simplify their daily processes.

### University of St. Thomas - MN

**June 2024 - Aug 2024**

#### SOC Analyst

- **Security monitoring:** Monitored network and system activity within the Security Operations Center (SOC) to detect, investigate, and respond to potential security incidents in real time.
- **Threat response:** Triaged phishing attacks and other security alerts using the ITS help desk ticketing system, ensuring prompt mitigation and documentation.
- **Security assessment:** Conducted internal security audits to evaluate existing defenses and recommended technical improvements to strengthen the university's cybersecurity posture.
- **Team collaboration:** Worked with IT and infrastructure teams to implement security controls and support a culture of proactive threat management.

## PROJECTS

### Datellx – No-Code AI & Data Modeling Platform

Sept 2025 - Present

- Developed Datellx, a no-code AI data-modeling platform that helps students and non-technical users perform data analysis and modeling without programming, acting as a virtual data science assistant for academic projects.
- Designed and implemented an AutoML regression engine that allows students to easily compare model families and understand performance through automated selection and clear summaries.
- Built a multi-stage evaluation framework emphasizing accuracy, stability, and interpretability, helping students learn how models behave on unseen data.

### Optimizing Safe Routes for Pedestrians at Night

March 2025 - May 2025

- Scored 105/100 for exceptional execution in CS 524 Optimization course project
- Developed a linear optimization model to find safe walking routes using streetlight and sidewalk data.
- Framed the problem as a min-max shortest path to reduce exposure to poorly lit areas.
- Integrated real geospatial data from the City of Madison and performed duality-based sensitivity analysis.

### Safety Headphone with Cameras - Hardware Prototyping

Sept 2024 – April 2025

- Built an AI-powered safety device using computer vision and real-time threat detection with Raspberry Pi.
- Developed a mobile safety app called SafeMinne, integrating Firebase, GPS, and messaging features.
- Currently implementing optimization models and historical forecasting to estimate human traffic in real time, combining lighting, location, and behavior data to enhance user safety on urban paths.

### Air Quality Index Prediction Using Machine Learning

March 2024 – May 2024

- Predicted city AQI using environmental data and neural networks.
- Preprocessed and modeled data using scikit-learn, pandas, and matplotlib.
- Improved forecasting accuracy by tuning learning parameters and validating models with test datasets.

### Improving Construction Task Completion

April 2025

- Analyzed 12,000+ construction tasks using ETL pipelines and machine learning.
- Built predictive models to classify overdue tasks based on cause, priority, and duration.
- Revealed critical delays in Quality and Design teams, improving project planning insights.

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## TECHNICAL SKILLS

- **Programming:** Python, Julia, R, Java, GitHub, GitLab, Ubuntu (VM & Raspberry Pi)
  - **Libraries:** scikit-learn, TensorFlow, PyTorch, pandas, matplotlib
  - **Data Analysis & Visualization:** Excel, Power BI, Minitab, JMP
  - **Modeling & Optimization:** Regression (Linear/Multiple/Logistic), Neural Networks, PCA, Convex & Nonlinear Optimization, Network Flow Algorithms
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