

# MELISSA RAJAMANUVEL

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## SUMMARY

Data Science senior with strong foundations in machine learning, optimization, and real-world analytics. Passionate about building AI for safety tools and mobile applications that impact lives. Experienced in data cleaning, modelling, and high-level interpretation.

## PROJECTS

### Optimizing Safe Routes for Pedestrians at Night — 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.

### Founder - Tecaran (Sept 2024 – Present)

- 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.

## EDUCATION

### University of Wisconsin Madison

Major: Data Science BS  
Sept 2024 - Dec 2025

### University of St Thomas

Major: Data Analytics with Economics Domain BS  
Sept 2021 - May 2024  
Dean's List - Spring 2022 - Spring 2024

## EXPERIENCE

### Administrative Assistant, Cash Office — University of Wisconsin–Madison (September 2024 – Present)

- Manage and verify daily cash operations across campus units.
- Support customer service and technical troubleshooting for cash machines.
- Coordinate high-volume events and ensure secure financial processes.

### Security Operations Center Analyst — University of St. Thomas (June 2024 – August 2024)

- Monitored security logs and alerts for potential incidents.
- Conducted audits using Sumo Logic and analyzed phishing attacks.
- Improved detection accuracy by identifying recurring threat patterns.

## SKILLS

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