

# Arman Zaher

(519) 577-6830 | [a.zaher@mail.utoronto.ca](mailto:a.zaher@mail.utoronto.ca) | [zaherarman.github.io](https://zaherarman.github.io) | [github.com/zaherarman](https://github.com/zaherarman)

## EDUCATION

### University of Toronto

BASc in Industrial (Systems) Engineering

- Minors: Artificial Intelligence and Business

Toronto, ON

Sept. 2023 – Apr. 2027

## EXPERIENCE

### Systems Optimization Engineer

University Health Network (UHN)

- Built a discrete-event simulation to model patient care flows, enabling testing of optimal scheduling strategies.
- Developed and fine-tuned machine learning and LLM models to extract simulation parameters from historical data.
- Validated simulation logic with clinical stakeholders to match real-world surgical workflows.

May 2025 – Sep. 2025

Intern - Toronto, ON

### Program Management Analyst

Bombardier Aerospace

- Tracked and analyzed KPIs for senior management, ensuring data accuracy, alignment, and actionable insights.
- Developed detailed business cases, optimized schedules, and conducted risk assessments to support project changes.
- Designed a generic requirements library, streamlining program management and accelerating supplier negotiations.

May 2025 – Sep. 2025

Intern - Toronto, ON

### Machine Learning Engineer

University of Toronto Aerospace Team (UTAT)

- Leading a research project on predictive maintenance and risk assessment for unmanned aerial systems.
- Reviewed state-of-the-art methods and evaluated machine learning approaches for system failure prediction.
- Collected and analyzed flight data to inform selection and implementation of predictive algorithms.

Nov. 2024 – Present

Intern - Toronto, ON

### Project Manager

Hart House

- Led a cross-functional team using Agile methodologies, managing Gantt charts to track progress against deadlines.
- Delivered weekly status reports to stakeholders, ensuring alignment with project milestones and expectations.
- Evaluated wayfinding solutions for Hart House using morphological and Pugh charts to finalize a design.

Sep. 2023 – Dec. 2023

Intern - Toronto, ON

## PROJECTS

### WARP Shoes Production Scheduling Optimization | Python (NumPy, pandas) SQL, AMPL

2024

- Built ETL pipelines using Python, pyodbc, and pandas to load demand data from Access (.mdb) databases.
- Integrated AMPL files into a Gurobi-powered MIP model for automated schedule optimization.
- Conducted sensitivity analysis using shadow prices and constraint slacks for robust decision-making.

### Metaheuristic TSP Solver | Python (NumPy, pandas, Folium)

2024

- Transformed raw coordinates and distance matrices into model-ready formats using a custom ETL process.
- Reduced route length by over 50% in a 40-city TSP using a metaheuristic ensemble approach.
- Visualized routing results on a Folium map with interactive overlays for step-by-step analysis.

### Drone Pathfinding Simulation | Python, ROS, PX4, Gazebo, Linux

2024

- Developed a ROS/Gazebo simulation in Python on Linux for IR emitter-based drone proximity tracking.
- Designed and integrated real-time drone proximity data publication, enhancing simulation accuracy.
- Simulated and benchmarked wayfinding algorithms (e.g., Dijkstra's, A\*) in drone navigation scenarios.

### Gradient Descent Visualizer | Java, Python (NumPy, Matplotlib, Plotly)

2024

- Developed a visualization pipeline for interpreting 2D and 3D loss landscapes in gradient descent scenarios.
- Created an interactive dashboard for exploring optimization trajectories across different learning rates.

## TECHNICAL SKILLS

**Languages:** Python, SQL, Java, MATLAB, C/C++, AMPL, R, HTML/CSS, JavaScript

**Libraries:** NumPy, pandas, Matplotlib, SimPy, PyTorch, SciPy, sklearn, Plotly, Dash, GPyTorch, Gurobi

**Tools:** Git, GitHub, Linux, VS Code, Microsoft Office Suite (Excel, Access, PowerBI, Power Apps, Power Automate)