Arman Zaher

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Education

University of Toronto Toronto, ON
BASc in Industrial (Systems) Engineering *Sep. 2023 – Apr. 2028*
- Minors: Artificial Intelligence and Business — Awards: Johannes Michael Holmboe Research Fellowship

Experience

Data Scientist May 2025 – Present
University Health Network (UHN) *Intern - Toronto, ON*
- Built a discrete-event simulation in Python to model patient flows, enabling testing of optimal scheduling strategies
- Developed and fine-tuned machine learning and LLM models to extract simulation parameters from historical data
- Defined and computed simulation KPIs such as wait times, delays, queue lengths, and utilization fairness

Machine Learning Engineer Nov. 2024 – Present
University of Toronto Aerospace Team (UTAT) *Intern - Toronto, ON*
- 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

Program Management Analyst May 2025 – Sep. 2025
Bombardier Aerospace *Intern - Toronto, ON*
- Designed a generic requirements library, streamlining program management and accelerating supplier negotiations
- 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

Project Manager Sep. 2023 – Dec. 2023
Hart House *Intern - Toronto, ON*
- 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

Projects

WARP Shoes Production Scheduling Optimization | *Python (NumPy, pyodbc, pandas) SQL, AMPL* 2025
- Built ETL pipelines in Python to load demand, supply, production, and warehouse data from Access databases
- Integrated AMPL files into a Gurobi-powered MIP model for automated production 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 pipeline
- Benchmarked metaheuristics on a 40-city TSP, with the top method achieving a relative 39% route reduction
- Visualized routing results on a Folium map with interactive overlays for 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 Optimizer | *Java, Python (NumPy, Matplotlib, Plotly)* 2024
- Designed a flexible architecture to experiment with optimization algorithms in high-dimensional spaces
- Developed a visualization pipeline for interpreting 2D and 3D loss landscapes in gradient descent scenarios

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 (Excel, Access, PowerBI, Power Apps, Power Automate)