Eidan Erlich

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EDUCATION

- **University of Waterloo** *09/2022 - 04/2027*
  BASc, Mechatronics Engineering with a minor in statistics and Artificial Intelligence GPA: 3.75/4.00
  ◦ President's Scholarship of Distinction, President's Research Award, Sandford Fleming Scholar, Marga International Award

EXPERIENCE

- **Dream Technologies** 🌐 *Jan 2026 - Present*
  Research Engineer, Vision & Graphics (Multimodal AI) San Fransisco, USA
  ◦ Spearheading Multimodal Diffusion Transformers (MMDiT) for 3D graphics synthesis at an a16z and XYZ-funded startup.

- **Royal Bank of Canada Capital Markets** 🌐 *May 2025 - Aug 2025*
  Quantitative Developer Toronto, Canada
  ◦ Developing a risk analytics and pricing model service enabling valuation, simulation, and XVA
  ◦ Engineered a scalable risk and pricing model execution system (>1M tasks) in Python and C++, supporting front-office Monte Carlo simulation, with AWS and Ignite integration
  ◦ Identified optimization and automated pre & post-trade workflows for exotic option trades by developing an Excel macro, cutting processing time by 90% per trade and scaling to 80% of desk activity

- **Symphonic Labs** 🌐 *Sep 2024 - Dec 2024*
  Software & Research Lead San Francisco, USA
  ◦ Drove the development of a novel, Transformer-based video lip-reading model, achieving a 15% increase in accuracy
  ◦ Developed an NLP model using sequence-to-sequence modeling for audio reconstruction from visual data
  ◦ Implemented a distributed PyTorch training infrastructure on a multi-node cluster, accelerating model training by 30% with dynamic batching, data parallelism, and gradient accumulation.

- **Institute of Aircraft Production Technology / Airbus** 🌐 *Jan 2024 - Apr 2024*
  Machine Learning & Computer Vision Intern Hamburg, Germany
  ◦ Architected and deployed a mobile, multi-sensor, vision-based data acquisition and analysis system for aircraft manufacturing monitoring for real-time 3D environment mapping and monitoring.
  ◦ Developed and implemented SLAM algorithms, semantic segmentation models, and object classification networks

- **Monsters Aliens Robots & Zombies (MARZ)** 🌐 *May 2023 - Aug 2023*
  Machine Learning Research Intern Toronto, Canada
  ◦ Optimized a production-level CNN and GAN pipeline for high-fidelity lip-syncing in video
  ◦ Engineered a cloud-based, asynchronous task queue system, reducing training time by 45% and faster iteration cycles.

- **Vitreous Retina Macula Specialists of Toronto** 🌐 *Feb 2022 - Oct 2022*
  Biomedical Research Intern Toronto, Canada
  ◦ Designed 3D printed surgical instruments and reduced manufacturing costs by 90%
  ◦ Led a cross-functional team of graduate students, conducted root cause analysis and refined prototypes

RESEARCH & PUBLICATIONS

- **University of Toronto - Sunnybrook Research Institute** 🌐 *Sep 2025 - Present*
  ◦ Digital Navigation Project for Colon Cancer Screening at Sunnybrook Research Scientist
- **University of Waterloo - Centre for Advanced Materials Joining** 🌐 *Jan 2025 - Present*
  ◦ Deep learning models generating Spot Weld cross-sections from time-series sensor data Research Assistant

[1] Nye, M., et al. (**E. Erlich**, co-author) **BETTY Dataset: A Multi-modal Dataset for Full-Stack Autonomy**, in 2025 IEEE International Conference on Robotics and Automation (ICRA), May 2025.

[2] P. Prünte, et al. (**E. Erlich**, co-author), **Leveraging passive monitoring applications in production and intralogistics**, in *Proc. 18th CIRP Conf. Intell. Comput. Manuf. Eng.*, Hamburg, Germany, 2024.

[3] K. Moenck, et al. (**E. Erlich**, co-author), **Mobile, multimodal, vision-based data acquisition system for passive monitoring in production and intralogistics**, in *Proc. 18th CIRP Conf. Intell. Comput. Manuf. Eng.*, 2024.

PROJECTS

- **Hack The North - Finance Director** 🌐 *2025*
  ◦ Leading the finance team for Canada's biggest hackathon with 1000+ hackers with >$500,000 operating budget
- **Jane Street Hackathon** 🌐 *2025*
  ◦ Distilled four pre-trained models into a single optimized MLP, achieving 5× lower latency
- **MIT-PITT-RW Autonomous Racing - Team Lead/Technical Program Manager** 🌐 *2023 - 2025*
  ◦ Led a 50-member research team developing a fully autonomous Indy race car in the world's fastest driverless competition
- **Soccer Team - Team Captain** *2016 - 2022*
  ◦ Provincial Player, Regional Team Captain, Maccabi Canada International Tournaments (x2)

PROFICIENCIES

Languages: Python (6 years), C++ (5 years), MATLAB (3 years)

Libraries & Tools: Docker, Kubernetes, Jenkins, PyTorch, TensorFlow, RestAPI, Git, Linux