Sebastian Levy

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Education

Carnegie Mellon University (CMU)   **Pittsburgh, PA - May 2025**

Master of Science in Mechanical Engineering   GPA: 3.96/4.0

Concentration: Robotics & Machine Learning

Relevant Courses: Computer Vision for Engineers; Artificial Intelligence & Machine Learning for Engineers; Electromechanical Systems Design; Bio-Inspired Robot Design & Experimentation (S24)

Master of Science in Engineering & Technology Innovation Management (ETIM)

Concentration: R&D Technology Management

University of Toronto (UofT)   **Toronto, Canada - June 2023**

Honours Bachelor of Applied Science in Mechanical Engineering   GPA: 3.3/4.0

Minors: Robotics and Mechatronics; Engineering Business   **Dean's Honour List:** 2020 - 2023

Experience

Carnegie Mellon University - Computational Engineering and Robotics Lab   **Pittsburgh, PA**

   Research Assistant   **January 2024 - Present**

- Developing dynamic robotic surfaces for enhanced vertical actuation capabilities in automation technologies.
- Applying bi-cubic surface interpolation techniques to achieve accurate replication of complex terrains.

University of Toronto - Microfluidics and BioMEMS Lab   **Toronto, Canada**

   AI/ML Research Engineer   **May - August 2023**

- Designed a PyTorch hybrid LSTM/CNN neural network for sEMG signal classification with 91% accuracy. [code]
- Incorporated model with ROS2 in Ubuntu 20.04, enabling real-time soft robotic grasping from sEMG sensor signals.

HH Angus & Associates Ltd   **Toronto, Canada**

   Mechanical Engineering Intern   **May - August 2022**

- Developed HVAC and electrical systems for commercial properties on a mechanical engineering consulting team.
- Designed an End-of-Trip facility in AutoCAD, implementing HVAC, plumbing, fire suppression & drainage systems.

Cadillac Fairview   **Toronto, Canada**

   Operations Management Intern   **May 2021 - May 2022**

- Administrated operations for Cadillac Fairview's Toronto Office Portfolio, performing KPI analysis to ensure >95% operational efficiency by evaluating performance. Facilitated reduction of building emissions by 3% year to year.
- Managed heat exchanger repair & re-insulation project from budgeting & tendering to final inspection.

Projects

Electromechanical Systems Design Project - CMU   **Pittsburgh, PA**

   Seal and Serve Automated Drink Maker   **August - December 2023**

- Developed and prototyped a customizable prepackaged drink maker with a heat seal to create tamper-proof drinks.
- Led a team of five throughout the entire project as project manager, from proposal to final prototype.
- Designed product enclosure with heat sealing mechanism and implemented wiring and sensor integration. [project]

Undergraduate Thesis - UofT Microfluidics and BioMEMS Lab   **Toronto, Canada**

   3D Vision & Deep Learning-Based Robotic Grasping   **August 2022 - May 2023**

- Developed perception model using Mask R-CNN to isolate an object, create a 3D point cloud, and predict optimal motion trajectory using a 3D convolutional neural network, yielding 98% accuracy. [project] [code]
- Integrated hand with UR5 robotic arm using Ubuntu, ROS2, and MoveIt for control, enhancing grasping precision.

University of Toronto Robotics Association   **Toronto, Canada**

   Executive Finance Director & CV/ROS Subsystem Team   **August 2022 - August 2023**

- Collaborated with project managers to administer the budget, review financial reports, and purchase rover parts.
- Trained a lane detection model powered by YOLOPv2 CNN, to implement autonomous path planning. [project]

Skills

Programming Languages: Advanced - Python, MATLAB; Intermediate - C++, SQL

Software: SolidWORKS, TensorFlow, PyTorch, ROS, ROS2, Linux (Ubuntu), AutoCAD, ANSYS FEA, Eagle PCB, Git

Hardware: GD&T, 3D Printing, Arduino, Raspberry Pi, LiDAR, sEMG Sensing, Welding, Mill/Lathe, CNC Machining