SPENCER KAROFSKY

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Summary

- **Available dates: July 2025-December 2025**
- Computer Science student and researcher at Northeastern University with a concentration in AI/ML.
- Proven ability to lead projects, with a track record of improving ML algorithm reliability by 43-67%.
- Strong technical expertise in Python, machine learning, data science, and AI-driven solutions.

Education

Northeastern University, Boston, MA — Expected Graduation: June 2026
B.S. in Computer Science with Artificial Intelligence Concentration (Transfer Student) — *Cumulative GPA: 3.7*

University of Vermont, Burlington, VT — *Computer Science GPA: 3.7*
Studied Computer Science and Pure Mathematics (August 2021 - May 2024) — *Cumulative GPA: 3.5*

Experience

Computer Vision Researcher, Northeastern University — January 2025-Present

- Investigating *Diffusion Models* for 3D scene representation using *3D Gaussians* in *PyTorch*.

Computer Vision Intern, Wildlife Imaging Systems — May 2024-August 2024

- Constructed Monte Carlo Simulations in Python using *OpenCV, NumPy, & Matplotlib* to evaluate the efficacy of the Intrinsic Calibration pipeline.
- Enhanced *OpenCV's* 'calibrateCamera' method to achieve **100% accuracy** in high-focal-length scenarios using Python, *NumPy, and Pandas*, where the original method failed **30-40% of the time**, improving the reliability of camera calibration procedures.
- Developed computer vision-aided time-synchronization techniques using *NumPy, Pandas, and OpenCV*, boosting 3D triangularization accuracy.

Undergraduate Research Assistant, University of Vermont — September 2023-May 2024

- Researched and developed machine learning solutions to predict and classify Rain on Snow (RoS) events using Python and Arduino C/C++.
- Developed and trained a Random Forest model to run on Arduino microcontroller, achieving **93% accuracy** in classifying precipitation types using acoustic data, which had never been done before on an Arduino.

Self-Directed and Group Projects

Stock Correlation Investment Tool — November 2024-Present

- Developing real-time stock investment tool using Python libraries: *Pandas*, *NumPy*, and *Matplotlib* Engineered
- From initial simulations, **my method achieved a 16% annual return compared to the market's 11% return.**

Robotic Arm Final Project — January 2025-Present

- Collaborating with a team of three graduate students to build a robotic arm in a Python-simulation environment for a Graduate Foundations of AI course, aimed at picking and placing different types of objects.
- Applying reinforcement learning in a *PyBullet* environment to enable the robot to perform tasks like picking up and passing objects.
- Trained *YOLOv8* model for object detection and image segmentation model in *OpenCV*.

Computer Vision-Controlled Traffic Light — April 2023-November 2023

- Developed a smart traffic light system using *Raspberry Pi* and Python, adjusting light states based on real-time vehicle detection, aiming to reduce traffic congestion and wait times.
- Trained a Convolutional Neural Network with *TensorFlow* to classify traffic signs, **improving validation accuracy from 60-70% to 94%.**
- Designed and implemented an algorithm to analyze and respond to vehicle traffic patterns.