Isaac Lin

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Education

Carnegie Mellon University School of Computer Science August 2022 – May 2026
B.S. in Computer Science, Concentration in Machine Learning *Pittsburgh, PA*
GPA: 3.94/4.0 (Dean's List, High Honors)

Work Experience

Apple May 2025 – August 2025
Research Scientist Intern *Sunnyvale, CA*
- Computer vision algorithms research at Vision Products Group and Video Computer Vision Team
- Developed algorithmic solutions using machine learning techniques to optimize calibration of dynamic camera systems

TikTok Feb 2025 – April 2025
Software Engineer Intern *San Jose, CA*
- Developed end-to-end OpenAPI functionalities for intake, provisioning, and allocation of NoSQL databases within a distributed architecture, supporting infrastructure as code (IaC) for efficient storage partitioning and management
- Designed infrastructure pipeline enabling isolated developer environments across Redis and MongoDB provisioning workflows

Amazon May 2024 – August 2024
Software Development Engineer Intern *Seattle, WA*
- Expanded end-to-end automation of AWS deals management console to support the onboarding of diverse pricing structures for private customers using EC2, streamlining deployment and management processes of custom deals
- Expedited turnaround time over 200% by removing the need to cut manual tickets consuming oncall resources from 5+ teams

NASA May 2023 – August 2023
Software Engineer Intern *Greenbelt, MD*
- Developed full-stack .NET application to map thermal contour data onto physical models of the Roman Space Telescope
- Deployed automation workflow, reducing analysis overhead for 15+ modeling teams and 100+ thermal engineers

Research Experience

Carnegie Mellon University Robotics Institute November 2024 – Present
Computer Vision Research, Supervised by Prof. Shubham Tulsiani *Pittsburgh, PA*
- Researched machine learning methods for 3D vision, focusing on improving novel view synthesis, multi-view reconstruction, and camera pose estimation through generative modeling and self-supervised learning
- Implemented diffusion and regression based frameworks to enhance point cloud fidelity and geometric structure integrity

Carnegie Mellon University Computer Science Department October 2022 – Present
Deep Learning Research, Supervised by Prof. Tai Sing Lee *Pittsburgh, PA*
- Developed deep learning models for neural prediction, leveraging self-attention to improve understanding of visual context
- Investigated the complementary contributions of focal and peripheral information in visual perception, proposing an incremental training framework for learning center-surround interactions in deep networks; work accepted at ICLR 2025

Publications

Li, T., Song, L., **Lin, I.**, Liu, J., Lee, T. S. (2026). Vision Transformers as Emergent Gestalt Organizers. ICLR 2026 submission.

Lin, I., Lee, T. S. (2026). Perceptual Organization Rules in Vision Transformers. Carnegie Mellon University, Senior Thesis.

Lin, I., Wang, T., Gao, S., Tang, S., Lee, T. S. (2025). Self-Attention-Based Contextual Modulation Improves Neural System Identification. ICLR 2025. https://arxiv.org/abs/2406.07843

Oke, O., **Lin, I.**, Fales, A., Vogt, W., Scully, C., Weininger, S., Vasudevan, S., Pfefer, J. (2024). Review of Epidermal Melanin Impact Across Biophotonic Technologies: Mechanisms, Effects, and Mitigation. SPIE Optics and Photonics 2024.

Lin, I., Parameswaran, A. (2022). The Effect of Optic Injury Timing on Optic Tract Nerve Regeneration in Drosophila Melanogaster. TJHSST.

Lin, I., Vogt, W., Wang, J., Weininger, S., Scully, C., Pfefer, J. (2021). Skin Pigmentation Impacts in Established and Emerging Optical Diagnostic Devices: A Review of Mechanisms and Effects. United States Food and Drug Administration.

Lin, I., Wang, L. (2021). Income-related Disparity in Diagnosis and Service Utilization of ASD. Penn State University.

Additional Information

Languages: Python, Java, C/C++/C#, MATLAB, VB/VBA, R, Bash, LaTeX, Git/GitHub, Swift, HTML/CSS, JS/TS
Libraries: PyTorch, PyTorch3D, TensowFlow, OpenCV, pandas, NumPy, Matplotlib
Frameworks: SLURM, CUDA, .NET Framework, ReactJS, React Redux, AWS Lambda, DynamoDB
Awards : 1st in 2024 Optiver Market Making Contest, 21st in 2021 USA Biology Olympiad, 10th in 2021 National Science Bowl