Michael Lin

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Carnegie Mellon Robotics Institute master's student in Computer Vision with demonstrated experience in developing scalable artificial intelligence pipelines for 3D volume segmentation.

Education

Carnegie Mellon University **Pittsburgh, PA**
Master of Science in Computer Vision *Expected graduation: December 2026*

- **Field of Study:** Computer Science
- **Department:** Robotics Institute of the School of Computer Science
- **Relevant Coursework:** Machine Learning, Advanced Computer Vision, Learning for 3D Vision

Boston College **Chestnut Hill, MA**
Bachelor's Degree *August 2021 – May 2025*

- **Majors:** Computer Science, Mathematics
- **Relevant Coursework:** Computer Vision, Linear Algebra, Probability, Mathematical Statistics

Work Experience

Undergraduate Research Fellow (Boston College) *January 2022 – August 2025*

- Created a UNet machine learning model for point segmentation in collaboration with USC in 2023, achieving 0.7 precision over testing across hundreds of test cases. Full cycle of data preparation, model training, and finetuning.
- Developed and deployed a 3D-Unet model to generate volumetric instance segmentation from electron microscopy volumes in collaboration with Columbia University during 2024, achieving a precision of over 0.95 on testing volumes and generating 50000+ segmentations during implementation.
- Designed and implemented a unified machine learning package from multiple AI models and tools (microSAM, 3D-Unet, Optuna, etc.) for 3D volume segmentation and fiber extraction in collaboration with a multidisplinary team from UMichigan during 2025, achieving an F-1 score of over 0.8 on testing volumes and generating 10000+ neuron fiber segmentations during deployment.

Teaching Assistant (Boston College) *August 2022 – May 2023*

- Increased course engagement as a teaching assistant for the Biomedical Image Analysis class for a class of 30+ students

Technical Skills

Languages: Extensive experience with Python; moderate experience with Java, C, C++, R

Computer Vision: Extensive experience in Pytorch, OpenCV, Numpy, PIL, scikit, Matplotlib, Scipy

Publications *(* indicates shared first author)*

Michael Lin, et al. "Real-Time Point of Interest Segmentation for Electron Microscopy Images via Machine Learning." (2024): ozae044-215.

Michael Lin*, et al. VesicleEM: A Comprehensive Vesicle Analysis Toolbox for Volumetric Electron Microscopy. In review for PLOS Computational Biology.

Shulin Zhang, Michael Lin, et al. Ultrastructural resconstruction of the endodermal nerve net of Hydra vulgaris. Accepted by Current Biology.