Peter Michael

Ithaca, NY — ptrmcl@cs.cornell.edu — peterfmichael.com

EDUCATION

Cornell University, Ithaca, NY — Enrolled: August 2022 — Expected: May 2028
Computer Science, Ph.D. — Advisor: Abe Davis

University of Washington, Seattle, WA — Enrolled: September 2018 — Graduated: June 2022
Computer Engineering, B.S. | Computer Science, M.S. — Advisor: Roni Sengupta
Thesis: Towards End-to-End Mask Propagation and Matting

Edmonds College, Lynnwood, WA — Enrolled: September 2016 — Graduated: August 2018
Computer Engineering, A.S.

PUBLICATIONS

2026 — **LightShop: High-Precision Interactive Computational Light Painting**
Peter Michael, Andrew Arena, Harald Haraldsson, and Abe Davis
UIST 2026

2025 — **Noise-Coded Illumination for Forensic and Photometric Video Analysis**
Peter Michael, Zekun Hao, Serge Belongie, and Abe Davis
ACM Transactions on Graphics (TOG), presented at SIGGRAPH 2025

2022 — **Towards Unified Keyframe Propagation Models**
Patrick Esser, ***Peter Michael***, and Roni Sengupta
IEEE Conference on Computer Vision and Pattern Recognition (CVPR) Workshop on AI for Content Creation

2020 — **Survey of Image Denoising Methods for Medical Image Classification**
Peter Michael and Hong-Jun Yoon
Society of Photo-Optical Instrumentation Engineers (SPIE) Medical Imaging: Computer-Aided Diagnosis

EXPERIENCE

Cornell University, Ithaca, NY — January 2023 - Current
Graduate Research Assistant:

- Led a project to virtually relight indoor environments in an unstructured, cost-effective manner with a focus on accurate modeling of complex secondary lighting effects (**UIST 2026**, advisor: Abe Davis).
- Developed a novel video forensics technique that makes the malicious tampering of video a substantially harder problem using active illumination priors (**ACM TOG, presented at SIGGRAPH 2025**, advisors: Abe Davis and Serge Belongie).
- Helping create solutions to data-constrained multi-modal machine learning problems in agriculture (advisors: Abe Davis and Michael Gore from the Cornell Plant Science Department).

Adobe Systems, San Jose, CA — May 2026 - Current
Research Intern: Mobile computational photography research on the NextCam team led by Marc Levoy.

Adobe Systems, San Jose, CA — July 2022 - December 2022
Research Intern: developed more robust video rotoscoping algorithms using semi-supervised learning.

Runway AI, New York, NY — September 2021 - June 2022
Research Intern:

- Developed more robust methods for human-in-the-loop video rotoscoping using deep learning.
- Co-authored work (**presented at the 2022 CVPR AI for Content Creation Workshop**) investigating a unified framework for propagating low and high-spatial frequency context across frames for video-editing tasks such as object removal and rotoscoping.

Oak Ridge National Laboratory, Oak Ridge, TN — June 2021 - August 2021
Research Intern: studied the effect of extremely large (i.e., $> 10^5$ samples) batch sizes on the generalization performance of convolutional neural networks (CNNs) for image classification.

National Aeronautics and Space Administration, Houston, TX — June 2020 - January 2021
Research Intern: developed methods for cognitive state estimation from eye gaze for optimal task scheduling using machine learning targeted for astronaut and U.S. Air Force pilot use.

Oak Ridge National Laboratory, Oak Ridge, TN June 2019 - August 2019
Research Intern: studied the effect of various image denoising techniques on chest x-ray image classification. **This work was published in the 2020 SPIE Medical Imaging: Computer-Aided Diagnosis conference.**

Microsoft, Redmond, WA June 2018 - August 2018
Data Science Intern: developed a system for recommending cloud hardware configurations for database migrations using machine learning.

SELECT AWARDS

Department of Defense NDSEG Fellowship Awardee 2024

University of Washington Outstanding Computer Science and Engineering Senior Award 2022
Link to Announcement

University of Washington College of Engineering Dean's Medal Finalist 2022

SELECT PRESS COVERAGE

Noise-Coded Illumination for Forensic and Photometric Video Analysis

- Ars Technica
- Engadget
- PetaPixel
- TechRadar
- WBNG 12 (TV Station)