

Peter He

Scarsdale, New York | Ithaca, New York | 914-619-0498 | ph475@cornell.edu
[linkedin.com/in/ph475/](https://www.linkedin.com/in/ph475/) | peterhe.dev

Education

Cornell University, College of Engineering, Ithaca, NY
Bachelor of Science, Electrical & Computer Engineering

Expected May 2027
Expected Minor in Computer Science

Skills

Programming: Python, Linux, Pytorch, OpenCV, Java, C++, HTML, CSS, Javascript, Three.js, VR/AR, Unity, Swift

Hardware: Micro-controllers, Fusion 360, PCB Design, KiCad, Raspberry Pi, 3D Printing, Rapid Prototyping, AutoCAD

Relevant Experiences

Smart Computer Interfaces for Future Interactions (SciFi) Lab

Dec 2023- Present

Undergraduate Research Assistant

Ithaca, NY

- Currently leading own first-author project on wireless sensing and power transmission for wearables aiming for submission to IMWC 25'
- Second author on research paper using capacitive sensing and deep learning to real-time track upper body poses, accepted to the UIST 2024 conference.
 - Responsible for firmware and electronics design for the wearable textiles project with an integrated capacitive sensing system for upper body body-pose estimation and tracking.
 - Designed a PCB for microcontroller integration with FDC2214 capacitive sensing chips.
- Conducted data acquisition and processing for vision-based pose estimation computer vision model used as the ground truth for our custom model.

Matter of Tech Lab at Cornell Tech

May 2024- Sep 2024

Research Intern

NYC, NY

- Led the design and creation of a python library to facilitate real-time localization into a gaussian splat scene and Structure from motion (SfM) model based on recent research advancements in feature matching algorithms for 6-DoF visual hierarchical localization.
 - Optimized a Pytorch pipeline reducing localization time through pre-loading models and optimizing structure for smaller-scale scenes.
 - Converted open-source gaussian splatting software into a form usable by Windows, using CUDA and COLMAP documentation.
- Developed a Flask backend + Three.js frontend of a WebXR based interface for phone and VR headsets to enable synchronous collaboration on hardware projects with interactions powered by 3D-data gathered from localization of images into gaussian splats.
- Camera localization library created was implemented and used in CHI 2025 research paper submission.

Cornell XR (Virtual, Augmented & Mixed Reality) Club

Dec 2023- Present

Founder & President

Ithaca, NY

- Founded the Cornell XR Club to create a community of student XR enthusiasts that will draw attention to the innovative field by developing apps, hardware, and games and hosting events related to XR on campus.
- Leading a project integrating haptics hardware interactions with a photorealistic VR environment.
 - Researching and developing a pair of VR haptics gloves based on open-source design.
 - Designing and 3D-Printing prototype parts for haptic gloves in Fusion 360.
 - Developing a Unity program to enable experiments with realistic physics-based interactions while using haptics gloves.
- Collaborating with various Cornell departments to organize student teams for software and hardware projects.

Projects

MIT Reality Hack (XR Hackathon)

Winner of Hardware Track - Creative Inputs/Outputs

- Collaborated with a talented team of 5 to develop the [FlexVR Wellness](#) ecosystem to enable remote electro-stimulation therapy.
 - Designed a system where the therapist uses an AR headset to enhance their workflow, communicate with patients, get live data, and control the patient's electro-stimulation therapy while the patient is in a calm stress-reducing VR environment.
- Wrote firmware and did fabrication + hardware design of the project during the hackathon.
- First developers ever to create a system enabling cross-play between the Qualcomm Snapdragon Spaces AR system and the Meta Quest Ecosystem.

HackMIT

3rd Place Winner of InterSystems Challenge

- Created Rewind, an memory preservation web app that allows users to store, revisit, and share their memories in various formats such as video, photos, text, and audio.
 - Designed a system for users to query memories using natural language search.
- Developed pipeline that integrated gaussian splatting to generate 3D scenes from user-uploaded videos for immersive memory viewing.