

Yifei Jin

Email: yifeij7@illinois.edu | Website: www.yifeij7.com | Champaign, IL, 61822

SUMMARY

Ph.D. candidate in Electrical & Computer Engineering at UIUC (graduating Dec 2025)

- Specialized in camera systems, display hardware, and ML/CV algorithms
- Lead researcher on multispectral camera systems for image-guided surgery and intraoperative pathology
- Industry experience at Apple (OLED display algorithms) and Teradyne (circuit verification)
- Strong track record of cross-functional collaboration, technical presentations, and peer-reviewed publications

EDUCATION

Ph.D. in Electrical & Computer Engineering 08/2021 – Expected 12/2025

University of Illinois at Urbana-Champaign (UIUC), Urbana, IL

B.S. in Electrical & Computer Engineering 08/2016 – 05/2019

Worcester Polytechnic Institute (WPI), Worcester, MA

WORK EXPERIENCE

Display Electrical Engineer Intern, Apple Inc., Cupertino, CA 05/2025 – 08/2025

- Improved OLED panel front-of-screen quality and lowered silicon cost by developing novel uniformity compensation methods
- Designed a TFT physics-based non-linear interpolation model for diverse operating conditions
- Collaborated with Module, Optics, and Silicon teams to align specs, build lab setups, and analyze results
- Led comprehensive brightness/color characterization guiding algorithm validation and design improvements
- Delivered solutions adopted cross-functionally, earning recognition from senior EE leadership

Graduate Teaching Assistant, UIUC 08/2023 – Present

- Taught digital circuit design through FPGA, including Verilog coding and SPI/I²C protocols
- Mentored ~120 students on FPGA-based camera systems with real-time object tracking

Hardware Engineer, Teradyne Inc., North Reading, MA 06/2019 – 04/2021

- Developed high-voltage VI channel modules for power semiconductor DC testing on UltraFLEX^{plus} ATE
- Executed circuit bring-up/verification in VB, diagnosing and resolving circuit defects that improved stability and performance under demanding test conditions

RESEARCH PROJECTS

Biomimetic Image Sensor for Metastatic Lymph Node Detection, UIUC 01/2022 – 12/2024

- Co-designed a UV-Color-NIR camera system, enhancing image-guided surgery and pathology capabilities
- Characterized sensor QE, dynamic range, and uniformity; implemented full ISP pipeline including 3A algorithms, color correction, and gamma correction
- Validated on 94 surgical samples with 97% sensitivity and 89% specificity for metastatic lymph node detection

In-vivo UV-Color-NIR Lensless 3D Microscope, UIUC 01/2024 – Present

- Enabled single-shot 3D fluorescence imaging in vivo by designing a multispectral lensless microscope spanning UV, color and NIR
- Achieved ~30 μm resolution comparable to a 4 \times microscope through computational imaging algorithms
- Integrated multi-wavelength fluorescence excitation sources via PCB for compact, surgical-ready hardware

CNN-based Demosaicing for Color-NIR Sensors, UIUC 05/2023 – 03/2024

- Developed real-time residual CNN for demosaicing hexachromatic (Color-NIR) sensor mosaics
- Achieved ~3 dB PSNR gain over baseline on clinical datasets; published in *Journal of Biomedical Optics*

SKILLS

- Programming: Python, PyTorch, OpenCV, MATLAB, Verilog/VHDL, C/C++, Visual Basic
- Hardware: FPGA, PCB design, SPI/I²C protocols, Oscilloscope, Function Generator, Soldering
- Optical/Display Characterization: Monochromator, Integrating Sphere, Optical Power Meter, Spectroscopy, Display Color Analyzer, High-resolution imaging colorimeter, and Optomechanics
- Software: Vivado, Quartus II, Cadence, KiCad, Simulink, Linux, Code Composer Studio