Daizong Tian

Tech L324, 2145 Sheridan Road, Evanston, IL, 60208

(872)-888-5648 • ⊠ daizongtian2021@u.northwestern.edu

Education

Northwestern Unversity

M.S. - Electrical Engineering (GPA 4.0)	09/2019 - 08/2021
Ph.D. - Electrical Engineering (GPA 4.0)	09/2021 - Present

Beijing University of Posts and Telecommunications & Queen Mary University of London

BSc(Eng) - Telecommunications Engineering with Management	09/2015 - 06/2019

Professional Experience

Innopeak Technology (OPPO US Research Center) — Palo Alto, California
Research Intern — *06/2022 - 09/2022*

- Developed a long-shot (blur-noisy) image pair generation pipeline with real-world captured handshake data from smartphone IMUs.
- Developed a ML-based, gyro-guided image deblur & denoise network for long-short image fusion for smartphone low-light photo captures.

Kuaishou Technology — San Diego, California
GPU Video Processing Intern — *03/2021 - 08/2021*

- Developed a UNet based fusion of optical flow, image residuals and traditional motion estimation for video temporal interpolation, which is more robust on low framerate real-world videos.
- Evaluated and benchmarked state-of-the-art optical flow and video interpolation networks.

Northwestern University — Evanston, Illinois
Teaching Assistant — *09/2021 - Present*

Research Experience

Digital Simulation of Film Grain — Northwestern University
Supervisor: Professor Thrasyvoulos N. Pappas | EECS Department — *Ongoing*

- Designed and implemented computationally efficient film grain simulations based on a physical model.
- Achieved 2-10x faster rendering speed and reduced memory usage by 50-90% compared to the current state-of-the-art while maintaining desired film grain characteristics both in spatial and frequency domains.

Focal Sweep or stopping down the aperture — Northwestern University
Guide: Professor Oliver Cossairt | Computational Photography Lab — *2020*

- Designed and assembled a fully automatic dataset capturing system for focal sweep images with programmed Optotune focus tunable lens and Linear stage.
- Performed camera calibration for captured datasets including distortion and radiometric calibration.
- Implemented neural networks for deconvolution and denoising in low-light conditions and achieved better MSE than traditional small aperture methods to achieve larger depth-of-field.

Non-contact vital sign detection — Georgia Institute of Technology
Supervisor: Professor Ying Zhang | Sensors and Intelligent Systems Lab — *Summer 2018*

- Expanded the data acquisition system for a non-contact heart-beat detection system.
- Improved the power supply module and signal processing, achieving a 12dB SNR increase.

Technical Strengths

- Python, Matlab, C, Java, Pytorch, HTML, JavaScript, LaTeX