Salman Siddique Khan

Contact Information

ESB 221,
Electrical Sciences Block, IIT Madras
Chennai, India - 600036

Homepage: siddiquesalman.github.io
✉ E-mail: sk39@smail.iitm.ac.in

Research Interest

My field of research is Computational Photography and Computer Vision. I work on designing new imaging systems and computational techniques that extend the capabilities of conventional cameras. In particular, I am interested in developing algorithms based on vision, deep learning, and optics that make these computational imaging systems work.

Education

Indian Institute of Technology Madras, Chennai, India — 2018–2023 (expected)

- Ph.D., Department of Electrical Engineering
- Advisor: Prof. Kaushik Mitra.

National Institute of Technology, Rourkela, India. — 2014–2018

- B.Tech., Electronics and Instrumentation Engineering.

Work Experience

NEC Labs America — June 2022 – Dec 2022

- **Position**: Research Intern
- **Topic**: Using deep learning to design cameras for optical encryption.

Rice Computational Imaging Lab — Jan 2021 – Jul 2021

- **Position**: Research Associate
- **Topic**: Designing diffractive optics for high-speed lensless imaging.

Rice Computational Imaging Lab — May 2019 – Nov 2019

- **Position**: Research Associate
- **Topic**: Designing optical and analog components for privacy-enhancing cameras.

Indian Statistical Institute — May 2016 – July 2016

- **Position**: Intern
- **Topic**: Random forest based histopathology image segmentation.

Selected Publications

1. Atreyee Saha, **Salman S. Khan**, Sagar Sehrawat, Sanjana Prabhu, Shanti Bhattacharya, Kaushik Mitra, **"LWGNet: Learned Wirtinger Gradients for Fourier Ptychographic Phase Retrieval"**, European Conference on Computer Vision (ECCV) 2022, Tel Aviv, Israel.
2. Dhruvjyoti Bagadthey, Sanjana Prabhu, **Salman S. Khan**, Tony Fredrick, Vivek Boominathan, Ashok Veeraraghavan, Kaushik Mitra, **"FlatNet3D: Intensity And Absolute Depth from Single-shot Lensless Capture"**, Journal of the Optical Society of America A (JOSA A) 2022.
3. **Salman S. Khan**, Varun Sundar, Vivek Boominathan, Ashok Veeraraghavan, Kaushik Mitra, **"FlatNet: Towards Photorealistic Scene Reconstruction from Lensless Measurements"**, IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI) 2020.
4. Jasper Tan, **Salman S. Khan**, Vivek Boominathan, Jeffrey Byrne, Richard Baraniuk, Kaushik Mitra, Ashok Veeraraghavan, **"CAnOPIC: Pre-Digital Privacy-Enhancing Encodings for Computer Vision"**, IEEE International Conference on Multimedia and Expo (ICME) 2020, London, UK. **(Oral)**
5. **Salman S. Khan**, Adarsh V.R., Vivek Boominathan, Jasper Tan, Ashok Veeraraghavan, Kaushik Mitra, **"Towards Photorealistic Reconstruction of Highly Multiplexed Lensless Images"**, IEEE International Conference on Computer Vision (ICCV) 2019, Seoul, Korea. **(Oral)**

Patent

1. **Salman S. Khan**, Sanjana Prabhu, Dhruvjyoti Bagadthey, Vivek Boominathan, Ashok Veeraraghavan, Kaushik Mitra, **"Reconstructing High Quality Intensity And Absolute Depth From Single-shot Lensless Captures"**. Submitted.

Honors and Awards

- Awarded the Qualcomm Innovation Fellowship India 2020-21.
- Awarded Google Travel Grant to attend ICCV 2019 at Seoul, South Korea.
- National Finalist in NIYANTRA 2017 Annual Student Design Contest

Teaching Experience

Teaching Assistant

- **EE 5176 Computational Photography**: Spring 2019, 2021
- **EE 6132 Modern Computer Vision**: Fall 2020
- **EE 1101 Signals and Systems**: Spring 2020
- **EE 3110 Probability Foundations for Electrical Engineers**: Fall 2021

Service

Reviewer

- Optica Optics Express
- Optica Continuum

Skills

Python(PyTorch, OpenCV), MATLAB, Blender, LabView.