Prasan Shedligeri

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EDUCATION

Indian Institute of Technology, Madras — Chennai, India
Direct PhD in Electrical Engineering; **CGPA**: 9.17/10 — July 2016 – Nov 2021
- Field of Research: **Computational Photography, Computer Vision, Image Processing, Deep learning**
- Skills: Python, Matlab, Pytorch, Deep learning, Excellent English communication (both spoken and written)
- Key Courses: *Computational Photography, Machine Learning for Computer Vision, Probability and Random Processes, Linear Algebra, Convex Optimization, Photometry and Geometry based Computer Vision, Image Signal Processing*

M.S. Ramaiah Institute of Technology — Bengaluru, India
B.E. in Electronics and Communication Engineering; **CGPA**: 9.50/10 — Aug. 2011 – June 2015
- Key Courses: *Digital Image Processing, Numerical Methods in Mathematics, Object Oriented Programming with C++, Cryptography and Network Security*
- **Thesis**: Hardware Implementation of a Digital Watermarking System for Video Authentication

Publications

SeLFVi: Self-supervised Light-Field Video Reconstruction from Stereo Video
- *Accepted at International Conference on Computer Vision (ICCV), 2021*
  Authors: **Prasan Shedligeri**, Florian Schiffers, Sushobhan Ghosh, Oliver Cossairt, Kaushik Mitra

Improving Acquisition Speed of X-Ray Ptychography through Spatial Undersampling
- *IEEE International Conference on Image Processing (ICIP), 2021*
  Authors: **Prasan Shedligeri**, Florian Schiffers, Semih Barutcu, Pablo Ruiz, Aggelos Katsaggelos, Oliver Cossairt

Regularization for Undersampled Ptychography
- *OSA Computational Optical Sensing and Imaging (COSI) 2021*
  Authors: **Prasan Shedligeri**, Florian Schiffers, Semih Barutcu, Pablo Ruiz, Aggelos Katsaggelos, Oliver Cossairt

High Frame Rate Optical Flow Estimation from Event Sensors via Intensity Estimation
- *Elsevier Journal of Computer Vision and Image Understanding (CVIU), 2021*
  Authors: **Prasan Shedligeri**, Kaushik Mitra

CodedRecon: Video reconstruction for coded exposure imaging techniques
- *Elsevier Journal of Software Impacts (SIMPAC), 2021 (Invited publication)*
  Authors: **Prasan Shedligeri**, Anupama S, Kaushik Mitra

A Unified Framework for Compressive Video Recovery from Coded-Exposure Techniques
- *IEEE/CVF Winter Conference on Applications of Computer Vision (WACV), 2021*
  Authors: **Prasan Shedligeri**, Anupama S, Kaushik Mitra

Video Reconstruction by Spatio-Temporal Fusion of Blurred-Coded Image Pair
- *IAPR 25th International Conference on Pattern Recognition (ICPR), 2020*
  Authors: Anupama S, **Prasan Shedligeri**, Abhishek Pal, Kaushik Mitra

Photorealistic Image Reconstruction from Hybrid Intensity and Event based Sensor
- *SPIE Journal of Electronic Imaging (JEI), 2019*
  Authors: **Prasan Shedligeri**, Kaushik Mitra

Data Driven Coded Aperture Design for Depth Recovery
- *IEEE International Conference on Image Processing (ICIP), 2017, Beijing, China*
  Authors: **Prasan Shedligeri**, Sreyas Mohan, Kaushik Mitra

Scholastic Achievements

- Winner of the Qualcomm Innovation Fellowship (QIF)[1] for the year 2021-22 for our proposal titled '*Self-supervised Light-Field Video Reconstruction for Smartphones*'.

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[1]Qualcomm Innovation Fellowship: a one year fellowship with 1 million INR awarded to innovative projects

- Selected for Doctoral Consortium at the IEEE WACV 2021 where I was mentored by Dr. Amanda Fernandez, an assistant professor at University of Texas, San Antonio.
- Secured a Research Travel Scholarship of 5000 USD from RBC-DSAI[2], IIT Madras to visit Northwestern University as a short-term visiting scholar.
- Secured internship at Samsung Research Institute, Bengaluru during the summer of 2018.
- One of the 20 finalists out of 95 competing teams across 7 premier Indian institutes in QIF India 2018. The 95 competing teams were from 7 different premier Indian institutes.
- Awarded travel grant of 1000 USD to attend IEEE International Conference on Image Processing 2017 by IEEE Signal Processing Society.
- Ranked 704 in the country in GATE[3] 2016, attempted by over 150,000 students.

Academic Projects

Light-field dimensionality reduction for hogel basis screen
- *Northwestern University*   Aug 2019 – Aug 2020

Dr. Oliver Cossairt, Dr. Aggelos Katsaggelos
   - A physical, optical-decoder based learning-based algorithm was designed
   - Dimensionality reduction by $\times 100$ was demonstrated.

High-speed imaging using hybrid sensors
- *IIT Madras*   Aug 2017 – May 2018

Ketul Shah, Dhruv Kumar, Dr. Kaushik Mitra
   - Combined the advantages of a traditional CMOS sensor and a novel event-based sensor to design algorithm for recovering high spatio-temporal resolution video.
   - Collected a video dataset where a CMOS sensor (DSLR) and the event sensor were co-located using a beam-splitter.

TEACHING EXPERIENCE

- **Deep Learning for Image Processing for Dr. K. Mitra and Dr. A. N. Rajagopalan**   Fall 2017
  IIT Madras
- **Digital Signal Processing for Dr. Kaushik Mitra**   Winter 2018
  IIT Madras
- **Lab for Data Analytics for Dr K. Mitra and Dr. V. Ramaiyan**   Fall 2018
  IIT Madras
- **Computational Photography for Dr. K. Mitra**   Winter 2019,2021
  IIT Madras
- **Modern Computer Vision for Dr. K. Mitra and Dr. A. N. Rajagopalan**   Fall 2020
  IIT Madras

WORK EXPERIENCE

- **Summer Internship**   Samsung Research Institute, Bengaluru
  Research Intern   May 2018 – July 2018
   - Mentored by Dr. Rituparna Sarkar, I worked towards developing a exposure-robust algorithm for depth estimation from monocular video.
- **Graduate Engineer Trainee**   Idea Cellular Limited
  Switch Engineer   June 2015 – April 2016
   - Worked with a team of 12 people helping them to maintain the core nodes in a cellular network like HLR and MSCs.

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[2] Robert Bosch Centre for Data-Science and AI https://rbc-dsai.iitm.ac.in
[3] A nationwide entrance test for postgraduate studies in engineering