# Lalit Manam

C-235, Computer Vision Lab
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## Research Interests

3D Computer Vision, Structure-from-Motion, Volumetric Rendering Methods, Simultaneous Localization and Mapping

## Education

*Ph.D.* - Electrical Engineering (9.1/10) 2018–present
Indian Institute of Science Bengaluru
Advisor: Prof. Venu Madhav Govindu

*B.Tech.* - Electronics and Communication Engineering (9.41/10) 2013–2017
National Institute of Technology Silchar

## Experience

**Teaching Assistant**

- *Indian Institute of Science Bengaluru*
  - Course: Computer Vision (E1-216) Spring 2021, 2022, 2023
    Instructor: Prof. Venu Madhav Govindu
  - Course: Stochastic Models and Applications (E1-222) Fall 2020
    Instructor: Prof. P S Sastry
- *NPTEL Online Courses*
  - Course: Computer Vision and Image Processing (NOC23-EE39) Spring 2023
    Instructor: Prof. M.K. Bhuyan, IIT Guwahati
  - Course: Computer Vision (NOC22-CS89) Fall 2022
    Instructor: Prof. Jayanta Mukhopadhyay, IIT Kharagpur

**Software Developer**

- *AMDOCS Development Center India LLP* Jul 2017–Jul 2018

## Projects

- Camera motion estimation in volumetric rendering methods Aug 2022–present
  - Developing methods to estimate camera motions efficiently while keeping the rendering quality similar with known motion case
- Motion averaging in 3D reconstruction problems Aug 2019–present
  - Developing methods for camera motion estimation in the structure-from-motion problem
- Restoration of images corrupted by various noises using fuzzy based approaches Jul 2016–May 2017
  - Developed different methods for removal of impulse noise from colour images
  - Work published in various journals/conferences
- K-Map Windows app Mar 2015
  - Developed an application to solve 4 variable K-Map in Sum-of-Product (SOP) form
  - `https://www.youtube.com/watch?v=lqLGpYOKIwQ`

## Research Papers

- **L. Manam**, V.M. Govindu, "Fusing displacements and directions in translation averaging," accepted at International Conference on 3D Vision, 2024

- **L. Manam**, V.M. Govindu, "Sensitivity in translation averaging," accepted at Neural Information Processing Systems (NeurIPS), 2023

- C. Sidhartha, **L. Manam**, V.M. Govindu, "Adaptive annealing for robust geometric estimation," IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), pp. 21929-21939, 2023

- **L. Manam**, V.M. Govindu, "Correspondence reweighted translation averaging," European Conference on Computer Vision (ECCV), pp. 56-72, 2022

- A. Roy, **L. Manam**, R.H. Laskar, "Removal of 'Salt & Pepper' noise from color images using adaptive fuzzy technique based on histogram estimation," Multimedia Tools and Applications, vol. 79, no. 47, pp. 34851-34873, Dec. 2020

- A. Roy, **L. Manam** and R.H. Laskar, "Region adaptive fuzzy filter: an approach for removal of random valued impulse noise," IEEE Transactions on Industrial Electronics, vol. 65, no. 9, pp. 7268-7278, Sept. 2018

- **L. Manam**, A. Roy, R. H. Laskar and F. A. Talukdar, "Removal of fixed valued impulse noise using global noise statistics based adaptive histogram fuzzy filter," TENCON 2017 - IEEE Region 10 Conference, pp. 2231-2235, 2017

- A. Roy, J. Singha, **L. Manam**, R.H. Laskar, "Combination of adaptive vector median filter and weighted mean filter for removal of high density impulse noise from color images," IET Image Processing, vol. 11, no. 6, pp. 352-361, Jan. 2017

**Skills & Technologies**

- C, C++, Python
- LaTeX, MATLAB, Pytorch, Basic ability with SQL

**Relevant Courses**

- Computer Vision
- Stochastic Models and Applications
- Linear and Non-linear Optimization
- Convex Optimization
- Machine Learning

**Honours and Awards**

-Granted Prime Ministers Research Fellowship (from Govt. of India) for the duration of Ph.D. (Aug 2018)
-Received Academic Excellence Award and a Silver Medal at NIT Silchar for scoring highest CPI (May 2017)
-Awarded Best Volunteer 2015 in Administration at Children of Hope India (Silchar based NGO) (Feb 2016)
-Invited for Dewang Mehta felicitation of engineering students at Kaziranga University Jorhat (Aug 2015)
-Received Academic Excellence Award and a Silver Medal at Delhi Public School Dhanbad (July 2013)

**Extra Curriculars**

- Represented Computer Vision Lab at the Open Day 2019, 2020 and EE Summer School 2022 held at IISc
- Volunteer in Administration at Children of Hope India (Mar 2015–Apr 2016)
- Conducted C Programming classes under Robotics Club, NIT Silchar (Aug–Nov 2014)
- Organized events under ECS Society and Robotics Club, NIT Silchar
- Participated in NITS-MUN in Sept 2014

**Hobbies and Interests**

Technology, Programming
Volunteering, Organizing, Management

**References**

- Prof Venu Madhav Govindu, Indian Institute of Science Bengaluru (venug@iisc.ac.in)
- Prof Rabul Laskar, National Institute of Technology Silchar (hlaskar@ece.nits.ac.in)
- Prof Fazal Talukdar, National Institute of Technology Silchar (fazal@ece.nits.ac.in)