Lalit Manam

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C-235, Computer Vision Lab, Electrical Engineering, Indian Institute of Science, Bengaluru, Karnataka, INDIA - 560012

Research Interests

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

Education

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

B.Tech. - Electronics and Communication Engineering (GPA: 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, 2024
    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

- Graph sparsification and disambiguation in structure-from-motion Aug 2023–present
  - Developing methods to prune input graphs for faster and accurate 3D reconstructions
- Motion averaging in 3D reconstruction problems Aug 2019–present
  - Developing methods for camera motion estimation in structure-from-motion
- 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
- K-Map Windows app Mar 2015
  - Developed an application to solve 4 variable K-Map in Sum-of-Product (SOP) form [Video]

Research Papers

- **L. Manam**, V.M. Govindu, "Leveraging camera triplets for efficient and accurate structure-from-motion," accepted at IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2024 [Project Page]

- **L. Manam**, V.M. Govindu, "Fusing displacements and directions in translation averaging," accepted (as oral presentation) at International Conference on 3D Vision (3DV), 2024 [Project Page]

- **L. Manam**, V.M. Govindu, "Sensitivity in translation averaging," Neural Information Processing Systems (NeurIPS), vol. 36, 2023 [Project Page]

- 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 [Project Page]

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

- 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

Honours and Awards

- Received Pratiksha Trust Travel Fellowship for attending 3DV 2024 (Mar 2024)
- Received Google Travel Grant and NeurIPS 2023 Scholar Award for attending NeurIPS 2023 (Dec 2023)
- Granted Prime Ministers Research Fellowship (from Govt. of India) for the duration of Ph.D. (Aug 2018) (among 6.98% of interviewed candidates)
- Received Academic Excellence Award and Silver Medal at NIT Silchar for scoring highest GPA (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)

Skills & Technologies

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

Relevant Courses at IISc

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

Extra Curriculars

- Represented Computer Vision Lab at EE Summer School 2022 and 2023 held at EE, IISc
- Represented Computer Vision Lab at Open Day 2019, 2020 and 2024 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

References

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