AMIT SATISH UNDE

School of Computing and Electrical Engineering,
Indian Institute of Technology Mandi,
Himachal Pradesh, India - 175075.

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Research Interests

- Computer vision : Object tracking and segmentation, Trajectory prediction
- Image processing, Compressive sensing, and Multimedia security.

Education

Indian Institute of Technology Mandi, India
Postdoctoral Research Fellow   [**January 2020 - present**]
Project Title: Leveraging Deep Learning for Prediction and Tracking of Future Instances of Video
Guide: Dr. Renu M. Rameshan

National Institute of Technology Calicut, Kerala, India
Ph.D,   [**January 2015 - May 2019**]
Thesis Title: Compressive Sensing Based Secure and Lightweight Source Coding Schemes for Wireless Camera Sensors
Guide: Dr. Deepthi P. P.
CGPA: 8.85/10

National Institute of Technology Calicut, Kerala, India
Master of Technology, Signal Processing   [**2010 - 2012**]
Thesis Title: Segmentation, Registration and Fusion of Medical Images
CGPA: 8.67/10

Dr. J. J. Magdum College of Engineering Jaysingpur, Maharashtra, India
Bachelor of Technology, Electronics Engineering   [**2005 - 2009**]
Percentage: 69 %

Research Experience

Multi-object tracking and segmentation, Indian Institute of Technology Mandi

Trajectory Prediction, Indian Institute of Technology Mandi

Compressive sensing based image compression and encryption, National Institute of Technology Calicut

Segmentation, registration, and fusion of medical images, National Institute of Technology Calicut

Publications

- Amit Satish Unde and Renu M. Rameshan, "MOTS R-CNN: Cosine-margin-triplet loss for multi-object tracking," *arXiv:2102.03512v1*, 2021.
- Amit Satish Unde and Deepthi P. P., "Adaptive compressive video coding for embedded camera sensors: Compressed domain motion and measurements estimation," *IEEE Transactions on Mobile Computing*, vol. 19, no. 10, pp. 2250–2263, 2019.

- Amit Satish Unde and Deepthi P. P., "Design and analysis of compressive sensing-based lightweight encryption scheme for multimedia IoT," *IEEE Transactions on Circuits and Systems II: Express Briefs*, vol. 67, no. 1, pp. 167–171, 2019.
- Amit Satish Unde and Deepthi P. P., "Rate-distortion analysis of structured sensing matrices for block compressive sensing of images," *Signal Processing: Image Communication*, Elsevier, vol. 65, pp. 115–127, 2018.
- Amit Satish Unde and Deepthi P. P., "Fast BCS-FOCUSS and DBCS-FOCUSS with augmented Lagrangian and minimum residual methods," *Journal of Visual Communication and Image Representation*, Elsevier, vol. 52, pp. 92–100, 2018.
- Amit Satish Unde and Deepthi P. P., "Block compressive sensing: Individual and joint reconstruction of correlated images," *Journal of Visual Communication and Image Representation*, Elsevier, vol. 44, pp. 187–197, 2017.

Internship Experience	**Travancore Analytics Trivandrum**, Kerala, India [**June 2011 - April 2012**] **Project**: Segmentation, Registration and Fusion of Medical Images
Teaching Experience	**Vishwakarma Institute of Technology Pune** *Assistant Professor June 2012-Dec 2014* Courses offered: *Signals and Systems, Digital Signal Processing, Coding and Data Compression*

Awards

- Best thesis award in PhD category during the Graduate Congress: GraTE'7' jointly organized by IEEE ComSoc Bangalore, Hyderabad and Kerala chapters on 13th June 2020.
- Recommended by Science and Engineering Research Board (SERB) for funding under National Post-Doctoral Fellowship Scheme
- Best paper award in Student's conference on engineering and systems held at NIT Allahabad on March 16-18, 2012

Technical Skills

- *Languages/Packages :* Python, TensorFlow, MATLAB, LaTeX
- *Operating System :* Linux

Reference

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Department of Electronics and Communication Engineering,
National Institute of Technology Calicut, Kerala, India
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Dr. Renu M. Rameshan
Assistant Professor,
School of Computing and Electrical Engineering,
Indian Institute of Technology Mandi, Himachal Pradesh, India
Email: renumr@iitmandi.ac.in