RAUNAK MANEKAR

Research Interests

Computer Vision, Machine Learning, Computational Imaging, AI for medicine

Education

University of Minnesota, Twin Cities

PhD Computer Science, (Fall 2018- Present) (CG: 3.61 /4)

Birla Institute of Technology and Science (BITS), Pilani *(First Division)*

M.E. Embedded Systems, May 2017 (CG: 8.90 /10)

B.E. Electronics & Instrumentation, May 2015 (CG: 7.46 /10)

Selected Publications

1. **Raunak Manekar**, Tayal, K., Zhuang, Z., Kumar, V., Sun, J. (2021, July). Breaking Symmetries in Data-Driven Phase Retrieval. In Computational Optical Sensing and Imaging(COSI). Optical Society of America.[**Oral**]
2. **Raunak Manekar**, Zhuang, Z., Tayal, K., Kumar, V., Sun, J. (2020, December). Deep Learning Initialized Phase Retrieval In NeurIPS workshop on Deep Learning and Inverse Problems.
3. **Raunak Manekar**, Tayal, K., Kumar, V., & Sun, J. (2020, July). End-to-end learning for phase retrieval In ICML workshop on ML Interpretability for Scientific Discovery.
4. **Tayal, K., Raunak Manekar**, Zhuang, Z., et. al. (2021, July). Phase Retrieval using Single-Instance Deep Generative Prior. In Optics and Photonics for Sensing the Environment. Optical Society of America.
5. Koundinya, S., ..., **Raunak Manekar**, et al. (2018, June). 2D-3D CNN based architectures for spectral reconstruction from RGB images In Computer Vision and Pattern Recognition Workshops (CVPR-W), 2018 IEEE Conference on. IEEE.
6. **Raunak Manekar**, et al. (2020). Activity Recognition for Indoor Fall Detection in 360-Degree Videos Using Deep Learning Techniques In Proceedings of 3rd International Conference on Computer Vision and Image Processing. Springer, Singapore, 2020.
7. Sinha, H., **Raunak Manekar**, et.al. (2019, February). Convolutional Neural Network based Human Identification using Outer Ear Images. In Soft Computing for Problem Solving. Springer, Singapore, 2019
8. Chalapathi, **Raunak Manekar**, et.al. (2016, November). Hardware validated efficient and simple Time Synchronization protocol for clustered WSN. In Region 10 Conference (TENCON), 2016 IEEE (pp. 2162-2166). IEEE.
9. **Raunak Manekar**, Chalapathi G S S, et.al. (2016, September) A Simple Time Synchronization Algorithm for WSNs in Smart Grid Applications. In Symposium on Emerging Topics in Smart and Sustainable Grids, Singapore. IEEE.

Internships

Institute for Health Informatics, UMN

Mentors: Dr. Chih-Lin Chi, Dr. Matt Loth **May, 2021 - July, 2022**
Predicting patient discontinuation of statin medication
ML for electronic health records

Machine Vision Lab, CSIR- CEERI (Central Research Institute in India)

Mentors: Dr. Jagdish Raheja, Dr. Dhiraj Sangwan **July, 2014 - Dec, 2014**
Gesture Recognition on skeleton data from Multiple Kinects.
Multi-Kinect sync using ROS (Robotic Operating System)

Current Position

PhD candidate, Computer Science, UMN

Deep Learning methods for Inverse Problems in Computational Imaging (Phase Retrieval)

Service

Reviewer for:
ICLR '22, Neurips '22
CVPR '22, ECCV '22
AAAI '22 (Intl Workshop on Health Intelligence)
Springer Autonomous Robots Journal

Awards

ICLR '22 Highlighted Reviewer [link]
Travel award- ICML '17(Sydney), NeurIPS '22(New Orleans),
Travel award- WS on Diffractive Imaging '22 (IPAM, UCLA)
GRE 322
TOEFL 114

Teaching & Leadership

Teaching Assistant

- Machine Learning Fundamentals (CSCI 5521 at UMN)
- Intro to Data Structures and Algorithms (CSCI 1933 at UMN)
- Neural Networks and Fuzzy Logic (at BITS Pilani)

Project Forum Mentor, Sensors and Transducers
Supervised the projects undertaken by students.

Compere, Founder's Day at BITS Pilani
Master of Ceremony for the event

Captain, Swimming Team
Won overall championship in 2013 BITS Open Sports Meet

Computer Skills

- Languages and Technologies: C++, C, Java, Python
- Software packages: PyTorch, TensorFlow, Keras, Robotic Operating System (ROS), TinyOS, OpenCV
- Embedded Programming: Embedded C, NesC
- Type Setting: LaTeX, Open Office, Microsoft Office
- Statistical Packages: MATLAB