Dr. Sushant Kumar
Department of Mechanical Engineering
Indian Institute of Technology Kanpur
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EXPERIENCE

Institute Post-doctoral Fellow, Department of Mechanical Engineering, IIT Kanpur, 13 December 2024 - Present

Senior Project Engineer, Center for Mechatronics, IIT Kanpur, 01 March 2024 - 12 December 2024

Research Associate III, Department of Computer Science and Engineering, IIT (BHU) Varanasi, 01 November 2022 - 29 February 2024

EDUCATION

Tezpur University (A Central University), Tezpur, Assam

Ph.D., Electronics and Communication Engineering, October 2022

M.Tech., Bioelectronics, June 2015

West Bengal University of Technology, Kolkata, West Bengal

B.Tech., Electronics and Communication Engineering , July 2011

RESEARCH INTERESTS

Rehabilitation Robotics, Biomedical Signal Processing, Embedded Machine Learning, Deep Learning, Data-centric AI, Compressed Sensing

PROFESSIONAL ACTIVITIES

- **Reviewer**:
  IEEE Transactions on Mobile Computing
  IEEE Transactions on Artificial Intelligence
  IEEE Transactions on Intelligent Transportation Systems
  IEEE Access
  Circuits, Systems, and Signal Processing
  PLOS ONE

- **Member, Webpage Committee**, 8th International Conference on Pattern Recognition and Machine Intelligence (PReMI 2019), organised by Tezpur University in collaboration with ISI, Kolkata, and IIT Guwahati

- **Member, Accommodation Committee**, 19th National Convention on Knowledge, Library and Information Networking (NACLIN 2016), organised by Tezpur University in collaboration with DELNET, Delhi

JOURNAL PUBLICATIONS

1. **Sushant Kumar**, Bhabesh Deka, and Sumit Datta, "Multichannel ECG Compression using Block Sparsity based Joint Compressive Sensing", *Circuits, Systems and Signal Processing*, vol. 39, pp. 6299-6315, 2020.

2. Bhabesh Deka, **Sushant Kumar**, and Sumit Datta, "Dictionary Learning-based Multi-Channel ECG Reconstruction using Compressive Sensing", *IEEE Sensors Journal*, vol. 22, pp. 16359 - 16369, 2022.

3. **Sushant Kumar**, Ritesh Sharma, Vishakha Singh, Shrikant Tiwari, Sanjay Kumar Singh, and Sumit Datta, "Potential Impact of Data-Centric AI on Society", *IEEE Technology and Society Magazine*, vol. 42, pp. 98-107, 2023.

4. **Sushant Kumar**, Sumit Datta, Vishakha Singh, Sanjay Kumar Singh, and Ritesh Sharma, "Opportunities and Challenges in Data-Centric AI", *IEEE Access*, vol. 12, pp. 33173 - 33189, 2024.

5. **Sushant Kumar**, Sumit Datta, Vishakha Singh, Deepanwita Datta, Sanjay Kumar Singh, and Ritesh Sharma, "Applications, Challenges, and Future Directions of Human-in-the-Loop Learning", *IEEE Access*, vol. 12, pp. 75735-75760, 2024.

6. **Sushant Kumar**, Ram Bilas Pachori, Bhabesh Deka, and Sumit Datta, "Opportunities and Challenges in Deep Compressed Sensing Techniques for Multichannel ECG Data Compression", *SN Computer Science*, vol. 5, pp. 1-21, 2024.

BOOK CHAPTER PUBLICATIONS

1. **Sushant Kumar**, Bhabesh Deka, and Sumit Datta, "Block-Sparsity Based Compressed Sensing for Multichannel ECG Reconstruction", *Pattern Recognition and Machine Intelligence*, LNCS, Springer, vol. 11942, pp. 210-217, 2019.

2. **Sushant Kumar**, Bhabesh Deka, and Sumit Datta, "Multi-channel ECG Reconstruction based on Joint Compressed Sensing for Healthcare Applications", *Compressive Sensing in Healthcare, Academic Press*, pp. 185-200, 2020.

CONFERENCE PUBLICATIONS

1. Sourav Bhowmick, **Sushant Kumar**, and Anurag Kumar, "Hand gesture recognition of English alphabets using artificial neural network", *IEEE 2nd International Conference on Recent Trends in Information Systems*, pp. 405–410, 2015, Kolkata, India.

2. Sumit Datta, Bhabesh Deka, H. Uddin Mullah, and **Sushant Kumar** "An efficient interpolated compressed sensing method for highly correlated 2D multi-slice MRI", *IEEE International Conference on Accessibility to Digital World*, pp. 187–192, 2016, Guwahati, India.

3. **Sushant Kumar**, Bhabesh Deka, and Sumit Datta, "Weighted Block CS for Multichannel Fetal ECG Reconstruction", in *TENCON 2019-IEEE Region 10 Conference*, 2019, Kochi, India.

4. Sumit Datta, Bhabesh Deka, Samarendra Dandapat, **Sushant Kumar** and Arnab Majumder, "Enhancement of Diagnostic Information in T1-weighted Contrast Enhanced MRI using Deep Back-Projection based Super-Resolution", in *2022-IEEE 19th India Council International Conference (INDICON)*, 2022, Kochi, India.

5. Vishakha Singh, Ritesh Sharma, **Sushant Kumar**, and Sanjay Kumar Singh, "Using explainable AI and genetic algorithms to drive the discovery of novel antiviral molecules", in *2023 International Conference on Computational Science and Computational Intelligence (CSCI)*, 2023, Las Vegas, USA.

6. Lukmanul Hakeem, Aromal C J, **Sushant Kumar**, and Sumit Datta, "Continual Learning for Video Action Recognition using Parameter Allocation", in *2024-IEEE 21st India Council International Conference (INDICON)*, 2024 (Accepted).