

Sumohana S. Channappayya

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Profile

Professor of Electrical Engineering at IIT Hyderabad.

Experience

- *Professor*, Dept of Electrical Engineering, IIT Hyderabad – 03/2022 - Present
- *Associate Professor*, Dept of Electrical Engineering, IIT Hyderabad – 11/2016 - 03/2022
- *Assistant Professor*, Dept of Electrical Engineering, IIT Hyderabad – 07/2012 - 11/2016
- *Senior Engineer*, Qualcomm Inc., San Diego, CA, USA – 09/2011 - 07/2012
- *Senior Member of Technical Staff*, PacketVideo Corp., San Diego, CA, USA – 12/2007 - 09/2011
- *Graduate Research Assistant*, UT Austin, TX, USA – 09/2003 - 12/2007
- *Member of Technical Staff*, PacketVideo Corp., San Diego, CA, USA – 02/2001 - 07/2003
- *Graduate Research Assistant*, Arizona State University, AZ, USA – 01/2000 - 12/2000

Education

- PhD in Electrical Engineering – The University of Texas at Austin, TX, USA, 2007
- MS in Electrical Engineering – Arizona State University, AZ, USA, 2000
- BE in Electronics and Communication Engineering – University of Mysore, India, 1998

Research Interests

Image and Video Quality Assessment, Machine Learning, Multimedia Communication, Biomedical Imaging.

Research Lab Link

[Lab for Video and Image Analysis \(LFOVIA\)](#)

Citation Links

[Scopus Profile](#), [Google Scholar Profile](#), [Semantic Scholar Profile](#)

Book Chapters

1. D. Brunet, S. S. Channappayya, Z. Wang, A. C. Bovik, E. R. Vrscay, "Optimizing Image Quality," in *Handbook of Convex Optimization Methods in Imaging Science*, 15-41, Ed. V. Monga, Springer 2017.
2. S. S. Channappayya, A. C. Bovik, "Structural Similarity Index Based Optimization," in *Encyclopedia of Multimedia*, Ed. B. Furht, Springer 2008.

Journal Articles

1. C. R. Pochimireddy, A. T. Siripuram, S. S. Channappayya, "Can Perceptual Guidance Lead to Semantically Explainable Adversarial Perturbations?" *IEEE Journal of Special Topics in Signal Processing*, DOI: 10.1109/JSTSP.2023.3258253.
2. S. R. Bhavanam, S. S. Channappayya, P. K. Srijith, S. Desai, "Cosmic Ray Rejection with Attention Augmented Deep Learning," *Astronomy and Computing*, DOI:10.1016/j.ascom.2022.100625.
3. Md. Shahid, Abhishek B., S. S. Channappayya, "A Cross-Platform HD Dataset and a Two-Step Framework for Robust Aerial Image Matching," *IEEE Access*. DOI:10.1109/ACCESS.2022.3184328.
4. V. Chandrakanth, V. S. N. Murthy, S. S. Channappayya, "Siamese Cross Domain Tracker Design for Seamless Tracking of Targets in RGB and Thermal Videos," *IEEE Transactions on Artificial Intelligence*, DOI: 10.1109/TAI.2022.3151307.
5. N. S. Mahankali, M. Raghavan, S. S. Channappayya, "No-Reference Video Quality Assessment Using Voxel-wise fMRI Models of the Visual Cortex," *IEEE Signal Processing Letters*, DOI: 10.1109/LSP.2021.3136487.
6. P. Kancharla, S. S. Channappayya, "Completely Blind Quality Assessment of User Generated Video Content," *IEEE Transactions on Image Processing*, DOI: 10.1109/TIP.2021.3130541.
7. V. Chandrakanth, V. S. N. Murthy, S. S. Channappayya, "UAV based Autonomous Detection and Tracking of Beyond Visual Range (BVR) Non-Stationary Targets Using Deep Learning," *Journal of Real-Time Image Processing*, DOI: 10.1007/s11554-021-01185-w.
8. P. Kancharla, S. S. Channappayya, "Improving the Visual Quality of Video Frame Prediction Models Using the Perceptual Straightening Hypothesis," *IEEE Signal Processing Letters*. DOI: 10.1109/LSP.2021.3118639.
9. S. Mitra, R. Soundararajan, S. S. Channappayya, "Predicting Spatio-temporal Entropic Differences for Robust No Reference Video Quality Assessment," *IEEE Signal Processing Letters*. DOI: 10.1109/LSP.2021.3049682.
10. S. V. R. Dendi, S. S. Channappayya, "No-Reference Video Quality Assessment Using Natural Spatiotemporal Scene Statistics," *IEEE Transactions on Image Processing*. DOI: 10.1109/TIP.2020.2984879

11. M. Amarlingam, K. V. V. Durga Prasad, P. Rajalakshmi, S. S. Channappayya, C. S. Sastry, "A Novel Low-complexity Compressed Data Aggregation Method for Energy-constrained IoT Networks," *IEEE Transactions on Green Communications and Networking*. DOI: 10.1109/TGCN.2020.2966798.
12. N. Eswara, S. Chakraborty, H. P. Sethuram, K. Kuchi, A. Kumar, S. S. Channappayya, "Perceptual QoE-optimal Resource Allocation for Adaptive Video Streaming," *IEEE Transactions on Broadcasting*, DOI: 10.1109/TBC.2019.2954064.
13. B. Appina, S. V. R. Dendi, K. Manasa, S. S. Channappayya, A. C. Bovik, "Study of Subjective Quality and Objective Blind Quality Prediction of Stereoscopic Videos," *IEEE Transactions on Image Processing*, DOI: 10.1109/TIP.2019.2914950.
14. N. Eswara, Ashique S., A. Panchbhai, S. Chakraborty, H. P. Sethuram, K. Kuchi, A. Kumar, S. S. Channappayya, "Streaming Video QoE Modeling and Prediction: A Long Short-Term Memory Approach," *IEEE Transactions on Circuits and Systems for Video Technology (CSVT)*, DOI: 10.1109/TCSVT.2019.2895223.
15. K. J. Francis, B. Chinni, S. S. Channappayya, R. Pachamuthu, V. S. Dogra, N. Rao, "Multiview Spatial Compounding Using Lens-Based Photoacoustic Imaging System," *Photoacoustics*, DOI: 10.1016/j.pacs.2019.01.002.
16. S. V. R. Dendi, C. Dev, N. Kothari, S. S. Channappayya, "Generating Image Distortion Maps Using Convolutional Autoencoders with Application to No Reference Image Quality Assessment," *IEEE Signal Processing Letters*, DOI: 10.1109/LSP.2018.2879518.
17. M. Amarlingam, P. K. Mishra, P. Rajalakshmi, S. S. Channappayya, C. S. Sastry, "Novel Light Weight Compressed Data Aggregation Using Sparse Measurements for IoT Networks," *Elsevier Journal of Networking and Computer Applications*, DOI: 10.1016/j.jnca.2018.08.004.
18. S. Khan Md, S. S. Channappayya, "Estimating Depth-Salient Edges And Its Application To Stereoscopic Image Quality Assessment," *IEEE Transactions on Image Processing*, DOI: 10.1109/TIP.2018.2860279.
19. K. J. Francis, B. Chinni, S. S. Channappayya, R. Pachamuthu, V. S. Dogra, N. Rao, "Two Sided Residual Refocusing for Acoustic Lens Based Photoacoustic Imaging System," *IOP Physics in Medicine and Biology*, DOI: 10.1088/1361-6560/aac8c5.
20. B. Appina, S. S. Channappayya, "Full-Reference 3D Video Quality Assessment Using Scene Component Statistical Dependencies," *IEEE Signal Processing Letters*, DOI: 10.1109/LSP.2018.2829107.
21. K. J. Francis, B. Chinni, S. S. Channappayya, R. Pachamuthu, V. S. Dogra, N. Rao, "Characterization of Lens Based Photoacoustic Imaging System," *Photoacoustics*, DOI:10.1016/j.pacs.2017.09.003.
22. N. Eswara, Manasa K., A. Kommineni, S. Chakraborty, H. P. Sethuram, K. Kuchi, A. Kumar, S. S. Channappayya, "A Continuous QoE Evaluation Framework for Video Streaming over HTTP," *IEEE Transactions on Circuits and Systems for Video Technology (CSVT)*, DOI:10.1109/TCSVT.2017.2742601.

23. R. R. Tamboli, B. Appina, S. S. Channappayya, S. Jana, "Super-Multiview Content with High Angular Resolution: 3D Quality Assessment on Horizontal-Parallax Lightfield Display," *Signal Processing: Image Communication*, DOI:10.1016/j.image.2016.05.010.
24. Manasa K., S. S. Channappayya, "An Optical Flow-Based Full Reference Video Quality Assessment Algorithm," *IEEE Transactions on Image Processing*, DOI:10.1109/TIP.2016.2548247.
25. B. Appina, S. Khan Md, S. S. Channappayya, "No-reference Stereoscopic Image Quality Assessment Using Natural Scene Statistics," *Signal Processing: Image Communication*, DOI:10.1016/j.image.2016.02.001.
26. S. Khan Md, B. Appina, S. S. Channappayya, "Full-reference Stereo Image Quality Assessment Using Natural Stereo Scene Statistics," *IEEE Signal Processing Letters*, DOI: 10.1109/LSP.2015.2449878.
27. J. Chhablani, S. S. Channappayya, A. Richhariya, "Can an automated algorithm identify Choriocapillaris in 2D-optical coherence tomography images?," *Expert Review on Ophthalmology*, DOI: 10.1586/17469899.2014.922875.
28. J. Ostergaard, M. S. Derpich, and S. S. Channappayya, "The High-Resolution Rate-Distortion Function under the Structural Similarity Index," *EURASIP Journal on Advances in Signal Processing*, special issue on "Theory and Application of General Linear Image Processing", 2011, DOI:10.1155/2011/857959.
29. S. S. Channappayya, A. C. Bovik, C. Caramanis, and R. W. Heath Jr., "Design of Linear Equalizers Optimized for the Structural Similarity Index," *IEEE Transactions on Image Processing*, DOI: 10.1109/TIP.2008.921328.
30. S. S. Channappayya, A. C. Bovik, and R. W. Heath Jr., "Rate Bounds on SSIM Index of Quantized Images," *IEEE Transactions on Image Processing*, DOI: 10.1109/TIP.2008.2001400.

Patents

1. S. S. Medasani, S. S. Channappayya, V. Neeluri, M. C. Bhatlapenumarti, "Automated system and method of retaining images based on a user's feedback on image quality," *US Patent 10,607,326*.

Conference Publications

1. S. K. Amalapuram, B. R. Tamma, S. S. Channappayya, "SPIDER: A Semi-Supervised Continual Learning-based Network Intrusion Detection System," accepted to *IEEE INFOCOM 2024*.
2. S. K. Amalapuram, S. S. Channappayya, B. R. Tamma, "Augmented Memory Replay-based Continual Learning Approaches for Network Intrusion Detection," *Proc. NeurIPS 2023*.
3. A. Ramachandran, S. S. Channappayya, "Perceptually-Inspired Local Source Normalization for Adversarial Robustness," *Proc. AIML Systems 2023*.

4. A. Shyam, K. Komalavally, M. Gautam, V. Kancharla, V. Gudisa, V. Patil, A. Balasubramanian, S. S. Channappayya, "An Automotive Radar Dataset for Object Classification," Proc. *ICASSP 2023*, DOI: 10.1109/ICASSP49357.2023.10097078.
5. S. R. Bhavanam, S. S. Channappayya, P. K. Srijith, S. Desai, "Cosmic Ray Detection in Astronomical Images via Dictionary Learning and Sparse Representation," Proc. *EUSIPCO 2022*.
6. N. Suresh, M. Pavan Manesh, N. S. Mahankali, S. S. Channappayya, "A Fast and Efficient No-Reference Video Quality Assessment Algorithm Using Video Action Recognition Features," Proc. *NCC 2022*.
7. S. K. Amalapuram, A. Tadvai, R. Vinta, S. S. Channappayya, B. R. Tamma, "Continual Learning for Anomaly based Network Intrusion Detection," Proc. *COMSNSETS 2022*.
8. S. K. Amalapuram, T. R. Tippi, S. S. Channappayya, B. R. Tamma, "On Handling Class Imbalance in Continual Learning based Network Intrusion Detection Systems," Proc. *First International Conference on AI-ML Systems 2021*, Bengaluru, India.
9. Md. Shahid, S. S. Channappayya, "Aerial Cross-platform Path Planning Dataset," Proc. *ICCV Workshop on Analysis of Aerial Motion Imagery (WAAMI) 2021*.
10. Md. Shahid, S. S. Channappayya, "Surveying for Man-made Objects in Photographic Images," Proc. *SPIE Security + Defence Conference on Target and Background Signatures VII*.
11. N. S. Mahankali, S. S. Channappayya, "Video Quality Prediction Using Voxel-wise fMRI Models of the Visual Cortex," Proc. *ICASSP 2021*.
12. F. K. Joseph, A. Arora, P. Kancharla, M. K. A. Singh, W. Steenbergen, S. S. Channappayya, "Generative adversarial network-based photoacoustic image reconstruction from bandlimited and limited-view data," Proc. *SPIE Photons Plus Ultrasound: Imaging and Sensing 2021*.
13. V. Chandrakanth, V. S. N. Murthy, S. S. Channappayya, "Target Tracking in Blind Range of Radars with Deep Learning," Proc. *International Radar Symposium 2020*, Poland.
14. S. V. R. Dendi, C. Dev, N. Kothari, S. S. Channappayya, "LQAID: Localized Quality Aware Image Denoising using Deep Convolutional Neural Networks," Proc. *IEEE ICASSP 2020*, Barcelona, Spain.
15. P. Kancharla, S. S. Channappayya, "Quality Aware Generative Adversarial Networks," Proc. *Thirty-third Conference on Neural Information Processing Systems (NeurIPS) 2019*, Vancouver, Canada, December 2019.
16. A. K. Venkataraman, S. Gupta, S. S. Channappayya, "Perceptually Driven Conditional GAN for Fourier Ptychography," Proc. *IEEE Asilomar Conference on Signals, Systems and Computers 2019*, Pacific Grove, CA, USA.
17. C. Ravuri, R. Sureddi, S. V. R. Dendi, S. Raman, S. S. Channappayya, "Deep No-reference Tone Mapped Image Quality Assessment," Proc. *IEEE Asilomar Conference on Signals, Systems and Computers 2019*, Pacific Grove, CA, USA.

18. S. Khan, S. S. Channappayya, "Full Reference Stereoscopic Video Quality Assessment Based on Spatio-Depth Saliency and Motion Strength," Proc. *NCC 2019*, IISc Bangalore, February 2019.
19. S. V. R. Dendi, G. Krishnappa, S. S. Channappayya, "Full-Reference Video Quality Assessment Using Deep 3D Convolutional Neural Networks," Proc. *NCC 2019*, IISc Bangalore, February 2019.
20. P. Kancharla, S. S. Channappayya, "A weighted optimization for Fourier Ptychographic Microscopy," Proc. *NCC 2019*, IISc Bangalore, February 2019.
21. P. Kancharla, S. S. Channappayya, "Improving the Visual Quality of Generative Adversarial Network (GAN)-generated Images Using the Multi-scale Structural Similarity Index," Proc. *IEEE ICIP 2018*, Athens, Greece, October 2018.
22. B. Appina, A. Jalli, S. S. Battula, S. S. Channappayya, "No-Reference Stereoscopic Video Quality Assessment Algorithm Using Joint Motion and Depth Statistics," Proc. *IEEE ICIP 2018*, Athens, Greece, October 2018.
23. H. Machiraju, S. S. Channappayya, "An Evaluation Metric for Object Detection Algorithms in Autonomous Navigation Systems and its Application to a Real-Time Alerting System," Proc. *IEEE ICIP 2018*, Athens, Greece, October 2018.
24. C. P. Konkimalla, M. S. Yellapragada, T. Gayam, S. Mandal, S. S. Channappayya, "Optical Character Recognition (OCR) for Telugu: Database, Algorithm and Application," Proc. *IEEE ICIP 2018*, Athens, Greece, October 2018.
25. R. R. Tamboli, S. Manne, P. A. Kara, M. G. Martini, S. S. Channappayya, S. Jana, "A High- angular-resolution Turntable Data-set for Experiments on Light Field Visualization Quality," Proc. *QoMEX 2018*, Sardinia, Italy, May 2018.
26. R. R. Tamboli, B. Appina, P. A. Kara, M. G. Martini, S. S. Channappayya, S. Jana, "Effect of Primitive Features of Content on Perceived Quality of Light Field Visualization," Proc. *QoMEX 2018*, Sardinia, Italy, May 2018.
27. N. Eswara, S. Chakraborty, H. P. Sethuram, K. Kuchi, A. Kumar, S. S. Channappayya, "Modeling Continuous Video QoE Evolution: A State Space Approach," Proc. *ICME 2018*, San Diego, USA, July 2018.
28. R. R. Tamboli, B. Appina, S. S. Channappayya, S. Jana, "Achieving High Angular Resolution Via View Synthesis: Quality Assessment of 3D Content on Super Multiview Lightfield Display," Proc. *IC3D 2017*, Brussels, Belgium, December 2017.
29. N. Eswara, S. V. R. Dendi, S. Chakraborty, H. Sethuram, K. Kuchi, A. Kumar, S. S. Channappayya, "A Linear Regression Framework for Assessing Time-varying Subjective Quality in HTTP Streaming," Proc. *IEEE GlobalSIP 2017*, Montreal, Canada, November 2017.
30. M. Shabeer, S. Bhati, S. S. Channappayya, "Modeling Sparse Spatio-temporal Representations for No-reference Video Quality Assessment," Proc. *IEEE GlobalSIP 2017*, Montreal, Canada, November 2017.

31. A. Kumar, S. Gupta, S. Chandra, S. Raman, S. S. Channappayya, "No-Reference Quality Assessment of Tone Mapped High Dynamic Range (HDR) Images Using Transfer Learning," Proc. *QoMEX 2017*, Erfurt, Germany.
32. B. Appina, K. Manasa, S. S. Channappayya, "A Full Reference Stereoscopic Video Quality Assessment Metric," Proc. *IEEE ICASSP 2017*, New Orleans, LA, USA, March 2017.
33. B. Appina, K. Manasa, S. S. Channappayya, "Subjective and objective study of the relation between 3D and 2D views based on depth and bitrate," Proc. *IS & T Electronic Imaging 2017*, Burlingame, CA, USA, January 2017.
34. S. Khan Md, S. S. Channappayya, "Sparsity Based Stereoscopic Image Quality Assessment," Proc. *Asilomar Conference on Signals, Systems and Computers 2016*, Pacific Grove, CA, USA, November 2016.
35. K. J. Francis, P. Mishra, P. Rajalakshmi, A. Richhariya, S. S. Channappayya, "A Simple and Accurate Matrix for Model Based Photoacoustic Imaging," Proc. *IEEE Healthcom 2016*, Munich, Germany, September 2016.
36. Manasa K., S. S. Channappayya, "An Optical Flow-Based No-Reference Video Quality Assessment Algorithm," Proc. *IEEE ICIP 2016*, Phoenix, AZ, USA, September 2016.
37. K. V. S. N. L. Manasa Priya, B. Appina, S. S. Channappayya, "No-Reference Image Quality Assessment Using Statistics of Sparse Representations," Proc. *SPCOM 2016*, Bengaluru, India, June 2016.
38. S. Khan Md, S. S. Channappayya, "Multiscale-SSIM Index based Stereoscopic Image Quality Assessment," Proc. *NCC 2016 IIT Guwahati*, India, March 2016.
39. N. Eswara, S. S. Channappayya, A. Kumar, K. Kuchi, "eTVSQ based Video Rate Adaptation in Cellular Networks With α -Fair Resource Allocation," Proc. *IEEE WCNC 2016*, Doha, Qatar, April 2016.
40. M. Akshai Krishna, S. S. Chandra, S. S. Channappayya, S. Raman, "A Subjective and Objective Quality Assessment of Tone-Mapped Images," Proc. *IEEE GlobalSIP 2015*, Orlando, FL, USA, December 2015.
41. S. Vignesh, K. V. S. N. L. Manasa Priya, S. S. Channappayya, "Face Image Quality Assessment for Face Selection in Surveillance Video using Convolutional Neural Networks," Proc. *IEEE GlobalSIP 2015*, Orlando, FL, USA, December 2015.
42. K. J. Francis, P. Rajalakshmi, S. S. Channappayya, "Distributed Compressed Sensing for Photo-Acoustic Imaging," Proc. *IEEE ICIP 2015*, Quebec City, Canada, September 2015.
43. S. Sadhana Reddy, K. Manasa, S. S. Channappayya, "Video Packet Priority Assignment Based on Spatio-Temporal Perceptual Importance," Proc. *NCC 2015*, IIT Bombay.
44. V. Neeluri, P. Dendi, M. Chandrashekhar Bh., S. S. Channappayya, S. Medasani, "Blind Image Quality Evaluation Using Perception Based Features," Proc. *NCC 2015*, IIT Bombay.
45. R. R. Tamboli, K. K. Vupparaboina, J. R. Regatti, S. Jana, S. S. Channappayya, "A Subjective Evaluation of True 3D Images," Proc. *IEEE IC3D 2014*, Liege, Belgium, December 2014.

46. K. V. S. N. L. Manasa Priya, S. S. Channappayya, "A Novel Sparsity-inspired Blind Image Quality Assessment Algorithm," Proc. *IEEE GlobalSIP 2014*, Atlanta, USA, December 2014.
47. K. J. Francis, S. S. Channappayya, P. Rajalakshmi, "Wavelet Domain Frequency interpolation for Photo-acoustic Tomography," Proc. *IEEE MedCom 2014*, Noida, India, November 2014.
48. K. Manasa, K. V. S. N. L. Manasa Priya, S. S. Channappayya, "A Perceptually Motivated No-reference Video Quality Assessment Algorithm for Packet Loss Artifacts," Proc. *QoMEX 2014*, Singapore, September 2014.
49. P. Dendi, V. Neeluri, M. Chandrasekar Bh, S. S. Channappayya, S. Medasani, "Blind Distortion Classification Using Content and Perception Based Features," Proc. *QoMEX 2014*, Singapore, September 2014.
50. K. V. S. N. L. Manasa Priya, K. Manasa, S. S. Channappayya, "A Statistical Evaluation of Sparsity-based Distance Measure (SDM) as an Image Quality Assessment Algorithm," Proc. *IEEE ICASSP 2014*, Florence, Italy, May 2014.
51. K. Abhishek, M. Haloi, S. S. Channappayya, S. Vanjari, D. Dendukuri, S. Swathy, T. Choudhary, P. Bhandari, "An Enhanced Algorithm for the Quantification of Human Chorionic Gonadotropin (hCG) Level in Commercially Available Home Pregnancy Test Kits," Proc. *NCC 2014*, IIT Kanpur, India, February 2014.
52. S. Kakileti, S. S. Channappayya, A. Richhariya, J. Chhablani, "An Automated Algorithm for the Identification of Choriocapillaris in 2D-OCT Images," Proc. *SPIE Medical Imaging 2014*, San Diego, CA, USA, February 2014.
53. K. Manasa, K. V. S. N. L. Manasa Priya, S. Sadhana Reddy, S. S. Channappayya, S. Vanjari, D. Dendukuri, S. Swathy, T. Choudhary, P. Bhandari, "An Automated Algorithm for the Quantification of hCG Level in Novel Fabric-based Home Pregnancy Test Kits," Proc. *IEEE Asilomar Conference on Signals, Systems and Computers 2013*, Pacific Grove, CA USA, November 2013.
54. N. R. Mahajan, R. C. Reddy Donapati, S. S. Channappayya, S. Vanjari, A. Richhariya, J. Chhablani, "An Automated Algorithm for Blood Vessel Count and Area Measurement in 2-D Choroidal Scan Images," Proc. *IEEE Engineering in Medicine and Biology Conference (EMBC) 2013*, Osaka, Japan.
55. K. T. Javvadi Appanacharya, A. K. Tatinati, H. K. Kunderu, S. K. Mohammad, S. S. Channappayya, A. Acharyya, S. Tripathi, "A Low-cost Scalable Solution for Digitizing Analog X-rays with Applications to Rural Healthcare," Proc. *IEEE Engineering in Medicine and Biology Conference (EMBC) 2013*, Osaka, Japan.
56. G.S. Muralidhar, S. S. Channappayya, J.H. Slater, E.M. Blinks, A.C. Bovik, W. Frey and M.K. Markey, "Comparison of pre-processing techniques for fluorescence microscopy images of cells labeled for actin," Proc. *American Medical Information Annual Symposium*, Washington D. C., USA.
57. S. S. Channappayya, A. C. Bovik, and R. W. Heath Jr., "Perceptual Soft Thresholding Using the Structural Similarity Index," Proc. *IEEE ICIP 2008*, San Diego, CA, USA.

58. S. S. Channappayya, A. C. Bovik, R. W. Heath Jr., and C. Caramanis, "Rate Bounds on SSIM Index of Quantized Image DCT Coefficients," *Proc. Data Compression Conference (DCC) 2008*, Snowbird, UT, USA.
59. S. S. Channappayya, A. C. Bovik, C. Caramanis, and R. W. Heath Jr., "SSIM-Optimal Linear Image Restoration," *Proc. IEEE ICASSP 2008*, Las Vegas, NV, USA.
60. S. S. Channappayya, A. C. Bovik, and R. W. Heath Jr., "A Linear Estimator Optimized for the Structural Similarity Index and its Application to Image Denoising," *Proc. IEEE ICIP 2006*, Atlanta, GA, USA.
61. S. S. Channappayya, J. Lee, R. W. Heath Jr., and A. C. Bovik, "Frame Based Multiple Description Image Coding in The Wavelet Domain," in *Proc. IEEE ICIP 2005*, Genova, Italy.
62. S. S. Channappayya, R. W. Heath Jr., and A. C. Bovik, "Multiple Description Image Coding Using Natural Scene Statistics," in *Proc. IEEE ICASSP 2005*, Philadelphia, PA, USA.
63. S. S. Channappayya, G. P. Abousleman, and L. J. Karam, "Coding of digital imagery for transmission over multiple noisy channels," in *Proc. IEEE ICASSP 2001*, Salt Lake City, UT, USA.
64. S. S. Channappayya, G. P. Abousleman, and L. J. Karam, "Joint Source Channel Coding of Images Using Punctured Convolutional Codes and Trellis-Coded Quantization," in *Proc. IEEE ISCAS 2001*, Sydney, Australia.
65. S. S. Channappayya, G. P. Abousleman, and L. J. Karam, "Image coding for transmission over multiple noisy channels using punctured convolutional codes and trellis-coded quantization," in *Proc. IEEE ICIP 2001*, Thessaloniki, Greece.

Advising (PhD)

1. Md. Shahid, PhD, 2022
2. M. Naga Sailaja (co-advised by Dr. Mohan Raghavan), PhD, 2022
3. V. Chandrakanth, PhD, 2022
4. Parimala Kancharla, PhD, 2021
5. Dendi Sathya Veera Reddy, PhD, 2020
6. Roopak Rajendra Tamboli (adviser: Prof. Soumya Jana, co-adviser: SSC), PhD, 2020
7. Nagabhushan Eswara (co-advised by Dr. Abhinav Kumar and Prof. Kiran Kuchi), PhD, 2019
8. Balasubramanyam Appina, PhD, 2019
9. Sameeulla Khan Md., PhD, 2018
10. K. J. Francis (adviser: Prof. P. Rajalakshmi, co-adviser: SSC), PhD, 2018
11. K. Manasa, PhD, 2017

Advising (MTech)

1. S. Rajesh, MTech, 2022
2. Abhinav Anand, MTech, 2022
3. M. Pavan Manesh, MTech, 2022
4. Samyuktha Yenigella, MTech, 2022
5. Pranav Prabhakar, MTech, 2021
6. J. Anirudh Kumar, MTech, 2021
7. S. S. N. Vishnu, MTech, 2021
8. Ayush Mittal, MTech, 2021
9. Shristi Gupta, MTech, 2021
10. K. Sneha, MTech, 2021
11. Anshika Chaurasia, MTech, 2020
12. Sai Likhitha Aramadaka, MTech, 2020
13. Nivedya Deljit, MTech, 2019
14. Priyanka Soni, MTech, 2019
15. Aparna R., MTech, 2018
16. Gokul K., MTech, 2018
17. Muhammed Shabeer P., MTech, 2017
18. P. Charan Tej Reddy, MTech, 2016
19. L. Praveen Kumar Reddy, MTech, 2016
20. Manchana Akshai Krishna, MTech, 2016
21. K. V. S. N. L. Manasa Priya, MTech, 2015
22. S. Sadhana Reddy, MTech, 2014

Advising (Ongoing)

8 PhD, 7 MTech

Sponsored Projects

1. PI, "Development of Real-time Video Perception Capabilities for an Autonomous Robot ", DRDO, INR 2.67 Cr (Ongoing)
2. PI, "Development of Digital Scene Matching Area Correlation (DSMAC) Algorithms and Prototype System", DRDO, INR 1.13 Cr (Ongoing)
3. PI, "Low cost design and manufacture of Indigenous 24 GHz and 77 GHz retrofittable Automotive Radar for road safety and monitoring driving behavior," UAY, INR 1.8 Cr (Completed).
4. PI, "Surveillance Camera Obstruction Detection," Honeywell, INR 5.2 L (Completed).
5. PI, "Object Detection and tracking (ODT) in infrared images with applications to Guidance and control," DRDO-CARS, INR 9.5 L (Ongoing).
6. PI, "Transformation of aerial RGB images to thermal images,"DRDO-CARS, INR 9.8 L (Completed).
7. Co-PI (equal contribution with Dr. Siva Vanjari, PI), "A Low Cost Solution for Thyroid Stimulation Hormone (TSH) Quantification Using Fabric-based Lateral Flow Immunoassay and Mobile-based Image Processing," Grand Challenges Canada Award 2014 - 2015, Canadian Dollar (CAD) 112,000 (Completed).

Consulting

Uurmi Systems Pvt. Ltd./MathWorks Hyderabad, 2013 - 2020

Courses Offered at IIT Hyderabad

- *Probabilistic Graphical Models*, Fall 2018, Fall 2019, Fall 2020
- *Representation Learning*, Fall 2018, Fall 2019, Fall 2020
- *Concentration Inequalities*, Spring 2019, Fall 2022
- *Deep Learning*, Summer 2018, Spring 2019, Spring 2022
- *Kernel Methods*, Spring 2019, Spring 2020
- *Introduction to Statistical Learning Theory*, Spring 2019, Spring 2020, Fall 2022
- *Statistical Learning Theory*, Spring 2018
- *Introduction to Machine Learning*, Fall 2016
- *Probabilistic Models of the Brain*, Fall 2015
- *Introduction to Image Processing*, Fall 2020
- *Image and Video Processing*, Fall 2012, Spring 2014, Spring 2015, Spring 2016, Spring 2017, Fall 2021, Spring 2023
- *Advanced DSP*, Fall 2017

- *Introduction to Multimedia*, Spring 2015, Spring 2016
- *Wavelets and Subband Coding*, Fall 2014
- *Matrix Theory*, Spring 2019, Spring 2020
- *Digital Signal Processing*, Fall 2013, Fall 2014, Fall 2015, Fall 2016, Spring 2021
- *Multimedia Communication Systems*, Spring 2013

Service

- *TPC Chair*, AIMLSystems 2022
- *Faculty-in-Charge*, IITH Technology Research Park, March 2022 - Present
- *Associate Editor*, Sadhana, January 2022 - Present
- *Associate Editor*, IEEE Signal Processing Letters, May 2017 - May 2021
- *Associate Editor*, IETE Technical Review, October 2014 - April 2021
- *Dean (R & D)*, IIT Hyderabad, October 2017 - October 2020
- *Head, Engineering Science Program*, IIT Hyderabad, February 2016 - October 2017

Awards and Recognitions

- Guided student team that won *Second Prize* in *IEEE Signal Processing Society's Secure Multimodal Behaviometrics Contest* at ICASSP 2023
- *Excellence in Teaching Award* from IIT Hyderabad for the academic year 2023
- *Best Reviewer Award*, National Conference on Communications (NCC) 2021
- *IEEE Senior Member*, 2020
- *Best Thesis Supervisor*, IEEE Graduate Congress GraTE'7', 2020
- Guided BTech EE student team that was placed *sixth worldwide* in *IEEE VIP Cup 2019*
- *Excellence in Teaching Award* from IIT Hyderabad for the academic year 2017
- Guided sophomore BTech EE student team that was placed *eighth worldwide* in *IEEE Signal Processing Cup 2016*
- *Excellence in Teaching Award* from IIT Hyderabad for the academic year 2013

- *QUALSTAR Award* at Qualcomm
- Certificate of merit for standing first in a class of 62 in the fifth semester of the BE program