Dr. A Rajani

B.E, M.E (NIT Trichy), Ph.D (IIT Delhi)

Professor & Director UIIC, JNTUH

IEEE, LM- ISTE, LM-ASI

Electronics & Communication Engineering

Areas of Interest:

Wireless Communications, Statistical Signal Processing, Beamforming and DoA estimation for narrow band and wideband, Infrasound modeling for Snow Avalanches, Aoustic vector sensor, MIMO Comunications in 5G, Cognitive radio, Image and Speech signal processing, Biomedical signal processing, Artificial Neural networks, Nature inspired optimization algorithms, Machine learning for real time IoT data analytics, IoT design with low latency and highly reliable communication platforms, IoT protocols, security.

Professional Experience

- **Industrial Experience**
  - Engineer, Hello Soft Solutions Pvt. Ltd (2002 - 2002)

- **Teaching Experience**
  - Assistant Professor, B.R.E.C.W.C, JNTUH University (July 2002 - 2003-05-31)

- **At JNTUH**
  - Professor--Level14, JNTUH CEH (2020 - Till Date)
  - Associate Professor--Level13A, JNTUH CEH (2017 - 2020)
  - Assistant Professor--Level12, JNTUH CEH (2014 - 2017)
  - Assistant Professor--Level11, JNTUH CEH (2008 - 2014)
  - Assistant Professor--Level10, JNTUH CEH (2003 - 2008)

- **Research**

- **Research Projects**
  - *Design of energy monitoring and management system using IoT*, funded by TEQIP-3 - 8.15L (2020 - 2021)
  - *Development of coal mine safety monitoring and alerting system using iot to mitigate coal mine accidents*, funded by TEQIP-3 - 19.9L (2020 - 2021)
  - *Development of Avalanche forecasting system using IoT to mitigate Avalanche hazards*, funded by TEQIP-3 - 19.5L (2020 - 2021)
  - *EEG based interpretation of human brain during yoga and meditation using novel machine learning algorithms*, funded by TEQIP-3 - 3L (2019 - 2021)
  - *Artificially finding the direction of arrival using neural network*, funded by TEQIP-3 - 3L (2019 - 2021)
  - *Recognition of unconstrained hand written characters of Telugu script*, funded by UGC MRP - 11.75L (2010 - 2013)

- **Patents**
  - A.RAJANI, *A method of interpreting human brain activity during meditation using Electroencephalogram* ,GOI, 2021
  - A.RAJANI, *UVC automatic tube light* ,GOI, 2022

- **Publications**

- **International Journals**

- A.RAJANI, *EEG based interpretation of human brain activity during Yoga and meditation using machine learning: a systematic review*, Elsevier journal, ISBN No.17443881, Vol No.43, Issue No.5, Elsevier , 2021
- A.RAJANI, *Naturopathic and Yogic intervention in the management of coronary artery disease: A systematic review*, European journal of molecular and clinical medicine , ISBN No.25515-8260, Vol No.7, Issue No.9, pp.2257-2269, 2020
- A.RAJANI, *Bio medical signal processing using deep learning*, Bioscience Biotechnology Research Communications, ISBN No.0974-6455, Vol No.13(2), pp.26-29, 2020
- A.RAJANI, *Automation algorithm to detect and quantify Electrocardiogram waves and intervals*, Elsevier journal, ISBN No.1877-0509, Vol No.151 , pp.941-946, Procedia computer science, 2019
- A.RAJANI, *Detection of cardiac arrhythmia using Fuzzy logic*, Informatics in medicine unlocked, ISBN No.2352-9148, Vol No.100257, Elsevier , 2019
- A.RAJANI, *Performance analysis of AODV with multi radio in Hybrid wireless mesh network*, Eleventh IC on WOCN, ISBN No.21517703, Issue No.https://doi.org/10.1109/WOCN.2014.6923087, pp.1-5, Oct, 2014
- A.RAJANI, *Automatic generation control using Fuzzy logic*, 8th IASTED IC on CA, ISBN No.https://www.actapress.com/Content_of_Proceeding.aspx?proceedingID=380, May, 2006

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National Journals

- A.RAJANI, *Localization of snow avalanches from infrasound signatures using acoustic vector sensor*, IUP journal EEE, ISBN No.09741704, Vol No.9, Issue No.2, pp.42-52, April, 2016
- A.RAJANI, *Digitization of Electrocardiograph data sheet through image processing techniques*, IUP journal of EEE, ISBN No.09741704, Vol No.9, Issue No.2, pp.116-127, April, 2016
- A.RAJANI, *A signal processing framework for the infrasound signature generated by Snow Avalanches*, Journal acoustical society of Indi, ISBN No.09733302, Vol No.42, Issue No.2, pp.77-83, ASI, April, 2015

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International Conference

- A.RAJANI, *IoT based wearable monitoring structure for detecting abnormal heart*, IEEE IC on Sustainable energy and future electric transportation , ISBN No.9781728156811, pp.1-4, IEEE Xplore, March, 2021
- A.RAJANI, *Direction of arrival estimation by using artificial neural networks*, 3rd IC on Intelligent Communication Technologies and virtual mobile networks, ISBN No.97873811183, Issue No.doi: 10.1109/ICICV50876.2021.9388514, pp.1360-1363, IEEE Xplore, 2021
- A.RAJANI, *Localization of ECG QRS waves through spectral estimation of heart rate*, Advances in decision sciences, image processing, security and compter vision , ISBN No.978-3030-24321-0, pp.107-114, International Springer nature, 2020
- A.RAJANI, *Efficient obstacle detection and guidance system for the blind (Haptic shoe)*, Advances in decision sciences, image processing, security and compter vision , ISBN No.8303023173, Vol No.4, pp.266-271, International Springer nature, 2020
- A.RAJANI, *ioT base monitor and control of office area using ZYBO*, Advances in decision sciences, image processing, security and compter vision , ISBN No.030243173, Vol No.LAIS,4, pp.139-146, International Springer nature, 2020
- A.RAJANI, *Sensor based quality check and automated fuel level indication system*, 3rd IC on Recent developments in Control automation & power engineering, ISBN No.9781728120683, pp.164-168, IEEE Xplore, 2019
- A.RAJANI, *Simulation study of DoA estimation of Snow Avalanches*, International symposium on Acoustics, Nov 17-19th, 2016
- A.RAJANI, *A signal processing framework for the infrasound signature generated by Snow Avalanches*, ACOUSTICS , ASI, Nov 10-15, New Delhi, 2013
- A.RAJANI, *Automatic generation of PID controller using Fuzzy logic*, 8th IC on DAS, pp.120-127, 2006

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National Conference

- A.RAJANI, *Flight vehicle stabilization using Fuzzy logic*, NSC, dec, 2007

- **Teaching**
  - Image and Video Processing in SSP 1-2 (2020)
  - Adaptive signal processing in SSP 1-2 (2017)
  - Biomedical Signal Processing in SSP 1-1 (2017)
  - Analog Communications in IDP 2-2 (2017)
  - Adaptive signal processing in SSP 1-2 (2018)
  - Radar Systems in IDP 4-1 (2018)
  - Radar Signal Processing in SSP 1-1 (2018)
  - Digital Signal processing in Reg, IDP, IDDMP,IIDDMP 3-2 (2018)
  - Biomedical Signal Processing in IDP 4-1 (2019)
  - Signals and Systems in Reg, IDP, IDDMP,IIDDMP 2-1 (2019)
  - Digital Signal processing in Reg, IDP, IDDMP,IIDDMP 3-2 (2019)
  - Probability theory and stochastic process in Reg, IDP, IDDMP,IIDDMP 2-1 (2020)
  - Digital Image Processing in Reg, IDP, IDDMP,IIDDMP 4-1 (2021)
  - Adaptive signal processing in IDP 4-2 (2021)
  - System design through IoT in DSCE,SSP,ES III (2022)

Contact :

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