

**Rakesh Malladi**  
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## Research Interests

Signal processing, machine learning, time series analysis, computational neuroscience and information theory

## Education

**Rice University**, Houston, USA *Aug. 2011 - Dec. 2016 (expected)*  
*Ph.D. in Electrical and Computer Engineering*

- Thesis: Inferring Temporal and Spectral Structure from Data and its Application to Unravel Epileptic Brain Networks

**Indian Institute of Technology (IIT) Madras**, Chennai, India *Aug. 2006 - May 2011*  
*Dual Degree (B.Tech & M.Tech) in Electrical Engineering (Communications)*

- Thesis: Low-Complexity Iterative Receiver for Frequency-Selective Channels and MIMO Systems

## Professional Experience

**LivaNova (formerly Cyberonics)**, Houston, USA *May 2015 - Aug. 2015*

- Developed machine learning algorithms to detect breathing rate from accelerometers in ProGuardian to predict sudden unexpected death in epilepsy.

**Texas Instruments**, Dallas, USA *May 2013 - Aug. 2013*

- Developed a mathematical model of ultrasound guided wave propagation in plates and pipes and used this model to design an algorithm to estimate the thickness of plates.

**IBM Research Labs**, Bangalore, India *May 2010 - Jul. 2010*

- Compared the performance of various cooperative base station communication schemes for time-division and frequency-division duplexing systems.

## Selected Publications

- **Rakesh Malladi** et al., "Identifying seizure onset zone from the causal connectivity inferred using directed information," in *IEEE Journal of Selected Topics in Signal Processing*. *Oct. 2016*
- **Rakesh Malladi** et al., "Identifying seizure mechanisms from ECoG data using directed information," *Computational and Systems Neuroscience (Cosyne) Abstracts*. *Feb. 2016*
- **Rakesh Malladi** et al., "Inferring causal connectivity in epileptogenic zone using directed information," *IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*. *Apr. 2015*

## Patents

- **Rakesh Malladi** et al., "Structural Health Monitoring (SHM) for Pipes Using Ultrasound Guided Wave Propagation," US Patent App. 14/458,036. *Aug. 2014*

## Honors and Awards

- Best graduate student poster award in ECE Affiliates Day, Rice University *2016*
- Best graduate student poster award in 21st Annual Neuroscience Poster Session, UTHSC at Houston *2014*
- IIT Madras Institute Merit Certificate for All India Rank 223 (in top 0.1%) *2006*

## Invited Talks

- *Inferring Temporal and Spectral Structure from Data and its Application to Unravel Brain Networks* at IBM Research Watson, Simon Center for Data Analytics and Mitsubishi Electric Research Laboratories. *2016*