

SHAILAJA AKELLA

✉ shailaja1093@ufl.edu

in [shailaja-akella](https://www.linkedin.com/in/shailaja-akella)

github github.com/shailajaAkella

globe shailajaAkella.github.io

SUMMARY

Motivated researcher with 4+ years of experience in applying signal processing, statistical modeling, optimization and machine learning techniques to build advanced algorithms for analysis of large time-series data.

RESEARCH EXPERIENCE

Graduate Research Assistant

Computational NeuroEngineering Lab

(Aug 2017 – Dec 2021)

- Designed a generative unsupervised sparse coding framework using K-SVD to model the complex dynamics of electrophysiological recordings at a high-time resolution
- Designed a robust feature extraction pipeline using hypothesis testing to identify neural features of behavior from brain field potentials for an accurate prediction of subject intent (avg. 90% across 11 sessions in 3 subjects)

Research Intern

Analog Devices, Inc.

(July 2015 to July 2016)

- Designed a predictive model using Kalman filter for offset correction of MEMS gyroscopes and successfully demonstrated 95% accuracy on a Cortex M0 Processor
- Developed a software architecture to reduce the testing time of MEMS gyroscopes by 30% and enumerated limitations in terms of the model, parameters, and design.

KEY SKILLS

Programming Tools: MATLAB, Python, C, C++, R, Java, HTML, CSS, LaTeX, and EEGLAB

Deep Learning Frameworks: TensorFlow, Caffe

Data Handling: Denoising (cleaning and anomaly detection), data mining, and analysis of large-scale electrophysiological datasets (field potentials, ECoG, EEG, and MEG).

EDUCATION

University of Florida, Gainesville, FL

Aug 2017 - Dec 2021

M.S., Ph.D., Electrical and Computer Engineering

GPA: 3.75/4.0

Birla Institute of Technology and Science – Pilani

Aug 2011 – May 2016

M.Sc. Mathematics, B.E. Electrical & Electronics Eng.

GPA: 7.9/10.0

MACHINE LEARNING EXPERIENCE

ML Projects

- Experimental Analysis on Deep Generative Models - VAEs and GANs (Fashion MNIST)
- Unsupervised Shift Invariant Dictionary Learning (DL) - Convolutional & Circulant DL structures (Standard images)

ML Algorithms

Supervised: SVM, (R, C, D) - neural networks, linear & logistic regression, K-NN, decision trees, generalized linear models.

Unsupervised: Mixture models, Gaussian mean shift, K – means, DBSCAN

Sparse Coding/Approximation: Orthogonal matching pursuit, basis pursuit, KSVD, convolutional sparse coding

Dimensionality Reduction: (K) LDA, (K)PCA, t-SNE, Autoencoders

COURSEWORK

Computational neuroscience, neural signal processing, adv. machine learning, machine learning in time series, neural networks and deep learning, adv. stochastic methods

PUBLICATIONS:

Marked point process representation of oscillations in working memory. Akella, S. et al, Journal of Neural Engineering.

Correntropy based Robust Decomposition of Neuromodulations. Akella, S. et al, IEEE Engineering in Medicine and Biology Society (EMBC)

LEADERSHIP:

Teaching Asst.: Neural Networks and Deep Learning

Tutor: Nirman, Goa Chapter (Non – profit organization)