Abilasha S

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EDUCATION

INDIAN INSTITUTE OF TECHNOLOGY PALAKKAD
PhD in Computer Science & Engineering
Grad. Feb 2024 | Kerala, India
CGPA: 8.4 / 10.0
(course work from IIT Madras)

UNIVERSITY OF CALICUT
M.tech in Computer Science & Engineering
Grad. Dec 2016 | Kerala, India
CGPA: 9.27 / 10.0

B.tech in Computer Science & Engineering
Grad. May 2014 | Kerala, India
CGPA: 8.68 / 10.0
(Univeristy rank holder)

COURSEWORK

PH.D
Pattern Recognition &
Machine Learning
Deep Learning
Linear Algebra
Probability and Statistics
Non-Linear Optimization
Data Structures and Algorithm

Artificial Intelligence + Practical
Machine Learning (Practical)
Big Data (Practical)
(Teaching Asst.)

Generative AI & LLM (Coursera)

SKILLS

PROGRAMMING
Languages:
Python • C • C++ • Matlab

Framework & Library:
Pytorch • Tensorflow • Numpy
Pandas • Matplotlib • scikit-learn
Huggingface • seaborn

Tools & Technologies:
SQL • Git • Docker • Linux • LaTeX

OTHERS
• Public speaking
• Technical Talks

EXPERIENCE

AIX MARSEILLE UNIVERSITY |Post Doctoral Researcher
Feb 2024 – Present | Marseille, France
- Developed a topic modeling method that enhances text representation by integrating text embeddings, BoW, and LLMs
- Evaluated various topic model baselines by extending it to include semantic information to improve topic representations
- Developing a novel **topic modeling** method to analyze medical reports using multi-view probabilistic models for prognosis of diseases

INDIAN INSTITUTE OF TECHNOLOGY |Senior Research Fellow
Aug 2023 – Dec 2023 | Kerala, India
- Implemented an anomaly detection model to identify glitches in Naval Physical & Oceanographic Laboratory (NPOL) sensor dataset
- Led the development of an ML model to align time-shifted signals, enhancing signal coherence
- Optimized signal detection, achieving a 2x performance improvement compared to traditional beamforming techniques

SELECTED PROJECTS

DXTREMM | Time Series Extreme Event Prediction model
Python | Pytorch | Variational Autoencoder | Probability Distributions
- Implemented a deep mixture model to predict extreme values in time series such as stock listings, weather predictions.
- Combined probabilistic methods with deep learning techniques that improved prediction of extreme events in time series
- Achieved a 64% improvement based on SMAPE metric, in extreme event prediction compared to baselines [paper][repo]

WARTEM-AD | Univariate Time Series Anomaly Detection model
Python | Tensorflow | Twin Autoencoder
- Developed a unified model to identify all kind of anomalies like point, sequence and sub-sequence by generating warping robust time series representations
- Evaluated the proposed model against state of art models and achieved a performance gain of ≈ 25% based on ROC-AUC score, over baselines [paper][repo] (Collaborated with Queen's University Belfast, UK for both the works)

WRADMTS | Multivariate Time Series Anomaly Detection model
Python | Pytorch | Graph Neural Network
- Designed a scalable time series transformation model applicable for warp robust anomaly detection on large cyber-physical systems datasets
- Optimized GNN model to work without prior information on intervariable relationship and enhance interpretability [repo]

Published results in peer reviewed (Q1) journals and conferences (CORE A ranked)

AWARDS & ACHIEVEMENTS

2023	Best Research Paper Award	RSD, IIT Palakkad
2022	Best Poster Award	Indo ML symposium, IIT Gandhinagar
2022	NSF Travel Grant	CIKM conference, USA
2020	SERB Research Grant	Senior Research Fellow
2017	National Eligibility Test (NET)	CS, UGC (qualifying percentage 6%)