# Farooq Ahmad Wani

PhD Researcher in Data Science, Sapienza Università di Roma

## Profile

PhD candidate in **Data Science** at Sapienza Università di Roma with a strong academic and industrial background in Artificial Intelligence, Deep Learning, and Graph Neural Networks. My research explores **robustness under label noise, spectral regularization, and Dirichlet energy dynamics**, with publications in leading venues. Alongside my research, I manage the **HPC cluster of the DIAG Department at Sapienza**, ensuring efficient AI workloads at scale. With 4.5 years of industrial experience at General Electric, I combine academic depth with real world AI deployment, aiming to contribute impactful solutions at the intersection of research, infrastructure, and applications.

## Education

- **PhD in Data Science**, Sapienza Università di Roma, Italy 2023–present
  Thesis focus: Robust Learning, Dirichlet Energy, Label Noise in Model Learning
- **MSc in Artificial Intelligence and Robotics**, Sapienza Università di Roma, Italy 2020–2022
- **B.Tech. in Computer Science & Engineering**, NIT Srinagar, India 2012–2016

## Professional Experience

**Sapienza Università di Roma, DIAG Department** — *HPC System Administrator & PhD Researcher* 2022–present

- Managing Sapienza's **HPC cluster for DIAG**, supporting faculty and PhD level AI research.
- Responsible for job scheduling, GPU/CPU allocation, and optimization for large scale deep learning.
- Conduct independent research in **robust GNNs and noise resistant representation learning**, which also includes using of the spectral and energy components of Model learning.

**General Electric (GE), Bangalore, India** — *Data Scientist* 2016–2020

- Developed AI solutions for defect detection, pricing analytics, HR analytics, and turbine performance.
- Built GAN based defect detection, Transformer based resume validation, and time series forecasting models.
- Deployed production ready AI applications using Spring, Flask, Tableau, and Predix APIs.
- **Awards:** 4x GE Impact Awards, GE Hub Award.

**HCL Technologies, Delhi, India** — *Software Engineer Intern* 2014–2015

- Built demand management tool with microservice architecture.
- Designed REST APIs with Java, Spring Boot, and Maven.

## Selected Publications

1. FA Wani, MS Bucarelli, F Silvestri. **Learning with Noisy Labels through Learnable Weighting and Centroid Similarity**. *International Joint Conference on Neural Networks (IJCNN)*, 2024. [Noise-robust learning via adaptive weighting and centroid similarity].
2. TM Wani, SAA Qadri, FA Wani, I Amerini. **Navigating the Soundscape of Deception: A Comprehensive Survey on Audio Deepfake Generation, Detection, and Future Horizons**. *Foundations and Trends in Privacy and Security*, vol. 6(3–4), pp. 153–345, 2024. [Comprehensive survey of audio deepfakes].
3. TM Wani, M Uecker, FA Wani, I Amerini. **HCN-TA: Hierarchical Capsule Network with Temporal Attention for a Generalizable Approach to Audio Deepfake Detection**. *ACM/SIGAPP Symposium on Applied Computing (SAC)*, 2025. [Novel temporal-attention capsule framework].
4. FA Wani, MS Bucarelli, AG Di Francesco, O Pryymak, F Silvestri. **Robustness of Graph Classification: failure modes, causes, and noise-resistant loss in Graph Neural Networks**. *arXiv preprint arXiv:2412.08419*, 2024. [Failure mode analysis and noise-resistant loss].

## Research Leadership

- Organizer, **IJCNN 2025 Competition: Learning with Noisy Graph Labels**.
- Lead author of robust GNN methods under label noise.
- Author of accepted book with Now Publishers (Foundations and Trends®).
- Supervising multiple thesis students across different domains of machine Learning.
- Actively involved in teaching, seminars etc.

## Skills

**AI/ML:** Deep Learning, Graph Neural Networks, Robust Learning, Computer Vision, NLP, Reinforcement Learning
**Programming:** Python, PyTorch, TensorFlow, Java, C++, SQL, Docker, Spark
**Platforms:** HPC, AWS, Kubernetes, Tableau, MongoDB
**Other:** Scientific writing, HPC administration, Competition organization

## Awards & Honors

- **GE Impact Awards (x4)**, **GE Hub Award**.
- Winner, **TCS Hackathon 2015**.
- Outstanding performance in **AWS DeepRacer program**.

## Languages

Kashmiri, Urdu (native), English (C2), Italian (A1)