

BILAL AHMED

West Lafayette, IN

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PhD student in AI & Neuroscience, applying generative modeling and inverse problem techniques to neural data;
seeking Summer 2026 internships, open to industry or postdoctoral research thereafter.

Education

Purdue University

Ph.D. in Electrical & Computer Engineering

GPA: 3.88/4.0

West Lafayette, IN

Aug 2021 – Present

University of Engineering & Technology Lahore

B.Sc. in Electrical Engineering (with Honours)

GPA: 3.859/4.0

Lahore, Pakistan

Aug 2011 – Jun 2015

Relevant Coursework

- Introduction to Deep Learning (A+)
- Deep Learning (A+)
- Estimation Theory (A)
- Generative Models (A)
- Computational Imaging (A)
- Computer Vision (A+)

Skills

- **Programming Languages:** Python, C, MATLAB
- **Deep Learning Frameworks:** PyTorch, Hugging Face, PyTorch-Lightning (multi-GPU)
- **Tools:** Weights & Biases, Scikit-learn, Transformers, Torchaudio
- **Python Libraries:** NumPy, SciPy, Pandas, Matplotlib, scikit-image

Preprints & Publications

Solving Diffusion Inverse Problems with Restart Posterior Sampling

Bilal Ahmed, Joseph G. Makin

Nov 24, 2025

arXiv preprint

Deep Neural Networks Explain Spiking Activity in Auditory Cortex

Bilal Ahmed et al.

Aug 25, 2025

PLOS Computational Biology

Work Experience

Purdue University

Graduate Research Assistant

West Lafayette, IN

Aug 2021 – Present

- Working on diffusion models as priors for auditory cortex modeling.
- Trained self-supervised wav2vec2 and wav2letter models on large datasets (LibriSpeech, AudioSet) using 4–8 GPUs.
- Tuned hyperparameters using Weights & Biases.
- Applied PyTorch, PyTorch-Lightning, and Hugging Face for training deep learning models.

Purdue University

Teaching Assistant, Generative Models Course

West Lafayette, IN

Jan 2024 – May 2024 & Aug 2025 – Dec 2025

- Assisted students with assignments and probabilistic generative models (Jan 2024 – May 2024).
- Currently assisting students with assignments and generative model projects (Aug 2025 – Dec 2025).

Fauji Fertilizer Company Limited

Instrumentation & Automation Engineer

Sindh, Pakistan

Sep 2015 – Jul 2021

- Led and supervised a team of 7 technicians, overseeing plant operations and maintenance projects.
- Executed system upgrades and reliability improvements, increasing turbine efficiency by 8%.
- Managed preventive maintenance and instrumentation tasks for critical equipment.