Temesgen Mehari

Machine Learning Engineer/Researcher

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1 Education

- **Ph.D. in Machine Learning** 01/2021–02/2025
  Technical University Berlin, Germany
  Thesis: *"Advancing Cardiac Health: Trustworthy and Practical Approaches to Deep 12-lead ECG Analysis"*
  Advisor: Prof. Klaus-Robert Müller
- **M.Sc. in Computer Science, Grade: 1.2 (∼3.9/4.0 GPA)** 04/2017–08/2020
  Technical University Berlin, Germany
  Thesis: *"Towards efficient Backpropagation using dither and low-bit Quantizations"*
  – *Erasmus+ Semester*, École Centrale de Lyon, France 08/2017–03/2018
- **B.Sc. in Computer Science, Grade: 1.9 (∼3.3/4.0 GPA)** 10/2013–04/2017
  Technical University Darmstadt, Germany
  Thesis: *"Automatic Detection and Correction of Anomalies in Business Processes using LSTM"*
  – *Erasmus+ Semester*, Universidad Politécnica de Madrid, Spain 08/2015–06/2016

2 Professional Experience

- **Machine Learning Research Associate/PhD Student** 01/2021–08/2024
  Physikalisch-Technische Bundesanstalt (PTB) & Fraunhofer Heinrich-Hertz Institute, Berlin
  – Developed and implemented quality metrics, training and evaluation procedures, and a software prototype to assess deep learning models for ECG diagnosis, with a focus on performance, explainability, and robustness (BSI-540 project).
  – Created the PTB-XL+ database with extracted ECG features and designed feature importance estimation methods.
  – Authored and co-authored scientific publications, presented research results to stakeholders, and collaborated with international partners in the EMPIR project.
  – Extensive hands-on software development for data preprocessing, model training and evaluation.
- **Machine Learning Research Associate** 08/2020–12/2020
  Fraunhofer Heinrich-Hertz Institute, Berlin
  – Adapted state-of-the-art self-supervised learning methods from computer vision to ECG signal analysis.
  – Performed extensive experimental evaluations and prepared results for scientific publication.
- **Machine Learning Research Associate (Student)** 01/2019–07/2020
  Fraunhofer Heinrich-Hertz Institute, Berlin
  – Investigated the impact of quantization techniques on the training efficiency of deep neural networks.
  – Developed efficient algorithms to accelerate training and inference of deep neural networks.
  – Conducted experimental evaluations of model optimization techniques and documented the results.

3 Teaching Experience

- **Teaching Assistant**, Foundations of Computer Science II 04/2015–09/2015
  Conducted oral exams that students had to pass for exam admission; corrected final exams.
- **Teaching Assistant**, Mathematics I for Computer Scientists 10/2014–03/2015
  Supervised weekly practical learning sessions to support theoretical content; offered weekly office hours for students.

4 Technical Skills

- **Programming**: Python, PyTorch, TensorFlow, Numpy, Pandas, SQL
- **Machine Learning**: Self-supervised Learning, Explainable AI, Robust ML, Efficient Deep Learning, Signal Processing
- **Tools**: Git, Docker, Singularity
- **Languages**: German (native), English, Spanish, French (all fluent)