tawsif

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Objective

Computer Science researcher with six years of experience in artificial intelligence, scalable software engineering, computer networking, and project management. Seeking exciting and challenging projects.

Experience

- **LAION AI [🌐]** *June 10th, 2024 – Present*
  AI Researcher Hamburg, Germany
  - Contributing to multiple research projects, including Bud-E, LAION RAG, Open Science Initiative, Big Video Dataset, and Alexandria.
  - Engaged in AI research, machine learning engineering, and infrastructure development, collaborating with former Intel employees, Max Planck Institute for Intelligent Systems, TUM, and Oxford University students.
  - Working closely with Robert Kaczmarczyk (TUM), Dr. Jenia Jitsev, Marianna Nezhurina, and Christoph Schumann on key initiatives.
  - Co-authoring and publishing a paper on Project Alexandria with LAION Core members, including Ameya Prabhu (Oxford), Christoph Schumann, and others.
- **Donders Institute of Brain, Cognition and Behavior [🌐]** *July 25th, 2023 – December 10th, 2024*
  Guest Researcher Nijmegen, Netherlands
  - Started internship in Genzel Lab under the supervision of Prof. Lisa Genzel on Prof. Federico Stella's Project Path Analysis.
  - Re-assigned to Prof. Paul's Neuroinformatics Project, working on creating 3D brain renders from 2.1 terabytes of data under the supervision of Prof. Paul and Prof. Lisa Genzel.
  - Completed the research project and finished my work at Donders Institute in December 2024.

Education

- **University of Bridgeport** *Class of 2029*
  Undergraduate in Computer Science CT, USA

arXiv and Publication

C=Conference, A=arXiv, S=In Submission, T=Thesis

[A.1] tawsif ahmed, et al. (2025). **Project Alexandria: Towards Freeing Scientific Knowledge from Copyright Burdens via LLMs**.

Technical Skills

- **Computer Languages:** Python, C, Julia, Wolfram Mathematica, SQL, HTML, CSS, Scilab
- **Hardware Experience:** Intel Gaudi2, Intel XPU, Intel Xeon Data Centre processors, Nvidia T4, L100, 3090, A100, H100, Juelich Supercomputing Clusters, Supercomputing and Cluster experience
- **Operating Systems:** Windows, Linux (Ubuntu, Kali Linux, Tails)
- **Tools:** Keras, TensorFlow, PyTorch, JAX, Pennylane, SQLite, Chroma DB, Llama Index, Azure, Render Backend, Flask Backend, GCP, Heroku, CUDA, Docker, Accelerator
- **Skills:** Simulating Monte Carlo experiments, Mathematical calculations, Computer Vision (Image recognition, Classification, Object recognition, Landmark point recognition), GANs, Natural Language Processing, Embeddings, Flow-guard Chatbot (Rasa CALM), TTS, Sub-quadratic architecture, Restricted Boltzmann Machine, Deep Belief Framework, Quantum Machine Learning, Second-order optimization
- **Optimization Techniques:** Caching, Robust data structure design, Worst-case scenario-in-mind directed-designing, Big-O notation, Logarithmic design philosophy (Data structure + designing), Amortizing analysis
- **Interests:** Cryptography and Cipher Algorithms, Old English literature AI applications, Human-Machine Interface, Hopfield Neural Networks, Brain EEG-oriented GANs and reconstruction, High-performance trading
- **Niche Fields:** No-Code framework, Squarespace, APIs, Low-Code framework, Classical scripting and scraping

Fellowship

- **Wolfram Summer School** *June, 2023 - July, 2023*
  Wolfram Mathematica [🌐]
  - I received full-scholarship (5000 USD) to attend and complete my fellowship in the Science and Technology track.
  - I learnt and programmed extensively in Wolfram language and did a project under the guidance of Stephen Wolfram himself and advisor Maria Sargsyan.
  - I wrote a paper on Analysing rare and NER words in Wikipedia. It was a project in the intersection of Linguistics and Artificial Intelligence. A proceeding paper is under-review at Wolfram Mathematica.

Volunteer Experience

- **International Conference on Learning Representations** *June, 2021 - June, 2022*
  ICLR [🌐]
  - I worked as a volunteer engineer and helped organisers with helpdesk and setting-up zoom calls.
  - I also worked as a website and infrastructure tester.
- **International Conference for Machine Learning** *May, 2021 - July 2021*
  ICML [🌐]
  - I worked as moderator for two Algorithm Orals
  - Also, I helped authors with setting-up zoom calls and workshops.
- **Conference on Neural Information Processing Systems** *October, 2021 - December 2021*
  NeurIPS [🌐]
  - I helped with zoom calls and workshops. Especially, NeurIPS workshop for Creativity

TALK and Presentation

- **Under a minute** *February 2024*
  Neuromatch Academy [🌐]
  - Delivered a lecture on "Finding short-term synaptic plasticity in Steinmetz dataset" at Neuromatch's Under a minute presentation program.

College Credits

- **4th Annual Conference on Disability in Healthcare and Medicine,** *April 2023*
  Stanford Medicine, Stanford University [🌐]
  - Received 6.00 AMA PRA Category 1 Credit(s)TM for the live activity

Self-Studied

1. Introduction to Algorithms by Thomas H. Cormen
2. The Algorithm Design Manual by Stephen S. Skiena
3. Fluent Python by Luciano Ramalho
4. Quantum Computing: An Applied Approach by Jack D. Hidary
5. Programming Quantum Computers by Eric R. Johnston
6. Probabilistic Machine Learning: An Introduction by Kevin P. Murphy
7. Data Mining: Concepts and Techniques by Jiawei Han
8. Competitive Programming in Python by Christoph Dürr and Jill-Jênn Vie
9. Social Engineering: The Science of Human Hacking by Christopher Hadnagy (2018)

SUMMER SCHOOL

- **NeuroAI** *July, 2024 - July 2024*
  Neuromatch Academy [🌐]
  - I received full-scholarship to participate in the program and learned a new school of thought: Where Neural Network Architectures are designed and inspired from Human Brain. Example: Hopefield Neural Network.
- **MLx Health, OxML** *June 2024 - July 2024*
  University of Oxford [🌐]
  - Received acceptance and partial scholarship to attend both remotely and in-person. Unfortunately, schedule overlap prevented me from participate this year. Although, I was considered for an inviteonly opportunity to collaborate with NeurIPS authors for projects.
- **Computational Neuroscience** *June 2023 - July 2023*
  Neuromatch Academy [🌐]
  - I received full-scholarship to participate in the program and learned Computational Neuroscience from fundamentals to advanced. Where I developed fire neuron models.

◦ Had developed a research project and showcased Infront of the TAs. Project titled: Identifying responsible brain regions for motor response upon stimuli cue encounter. I had led the project alongside Anya and calculated the response times and correlation between responses and brain regions from Steinmetz dataset and graphed the interconnected visuals to showcase our finding.

- **Synthetic Biology Camp** *October 2022 - October 2022*
  Stanford University [🌐]
  ◦ Attended Synthetic Biology Camp and learned the fundamentals-Computational Biology. Including modifying DNA and RNA using computers and how to run experiments.

Additional Information

Languages: English (Native speaker), Urdu (Professional), Bengali (Professional)

References

1. **Christoph Schumann**
   Founder, Operational Department
   LAION
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   Relationship: Lab Supervisor