Adil Ahmad

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Adil Ahmad Scholar Link

Profile

Research-focused Data Scientist skilled in machine learning, deep learning, NLP, and advanced AI model development for impactful solutions.

Education

MS **National University of Computer and Emerging Science**, Data Science — Aug 2021 – Dec 2023

- GPA: 3.01/4.00(Verify)
- **Coursework:** Data Science Tools & Technique, Machine Learning, Deep Learning, Natural Language Processing, Big Data Analytics

BS **Islamia College University, Peshawar**, Computer Science — Aug 2016 – Dec 2020

- GPA: 3.45/4.00
- **Coursework:** Web Development, Networking, Database management, Programming, Software engineering, Systems analysis

Experience

National University of Modern Languages (NUML), Lecturer CS — Peshawar, Pakistan, Feb 2025 – Working

- Deliver lectures and practical sessions in computer science subjects, ensuring comprehensive coverage of core areas such as programming languages, operating systems, and computer networks
- Utilize innovative teaching techniques, including hands-on coding exercises, collaborative projects, and case studies to enhance student learning.

National Center of AI (NCAI), Research Assistant — Islamabad, Pakistan, April 2024 – Jan 2025

- Extensive experience developing machine learning models using complex datasets and optimizing predictive methodologies.
- Working in data querying, scripting languages, and statistical tools like Python, and Matlab.
- Expertise in both supervised and unsupervised learning techniques for various machine learning applications.
- Working with GenAI, RAG, and LangChain

University of South-Eastern, Norway, Early Stage Researcher (Secondment) — Borre, Norway, November 2024

- Address ML challenges to improve safety and efficiency in industries.
- Develop training algorithms to enhance human-machine interaction across industries.
- Define KPIs to evaluate AI model effectiveness in operations.

FAST NUCES, Research Assistant — Peshawar, Pakistan, Sep 2023 – Nov 2024

- Design and deploy ML models to address security challenges effectively.
- Analyze structured and unstructured data to identify patterns and insights.
- Develop methods for detecting and mitigating backdoors in neural networks.
- Create visualizations to represent ML model results and analyses clearly.

FAST NUCES, Lab Instructor — Peshawar, Pakistan
Aug 2023 – Dec 2023

- Teaching Programming with Practical Work.
- Teaching Database with practical work.
- Teaching ICT with practical work.

NADRA, Technical Support Officer — Swabi, Pakistan
Jan 2023 – April 2023

- Provide technical support for Digital Census 2023.
- Collecting and analyzing data.
- Preparing progress reports.

NAVTTC, IT Instructor — Swabi, Pakistan
Aug 2021 – Sep 2022

- Developing a course outline and lesson plans that meet program and industry requirements.
- Assessing students fairly on course material, projects, and exams.
- Preparing student practical progress reports.

Projects

An Intelligent and Adaptive Cyber Resilience Framework (Currently Working) Research Project

- This project aims to develop an intelligent and adaptive cyber resilience framework that anticipates and mitigates cyber threats before they impact systems

Three-way Decision with GTRS for Depression Prediction (Currently Working) Research Project

- This project aims to develop and improve the current deep learning model result with Threshold selection and result boundary.

Backdoor Detection & Mitigation in Neural Network (FRSG Project) — github.com/enalsis/repo

- Developed algorithms to detect and mitigate backdoors in neural networks.
- Evaluated diverse datasets, and architectures to improve resilience against attacks.
- Designed mitigation strategies reducing backdoor threats without accuracy loss.

Pattern Recognition in low-level language (MS Final Year Project)

- Performed Urdu text summarization using encoder-decoder with an attention mechanism.
- Identified patterns specific to low-level language features in Urdu.
- Improved summarization quality by leveraging advanced deep learning architectures effectively.

Medical Report Generation using LLM (Digital Human Project at NCAI, NUST)

- Leveraged LLMs to automate and improve medical report generation accuracy.
- Fine-tuned models on specialized medical datasets for domain-specific relevance.
- Validated generated reports through expert feedback, ensuring clinical quality improvements.

Ocular Toxoplasmosis

- Designed a deep learning pipeline using YOLO for toxoplasmosis detection.
- Combined multiple models to enhance robustness and detection accuracy.
- Fine-tuned pre-trained models to optimize performance and computation time.

Lumber Spine Compression Classification

- Built a deep learning model for lumbar spine compression classification.

- Enhanced diagnostic accuracy using CNN-based spine compression detection techniques.
- Improved robustness with data augmentation and efficient feature extraction methods.

Publications

A Comprehensive Survey on the Convergence of Blockchain, Digital Twins, and Metaverse: Shaping the Future of Cybersecurity Frameworks

- Journal:Computers and Electrical Engineering **(Imapact Factor: 4.9)** **Verify**

Pattern Matters: A Deep Learning Approach with Attention Mechanism for Text Abstraction in Low-Ranked Languages

- Journal:Springer Nature: Multimedia Tools and Applications**(Imapact Factor: 3.6)**

GraphGuard: An Adaptive Approach for Restoring Accuracy in Backdoor-Compromised GNNs

- Journal:Neural Network Journal **(Imapact Factor: 6.3)** **Verify**

Securing the Future Smart Grid 3.0 through Leveraging the Models of Blockchain, Digital Twin, Edge Computing and Metaverse Synergies

- Journal: IEEE Transactions on Emerging Topics in Computational Intelligence **(Imapact Factor: 6.5)**

Technologies

Languages: Python, C++, SQL, HTML

Technologies: Machine Learning, Deep learning, NLP, GenAI, RAG, LangChain

Developer Tools: MS Office, Tableau, Excel, Talend (ETL), Jupyter Notebook, LateX

Refrees

- **Dr. Anwar Shah (Assistant Professor)**
  Email: anwar.shah@nu.edu.pk
- **Dr. Taimoor Khan (Assistant Professor)**
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