Shoaib Ahmad

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ACHIEVEMENTS & AWARDS

- Completed Advent of Code 2024 | Solved 30 daily **coding challenges** to build logic and consistency
- Selected as Mentor in **Stanford University's** *Code In Place* Program among 30,000+ applicants
- Third Place - Unhallucinate Challenge Hackathon | Ranked **3rd among 46 teams**
- Engineering Excellence Award - CureMD Engineering Award Event | Honored with the Learning Star Award for exceptional commitment to continuous learning and professional growth
- Received the *Learning Star Award* at CureMD for exceptional dedication to continuous learning and skill development.
- Top 10 (National) - Meta Hacker Cup 2024 | **Advanced to Round 1** among 22,000+ global participants
- Achieved 6.5 Band in IELTS, indicating a **CEFR B2 proficiency level** in English communication

EDUCATION

Pakistan Institute of Engineering & Applied Sciences (PIEAS) Islamabad, Pakistan
Bachelor of Engineer in Electrical Power and Instrumentation (CGPA: 3.32/4.0) Sep 2018 - July 2022
Relevant Modules:
Instrumentation and Power Automation (Robotics):
Microcontroller and Interface, Measurements and Instrumentations, Communication Systems, Signal and Systems, Linear Control System, Robotics Fundamentals (Extra Course)
Power Generation and Transmission:
Power Generation, Power Electronics, High Voltage Engineering, Electrical Machine Design, Power System Protection and Control, Digital Logic Design

FINAL YEAR PROJECTS

Rehabilitation of Power System for Reduction in Line losses [Source Code] Sep 2021-July 2022
Tools:
- Designed a power system grid scheme with Distributed Generation (DG) connections using renewable energy sources like solar and wind.
- Focused on reducing line losses from Sahiwal (Main) to Gujranwala grid (177 buses) while optimizing economic expenses of production and implemented Genetic Algorithm and Particle Swarm Optimization methods to enhance grid efficiency and performance.

Instrumentation and Power Automation (Robotics) [Source Code] Sep 2021-July 2022
Tools:
- The Smart-Grid-Monitoring-System project focuses on reducing line losses and enhancing system monitoring through advanced smart grid technologies, ensuring efficient and reliable power distribution.

ACADEMIC & PROFESSIONAL PROJECTS

Fault Detection and Classification Using Machine Learning [Source Code] Oct 2023-Feb 2023
- Developed a Python-based fault analysis system using object-oriented programming (OOP) principles for data preprocessing, visualization, and model training.
- Trained multiple ML classifiers—Logistic Regression, Decision Tree, Random Forest, and SVM. Demonstrated AI integration in electrical power systems by automating fault diagnostics, enabling predictive maintenance, and improving grid reliability.

Stability by Design: Machine Learning Models for Smart Grid Predictions [Source Code] Oct 2023-Apr 2023
- Conducted a comparative study using ML models (Random Forest, Decision Tree, SVM, XGBoost) to predict smart grid stability.
- Applied AI models to classify grid conditions, addressing key challenges in reliability and failure prevention.

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TEACHING EXPERIENCE

Stanford University [Remote] CA, United States
Mentor @CodeInPlace April 2024- June 2024
- Taught CS106A Python classes to many students from diverse backgrounds, promoting a supportive learning environment.
- Conducted one-on-one meetings to address coding questions, and guide students through challenging concepts.
- Collaborated with Stanford faculty to design and conduct practical coding exercises that enhanced student learning.

Pakistan Institute of Engineering & Applied Sciences (PIEAS) [Onsite] PIEAS, Pakistan
Teaching Assistant | Supervisor: Dr. Babar Hussain Feb 2022-June 2022

- Served as a Teaching Assistant for the **Power Transmission, Distribution & Utilization** course, assisting students with electrical power system design and practical application.

PROFESSIONAL EXPERIENCE

CureMD [Remote] NY, United States
Robotic Process Engineer July 2023- Present

- Developed RPA bots using UiPath/Automation Anywhere to automate business processes and optimize workflows.
- Performed backend testing with SQL, validated stored procedures, and automated API testing using Postman & Newman.
- Collaborated on Angular, Django, and .NET Core applications to build scalable, cross-functional solutions.

Mashal Construction Company [Onsite] Faisalabad, Pakistan
Graduate Trainee Engineer June 2022-July 2023

- Acquired hands-on experience with power distribution, motors, drive systems, and automation control systems in asphalt mixing plants, pavers, and batching plants.
- Developed expertise in electrical circuits, PLCs, and control panels to optimize system performance and enhance automation processes.
- Demonstrated strong technical skills in power systems, contributing to efficient operations and overall project success.

Rousch Power Plant Limited, (Descon) [Onsite] Lahore, Pakistan
Power Engineer Intern Aug 2021-Sep 2021

- Observed power generation through gas and steam turbines, focusing on power generation, transmission, and system efficiency.
- Gained insights into office operations and effective teamwork in a professional environment.

INTERNATIONAL HACKATHONS & EVENTS

Presented Research – International Conference on Recent Advances in Electrical Engineering & Computer Sciences 2022 [Project]
Focus Area:

- Designed a power transmission scheme integrating Distributed Generation (DG) using renewable sources like solar and wind across a 177-bus system from Sahiwal to Gujranwala.
- Applied Genetic Algorithm (GA) and Particle Swarm Optimization (PSO) to minimize line losses and enhance overall grid efficiency. Optimized economic dispatch to reduce production costs while ensuring reliable and sustainable power delivery.

Achieved 3rd Position – Unhallucinate Challenge: 24-Hour Fight Hackathon [Submission | Code | Certificate]
Tools & Technologies: Mistral-7B, Vectara, LangChain, Streamlit, Python, Hugging Face Transformers

- Worked on the development and deployment process of the system, utilizing the Mistral_7b model and Vectara to enhance accuracy.

Reasoning with o1 Summary Hackathon [Submission | Code | Certificate]
Tools & Technologies: OpenAI o1-preview model, Chroma Vector Database, LangChain,Hugging Face Transformers, Django

- Collaborated in a team to develop an AI-powered competitive programming chatbot by integrating O1 reasoning modeling with a robust coding database to efficiently solve coding problems.
- Led the Django deployment process within the team to ensure seamless functionality and a smooth user experience.

Competed in Meta Hacker Cup 2024

- Participated in Meta's global coding competition, tackling complex algorithmic problems and enhancing problem-solving skills under timed conditions.

VOLUNTEER & LEADERSHIP EXPERIENCE

Technical Support for Web | (Muaawin-e-Ilm, Free Education for Deserted Children) [Website link]
Tools & Technologies:

- Deployed Python(Django) services to optimize workflows and enhance system performance for smooth and effective website operations.
- Provided ongoing technical support to ensure stable and user-friendly web functionality.

Organizing Manager of ISYWSC '21 by IEEE PIEAS August 2021

- Served as the Organizing Manager for ISYWSC '21, hosted by IEEE PIEAS, successfully coordinating event logistics, team management, and participant engagement to ensure the conference's success.

Co-Head Management of Power Electrical Society (PES), PIEAS Oct 2020- July 2022

- Served as Co-Head of Management for the Power Electrical Society (PES) at PIEAS, overseeing event planning, team coordination, and society operations to promote academic and professional growth initiatives.

WORKSHOPS

Workshop on Power System Analysis and Stability – GEPCO June 2023- July 2023

- Gained hands-on exposure to the operational structure of Pakistan's electrical distribution network, including grid stations, feeders, and consumer connections.
- Analyzed system components responsible for voltage regulation, fault tolerance, and load balancing within GEPCO's (Gujranwala Electric Power Company Limited) distribution framework.
- Studied key aspects of power system stability, including reactive power management, frequency control, and blackout prevention mechanisms.
- Observed real-time SCADA system operations and power flow monitoring, improving understanding of grid reliability and fault localization techniques.

SKILLS & EXPERTISE

- **Programming Languages:**
  Python, JavaScript, Matlab, C#, SQL
- **Python Libraries & Tools:**
  Django, Django REST Framework, Flask, Selenium, Playwright, Hugging Face Transformers, Transformers, NumPy, Pandas, Matplotlib, Seaborn, Scikit-learn, TensorFlow
- **Software & Platforms:**
  Jupyter Notebook, PyCharm, Visual Studio Code, Postman, Selenium, MATLAB
- **Frameworks & Technologies:**
  Django, Flask, DotNet Core, Angular, React, SCADA Systems, Git, GitHub, Autogen, TensorFlow
- **Power Systems & AI Skills:**
  Power System Optimization using AI, Grid Stability Prediction, Fault Detection & Classification using ML, Renewable Integration & Load Forecasting, Economic Dispatch using GA & PSO, Smart Grid Monitoring & Automation
- **Soft Skills:**
  Technical Writing, Public Speaking, Mentorship & Instruction (Stanford, CureMD, Workshops), Leadership, Team Collaboration