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Professional Summary

Professional Engineer (P.E.) and Reliability Coordinator with 6 years of experience in Power System in Operation, Planning, Resource Integration, Modeling, Steady State and Dynamic Analysis at ERCOT ISO and LCRA TDSP.

Master of Engineering from Lamar University Major in Power Electrical and Computer Engineering. Currently pursuing a Master of Science in Artificial Intelligence at University of Texas at Austin. AWS/IBM Certified.

Proficient in PSS/E, GE EMS SCADA/TSM/DTS, ABB MMS, Streamlit, Embeddings, Python (Pandas, NumPy, Matplotlib, Scikit-learn, XGBoost, Pytorch, OpenAI), JavaScript, GitHub Pages.

Work History

Transmission Planning Model and Assessment Engineer | LCRA TSP (3/2024 – Present)
-Review and approve Planned, For - Construction and Operational ratings for LCRA transmission lines and auto transformers and shunts resulting from substations, lines and auto transformers additions or upgrades in capital projects.
- Led and presented planning team in multi department rating comparison meetings.
- Ensure system reliability, and compliance with NERC Standards, ERCOT Operation and Planning Guides.
-Maintain LCRA Planning Network Model in ERCOT according to capital projects in a timely manner.
- Participate in ERCOT SSWG, DWG, PLWG, LLWG, RPG, LFLTF working groups.
- Submits PMCR, DCP on ERCOT MOD for model changes and tunning.
- Propose and sponsor projects based on load forecast, generation and transmission capacity and budget.
- Perform Steady State Analysis for new Generation and Load Interconnect Requests.
- Perform Dynamic Stability Analysis for MOD-26, MOD-27, and Model Quality Test.
- Enhanced model accuracy through data comparisons and validity checks.

Transmission Operation Network Model and EMS Engineer | LCRA TSP (8/2022 – 3/2024)
- Maintain LCRA Operation Network Model in ERCOT and LCRA EMS Model according to capital projects.
- Draft One Line Diagram for before and after network model changes for new substation, line, transformer additions.
- Submit NOMCR and DPC to ERCOT for Network model changes and participate in ERCOT NDSWG working groups.
- Address real-time issues for SCADA and Transmission Security Management (TSM) applications, State Estimator
- Maintain Dispatcher Training Simulator (DTS) system network model, data base and applications.
- Maintain PMU data in Epdc and RTDMS server and client access manager.
- Update Line ratings and Impedances in EROT model and EMS based on Engineering team publications.
- Participate in network data working groups with ERCOT Collaborate with customers like PEC, BBEC, BEC, SBEC.

Real Time Power System Engineer | ERCOT ISO (CROSSTRAINING) (1/2022-4/2022)
- Provided engineering support to ERCOT Control Room System Operators through Power Flow studies, Stability Assessments, and system applications support.
- Maintained Real-Time ERCOT State Estimator, Contingency Analysis, and Voltage/Transient Stability Analysis tools.
- Developed Constraint Management Plans such as TOAP based on engineering studies for grid vulnerabilities.
- Identified network model and applications quality issues.
- Collaborated with ERCOT System Operators and Market Participants to maintain grid reliability and security.

- Troubleshoot situational awareness tools and reported grid status and developments to ERCOT departments.

Operation Training Instructor | ERCOT ISO | 10/2020-8/2022
-Developed power system simulation training scenarios to enhance ERCOT system operators' performance.
- Maintained EMS, MMS, and OTS systems, troubleshooted simulator issues.
- Evaluated operator responses during simulation training such as EEA, Black Start, RTA, IROL, Hurricane Drill, Low Inertia.
- Participated as a RC, QSE or TO in real time simulations.
- Prepared presentations for operation engineer and system operators like RTA presentation.

Power Electrical Engineer | ERCOT ISO – SOAL technologies| 10/2019 to 10/2020
- Performed RARF registration and Reactive testing.
- Reviewed and processed generation interconnection and full interconnection study (FIS) applications.
- Reviewed QSA Full Interconnection Studies such as Short Circuit, Faciality, Steady State, Stability Studies.
- Utilized EMS and PSS/E Transmission Planning load flow cases for power system analysis.

Associate Teacher | HISD | 2/2019 - 3/2022
- Teach math and physics, manage the classroom and follow the lesson plan.

Substitute Teacher |CFISD | 4/2018-1/2019
-Teach various subjects substituting for absent teachers.

Education

Master of Science in Artificial Intelligence – GPA 4.0
The University of Texas at Austin | 8/2024 – Present|
Courses: Deep Learning, Machine Learning, Optimization, EAI, AIH
Projects:
-Built a vision system and autonomous racing agent for SuperTuxKart, optimizing performance through advanced deep learning techniques.
-Applied machine learning algorithms to real-world data sets, solving problems in pattern recognition and dimensionality reduction.
-Developed ethical AI guidelines for system design, incorporating fairness and transparency into decision-making frameworks.

Master of Engineering in Electrical and Computer Engineering – GPA: 3.8
Lamar University |1/21/2019 - 5/12/2020
- Courses: Power System Motor & protection, Introduction to Robotics, Power Sys Stability & Control, Programmable Logic Controller, Computer Network I & II, Low Power CMOS Des & Rel, Cyber Physical Sys & Security, Instrumentation System and Auto.

Bachelor of Science in Electrical and Computer Engineering
Shahid Beheshti University | 10/2012 7/2017
- Courses: Protection and Relays, Power System I & II and labs, Electrical Machines I, II, III, Especial Machines and labs, Computer Architecture, Computer Programming, Linear Algebra, Electromagnetic, Industrial Drawing, System Analysis, Logical Circuits, Electronics 1 & 2, Telecommunications, Production and Power Station, High Pressure Plant Design and Project, Mathematics I, II and physics, Differential Equations, Statistics and Probability Engineering.

AI & Automation Projects (Self-Initiated)

Technologies: Python, Streamlit, OpenAI API, Embeddings, PSS®E, NLP, Scikit-learn, XGBoost, HTML/CSS, JavaScript, GitHub Pages, Kaggle.

[Personal Portfolio Website](#) and [Resume & Portfolio Chatbot](#)

-Developed and deployed [amirexirpe.com](#) to showcase my resume, certifications, and AI-powered tools. Integrated a recruiter-facing chatbot trained on my experience and projects using semantic embeddings. The site includes interactive galleries, contact forms, downloadable documents, and iframe-embedded live apps.

[Hourly Load Forecast App (AEP / PJM)](#) – *Live App: | Data: Kaggle (PJM Hourly Energy Consumption)*

-Built a live load forecasting tool using PJM hourly data from Kaggle. Applied time-series feature engineering (lags, rolling averages, calendar variables) and trained an XGBoost model with low RMSE. Deployed with Streamlit and embedded into portfolio via iframe.

[PSS®E Automation Assistant Bot](#), [PSS®E Multi Agent Automation Bot](#)

-Developed Copilot-style assistants that generate Python scripts for PSS®E tasks like contingency analysis, dynamic simulation, and model editing. Multi-agent version adds autonomous task by planning, retrieval and execution agents. Powered by the same end-to-end semantic search pipeline for high-precision technical retrieval.

[ERCOT Protocol](#), [Planning Guide](#) , [ERCOT DWG & SSWG](#) and [Resource Integration AI Assistant](#)

-Built multiple GPT-powered assistants trained on ERCOT Planning Guides, Protocols, DWG/SSWG manuals, and interconnection processes. Used a custom embedding & retrieval pipeline to chunk, embed, and semantically search technical documents with OpenAI's text-embedding-3-small model and token-bounded cosine similarity. Supports compliance, model validation, and system integration analysis.

[Power Fault Classifier App](#)

-Created a Streamlit web app to classify power system faults using phasor measurements (Ia, Ib, Ic, Va, Vb, Vc). Trained and compared models (SVM, RF, MLP, XGBoost) with cross-validation and confusion matrix visualizations. Supports CSV uploads and result downloads.predictions.App: [Launch Classifier](#) | Sample: [Test CSV](#)

Licenses, Certifications, and skills

- P.E. License (Licensed Professional Engineer) – Texas Board of Professional Engineers #151267
- NERC System Operator Reliability Coordinator Certification- #RC 202105039
- AWS Certified Cloud Practitioner.
- Machine Learning with Python IBM Certification.
- Databases and SQL for Data Science with Python IBM Certification.
- Python for Data Science, AI and Development IBM Certification.
- Data Visualization with Python.
- Familiar with electrical standards and protocols (NEC NFPA, NERC, ERCOT, ANSI, IEEE).

Software

EMS GE Alstom, GE Reliance (PSLF, SOTE, TSM, DTSPSM, SCADA, RTNET/RTNA, STNET/STNA, RTCA, STCA)
MMS ABB (SCED, COP, RUC)
PSS/E, PSLF, Power World, TARA, DmVIew, DWG True View, PI, Edna, Seeq, MMAP, Xmap, Gridgeo
Python, MATLAB, SIMULINK,C++, Linux vi editor.