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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 approved 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.
-Prepare Transmission Project Information Tracking (TPIT) updates for internal and costumers' projects.
- Lead and present and assign tasks for 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.
- Submit 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.
- Enhance 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 capital projects.
- Perform Contingency analysis for capital projects and outages and maintain State Estimator solutions.
- Submit Network Model Operation Requests (NOMCRs) and participate in ERCOT NDSWG working groups.
- Address real-time issues for SCADA, Transmission Security Management (TSM) applications and 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)

- Provide engineering support to ERCOT Control Room System Operators through Power Flow studies, Stability Assessments, and system applications support.
- Maintain Real-Time ERCOT State Estimator, Contingency Analysis, and Voltage/Transient Stability Analysis tools.
- Develop Constraint Management Plans such as TOAP based on engineering studies for grid vulnerabilities.
- Identify network model and applications quality issues.
- Collaborate with ERCOT System Operators and Market Participants to maintain grid reliability and security.
- Troubleshot situational awareness tools and reported grid status and developments to ERCOT departments.

### Operation Training Instructor | ERCOT ISO | 10/2020-8/2022

-Develop power system simulation training scenarios to enhance ERCOT system operators' performance.

- Maintain EMS, MMS, and OTS systems, troubleshooted simulator issues.
- Prepare presentations for trainings and evaluate operator's responses during simulation trainings.
- Design simulations events for EEA, Black Start, RTA, IROL, Hurricane Drill, Low Inertia trainings.
- Participate as a RC, QSE or TO in real time simulations.
- Perform Contingency Analysis for DTS case preparation.

**Power Electrical Engineer | ERCOT ISO – SOAL technologies| 10/2019 to 10/2020**
- Perform RARF registration and Reactive testing.
- Review and processed generation interconnection and full interconnection study (FIS) applications.
- Review QSA Full Interconnection Studies such as Short Circuit, Faciality, Steady State, Stability Studies.
- Utilize EMS and PSS/E Transmission Planning load flow cases for power system analysis.
- Perform Steady State N-1 and N-1-1 Contingency Analysis for Generation Interconnection Requests.

**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 Nodal Protocols, Planning Guides, DWG SSWG manuals 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.

**Power Grid GNN Alarm Prediction App** – Live App: | Data: IEEE 14-Bus (synthetic) + CSV uploads

Developed a Graph Neural Network (GNN) in PyTorch Geometric with Message Passing Computation (MCP) to predict bus-level alarm probabilities in a simulated power grid, incorporating DC power flow linearization for electrical features alongside topological and operational data, and deployed as a public Streamlit app with example datasets, topology visualization, and feature previews.

## 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.