

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.
- 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 tuning.
- 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 Ecdc and RTDMS server and client access manager.
- Update Line ratings and Impedances in ERCOT 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, OpenAI API, Streamlit, Embeddings, PSS/E, NLP, HTML, CSS, GitHub Pages, JavaScript

-Personal Portfolio Website

Designed and deployed a responsive website amirexirpe.com to showcase resume, certifications, and AI-powered tools. Embedded GPT-powered assistants for PSS®E automation, ERCOT documentation, and resume Q&A using semantic search. Integrated interactive galleries, downloadable credentials, and contact forms.

-Hourly Load Forecast App (AEP / PJM) – Live App: | Data: Kaggle (PJM Hourly Energy Consumption)

Built a live forecasting app using historical PJM load data and XGBoost regression. Engineered time-series features (lags, rolling averages, calendar vars), achieved low RMSE, and deployed the app with Streamlit and iframe integration on portfolio site.

-PSS®E Automation Assistant Bot,

Developed a Copilot-style assistant that semantically searches PSS®E code examples and generates Python scripts for power system analysis tasks (e.g., contingency analysis, dynamic simulation, model editing).

- PSS®E Multi Agent Automation Bot

Built an AI-driven multi-agent assistant combining task planning, retrieval, execution, and intelligent code generation in a loop. Powered by semantic search over curated PSS/E API docs and real examples.*(Includes an end-to-end embedding pipeline: cleaned and chunked technical content, embedded using OpenAI's text-embedding-3-small, and retrieved with token-bounded cosine similarity for high-precision responses.)*

-ERCOT Protocol, Planning Guide , ERCOT DWG & SSWG and Resource Integration AI Assistant

Built GPT-powered assistants using chunked ERCOT planning guides, protocols, DWG & SSWG manuals, and interconnection processes from ERCOT. Enables semantic search and question-answering for engineers working on compliance, integration, SSWG and DWG working groups and operations.

-Resume & Portfolio Chatbot

Created a chatbot that answers recruiter questions about my background, project experience, and credentials using semantic search over a custom-trained dataset hosted on my website.

-End-to-End Embedding & Retrieval Pipeline

Designed a data pipeline to clean, chunk, and embed large technical documents using OpenAI's text-embedding-3-small model. Implemented cosine similarity with token-bounded top-K chunk selection for precise responses.:-

Power Fault Classifier App

Built an AI web app to classify power system faults using current and voltage phasor measurements (Ia, Ib, Ic, Va, Vb, Vc). Trained and compared multiple models (SVM, RF, MLP, XGBoost) using Scikit-learn with cross-validation and confusion matrix evaluation. Interactive Streamlit interface with sample CSV uploads and downloadable 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, DWG True View, PI, Edna, Seeq, MMAP, Xmap, Gridgeo

Python, MATLAB, SIMULINK, C++, Linux vi editor.