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## Professional Summary

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Professional Engineer (P.E.) & Reliability Coordinator with 6 years of experience in Power System in Operation, Planning, Resource Integration, Modeling, Steady State & Dynamic Analysis at ERCOT ISO & LCRA TDSP. Master of Engineering from Lamar University Major in Power Electrical & 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

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<b>Transmission Planning Model &amp; Assessment Engineer</b>	<b>LCRA TSP</b>	<b>3/2024 – Present</b>
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- Review & approved Planned, For - Construction & Operational ratings for LCRA transmission lines & auto transformers & shunts resulting from substations, lines & auto transformers additions or upgrades.
- Prepare Transmission Project Information Tracking (TPIT) updates for internal & costumers' projects.
- Lead & present & assign tasks for planning team in multi department rating comparison meetings.
- Ensure system reliability, & compliance with NERC Standards, ERCOT Operation & 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 & tuning.
- Propose & sponsor projects based on load forecast, generation & transmission capacity & budget.
- Perform Steady State Analysis for new Generation & Load Interconnect Requests.
- Perform Dynamic Stability Analysis for MOD-26, MOD-27, & Model Quality Test.
- Enhance model accuracy through data comparisons & validity checks.

<b>Transmission Operation Network Model &amp; EMS Engineer</b>	<b>LCRA TSP</b>	<b>8/2022 – 3/2024</b>
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- Maintain LCRA Operation Network Model in ERCOT & LCRA EMS Model according to capital projects.
- Draft One Line Diagram for before & after network model changes for capital projects.
- Perform Contingency analysis for capital projects & outages & maintain State Estimator solutions.
- Submit Network Model Operation Requests (NOMCRs) & participate in ERCOT NDSWG working groups.
- Address real-time issues for SCADA, Transmission Security Management (TSM) applications & State Estimator.
- Maintain Dispatcher Training Simulator (DTS) system network model, data base & applications.
- Maintain PMU data in Ecdc & RTDMS server & client access manager.
- Update Line ratings & Impedances in EROT model & EMS based on Engineering team publications.
- Participate in network data working groups with ERCOT Collaborate with customers like PEC, BBEC, BEC, SBEC.

<b>Real Time Power System Engineer</b>	<b>ERCOT ISO (CROSSTRaining)</b>	<b>1/2022-4/2022</b>
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- Provide engineering support to ERCOT Control Room System Operators through Power Flow studies, Stability Assessments, & system applications support.
- Maintain Real-Time ERCOT State Estimator, Contingency Analysis, & Voltage/Transient Stability Analysis tools.
- Develop Constraint Management Plans such as TOAP based on engineering studies for grid vulnerabilities.
- Identify network model & applications quality issues.
- Collaborate with ERCOT System Operators & Market Participants to maintain grid reliability & security.

- Troubleshoot situational awareness tools & reported grid status & 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, & OTS systems, troubleshooted simulator issues.
- Prepare presentations for trainings & 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 - 10/2020**

- Perform RARF registration & Reactive testing.
- Review & processed generation interconnection & full interconnection study (FIS) applications.
- Review QSA Full Interconnection Studies such as Short Circuit, Faciality, Steady State, Stability Studies.
- Utilize EMS & PSS/E Transmission Planning load flow cases for power system analysis.
- Perform Steady State N-1 & N-1-1 Contingency Analysis for Generation Interconnection Requests.

## **Associate Teacher**

**HISD**

**2/2019 - 3/2022**

## **Substitute Teacher**

**CFISD**

**4/2018-1/2019**

## **Education**

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### **M.S., Artificial Intelligence (GPA 4.0)**

**The University of Texas at Austin**

**8/2024 – Present**

Courses: Deep Learning, Machine Learning, Optimization, EAI, AIH, CSML,

Projects:

- Built a vision system & 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 & dimensionality reduction.
- Developed ethical AI guidelines for system design, incorporating fairness & transparency into decision-making frameworks.

### **M.Eng., Electrical & Computer Engineering (GPA: 3.8)**

**Lamar University**

**1/2019 - 5/2020**

- 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 & Auto.

### **B.S., in Electrical & Computer Engineering**

**Shahid Beheshti University**

**10/2012 7/2017**

- Courses: Protection & Relays, Power System I & II & labs, Electrical Machines I, II, III, Especial Machines & labs, Computer Architecture, Computer Programming, Linear Algebra, Electromagnetic, Industrial Drawing, System Analysis, Logical Circuits, Electronics 1 & 2, Telecommunications, Production & Power Station, High Pressure Plant Design & Project, Mathematics I, II & physics, Differential Equations, Statistics & Probability Engineering.

## **AI & Automation Projects**

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

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

-Developed & deployed [amirexirpe.com](#) to showcase my resume, certifications, & AI-powered tools. Integrated a recruiter-facing chatbot trained on my experience & projects using semantic embeddings. The site includes interactive galleries, contact forms, downloadable documents, & 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) & trained an XGBoost model with low RMSE. Deployed with Streamlit & 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, & model editing. Multi-agent version adds autonomous task by planning, retrieval & 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 & Resource Integration AI assistant](#)

-Built multiple GPT-powered assistants trained on ERCOT Planning Guides, Protocols, DWG/SSWG manuals, & interconnection processes. Used a custom embedding & retrieval pipeline to chunk, embed, & semantically search technical documents with OpenAI's text-embedding-3-small model & token-bounded cosine similarity. Supports compliance, model validation, & 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 & compared models (SVM, RF, MLP, XGBoost) with cross-validation & confusion matrix visualizations. Supports CSV uploads & result downloads.

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

Built a PyTorch Geometric GNN to predict bus-level alarms on the IEEE-14 synthetic grid and CSV uploads; added a model-linearization toggle (GCN with no activations) and a logistic-regression baseline, RepeatedStratifiedKFold CV with F1-based thresholding, and a tiny data augementer that replicates the 14-bus graph with noise. Deployed with topology visualization, PR curves, confusion matrix, and downloadable artifacts.

## **Licenses, Certifications, & skills**

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- P.E. License (Licensed Professional Engineer) – Texas Board of Professional Engineers #151267
- NERC System Operator Reliability Coordinator Certification- #RC 202105039
- Siemens PTI Academy Automating PSS®E Using Python (PSSC\_625)
- AWS Certified Cloud Practitioner.
- Machine Learning with Python IBM Certification.
- Databases & SQL for Data Science with Python IBM Certification.
- Python for Data Science, AI & Development IBM Certification.
- Data Visualization with Python.
- Familiar with electrical standards & protocols (NEC NFPA, NERC, ERCOT, ANSI, IEEE).

## **Software**

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