**Names used: Amir Exir & Seyed Amirhossein Eksir Monfared** |**US Citizen**

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## Professional Summary

**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

## Transmission Planning Model & Assessment Engineer LCRA TSP 3/2024 – Present

## -Developed [AELAB](https://amirexirpe.com/#aelab-suite) in Python automating Steady State Contingency Analysis, Dynamic Analysis, IDV generation, Contingency Generation & TPIT workflow.

## -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 & tunning.

## - 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.

## Transmission Operation Network Model & EMS Engineer LCRA TSP 8/2022 – 3/2024

- 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 Epdc & 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.

## 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, & 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.

- Troubleshot 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

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## Education

## 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

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

[Personal Portfolio Website](http://amirexirpe.com/) & [Resume & Portfolio Chatbot](https://portfolio-nvngbm55k5prquuhngg7el.streamlit.app/)

-Developed & deployed [amirexirpe.com](https://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)**](https://portfolio-yq4typvbncex55yh5cfdmr.streamlit.app/) **–** *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](https://portfolio-8yebxmxquvaavwwg5va3tp.streamlit.app/), [PSS®E Multi Agent Automation Bot](https://portfolio-4co3lvfwtpzsl3ivbuhvou.streamlit.app/)

-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](https://amirexir-por-chatbot-ercot-all-in-oneercot-assistant-app-ahgre0.streamlit.app/)

-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](https://portfolio-xmc8hpyiryrkj8acggxe6k.streamlit.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**](https://ai-in-power-system-electrical-engineering-hw6ktvbujtbw5zygqxxj.streamlit.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 augmenter that replicates the 14-bus graph with noise. Deployed with topology visualization, PR curves, confusion matrix, and downloadable artifacts.

[TinyLlama Fine-Tuning for Medical Q&A](https://amirexirpe.com/HirghRiskFineTune.pdf)

I fine-tuned the TinyLlama-1.1B-Chat model on 16K MedQuAD medical question–answer pairs using LoRA adapters, demonstrating that parameter-efficient methods can deliver measurable gains under compute constraints. By applying gradient checkpointing, 4-bit quantization, and an AdamW + warmup training schedule, I made training feasible on modest GPUs. The fine-tuned model achieved up to a 40% improvement in ROUGE-2 scores compared to the baseline and was published on the Hugging Face Hub ([tinyllama-medquad-lora](https://huggingface.co/amirexirr/tinyllama-medquad-lora)), where it has already been downloaded and used by external researchers. I also provided reproducible code, dataset splits, and documentation to support transparency and accessibility for the healthcare AI research community.

## Licenses, Certifications, & skills

- 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**

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, DmVIew, DWG True View, PI, Edna, Seeq, MMAP, Xmap & Gridgeo