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Professional Summary

Licensed Professional Engineer (Texas) with 7+ years of experience spanning transmission planning, ERCOT operations, generator and large-load interconnection, dynamic stability, EMS modeling, and AI-powered engineering automation. Currently pursuing an M.S. in Artificial Intelligence at The University of Texas at Austin while developing machine learning, LLM, and Python-based solutions for power system planning, regulatory intelligence, forecasting, and engineering workflow automation.

Core Expertise

- Transmission Planning • Generator & Large Load Interconnection • Dynamic & Steady-State Studies
- ERCOT Planning & Operations • NERC Compliance • PSS®E • TARA • PowerWorld • PSCAD, ASPEN
- Python • Machine Learning • Deep Learning • LLMs • RAG • AI Agents • OpenAI API
- XGBoost • Scikit-learn • PyTorch • TensorFlow • SQL • Git • Docker

Work History

Transmission Engineer 4 (Transmission Planning) | PEC | 1/2026 – Present

- Served as Lead Professional Engineer for planning team.
- Developed AELAB in Python for PSS/E Model validation and TARA PowerGen Result Visualizations.
- Structure processes, automate workflows and provide procedures and templates.
- Represent PEC in ERCOT planning groups (DWG, SSWG).
- Perform Steady State and Stability Analysis for Generator and Large Load Interconnections Requests and Transmission Planning System Improvements.
- Propose and sponsor transmission system improvement projects.
- Submits CMLD, UFLS, DWG Contingencies.

Engineer (Transmission Planning) | LCRA TSC | 3/2024 – 1/2026

- Developed AELAB in Python automating Steady State Contingency Analysis, Dynamic Analysis, IDV generation, Contingency Generation & TPIT workflow.
- Review & approve 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.
- Represent LCRA in ERCOT working groups (SSWG, DWG).
- 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, Transient Stability and EMT Analysis for MOD-26, MOD-27, & Model Quality Test.
- Enhance model accuracy through data comparisons & validity checks.

Engineer (Transmission Operation & EMS Support) | LCRA TSC | 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 Epcd & 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.
- 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.

Education

M.S., Artificial Intelligence (GPA 3.63) The University of Texas at Austin 	8/2024 – Present
M.Eng., Electrical & Computer Engineering (GPA: 3.8) Lamar University 	1/2019 - 5/2020
B.S., in Electrical & Computer Engineering Shahid Beheshti University 	10/2012 7/2017

AI & Automation Projects

AELab — Power System Analysis and Automation Suite

Developed a Python engineering suite automating PSS®E and TARA PowerGEM contingency analysis, dynamic simulations, model validation, IDV generation, DWG contingency development, results visualization, and transmission-project reporting.

ERCOT AI Engineering Assistant

Built a Retrieval-Augmented Generation platform covering ERCOT Protocols, Planning and Operating Guides, Resource Integration, DWG/SSWG procedures, Revision Requests such as PGRR, NOGRR, NPRR, with governing-document identification and section-level citations.

Power Grid GNN Predictor

Developed GCN, GAT, GIN, and Graph Transformer models using PyTorch Geometric and pandapower to predict bus-voltage violations and transmission-line thermal overloads from simulated grid conditions.

ERCOT Grid Intelligence Platform

Built an integrated platform for load forecasting, renewable-generation analysis, real-time pricing, resource outages, grid news, regulatory updates, and automated Telegram publishing using Python, Streamlit, ERCOT APIs, and n8n.

Developed an interactive Grid Atlas covering ERCOT and major U.S. and Canadian regions with searchable transmission facilities, substations, generation assets, and region-based data loading.

PSS®E AI Copilot and Multi-Agent Automation

Developed an AI workflow combining task planning, technical retrieval, code generation, execution, and retry logic to create PSS®E scripts for power flow, contingency, and dynamic studies.

For more information, please review my portfolio at WWW.AMIREXIRPE.COM

Licenses, Certifications

- 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

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

PSS/E, PowerGEM TARA, Power World, , PSCAD, ASPEN, DMView, PMView, DWG True View, PI, Edna, Seeq, MMAP, Xmap & Gridgeo,