

Lightning Talk 2

Project Overview

- What It Is: An AI-powered tool designed to assist power grid operators in writing and refining distribution system simulator (DSS) scripts for power grid design and modification.
- Technology: Utilizes Generative Pre-trained Transformers (GPT) models for natural language processing, enabling the translation of operators' instructions into efficient DSS scripts.

Users and their needs

- **Technical Tom - Field worker**

- The AI virtual assistant simplifies technical data and instructions, helping field workers quickly understand and resolve grid issues. This enhances efficiency and effectiveness in maintenance and repairs.

- **Power plant Pete - Grid Engineer**

- AI virtual assistants can streamline complex data analyses, offer predictive insights for planning and maintenance, and assist in simulating grid modifications and their potential impacts. This aids in more informed decision-making and innovative grid design.

- **Utility Ugo - Utility Operator**

- AI virtual assistants can provide instant data analysis and decision support, alert operators to potential issues before they escalate, and suggest optimal responses to grid conditions. This reduces downtime and improves the reliability of the power supply.

Requirements

The assistant needs to make grid data easy to understand.

- AI assistant reads real time data in order to write dss scripts (grid data for simulation) based on the user's inquiries.
- Grid data is presented in a map visual that contains the grid's areas served and corresponding nodes (measurement points for power data).

Engineering Standards

Data Security (NIST)

- Has guidelines to enhance security of GridGPT

System Integration and Interoperability (IEC)

- Standardized API development

AI Model Development and Maintenance

- Ethical considerations

Performance and Scalability

- Optimizing performance

Conclusion

- Create GPT model to assist in writing and modifying DSS files
- AI chat bubble pop-up to be present in code modifying page
- Allow GPT model to interpret DSS files and return the results in a way that power grid operators can better understand