Ethics

SDMay25-42: GridGPT 2.0

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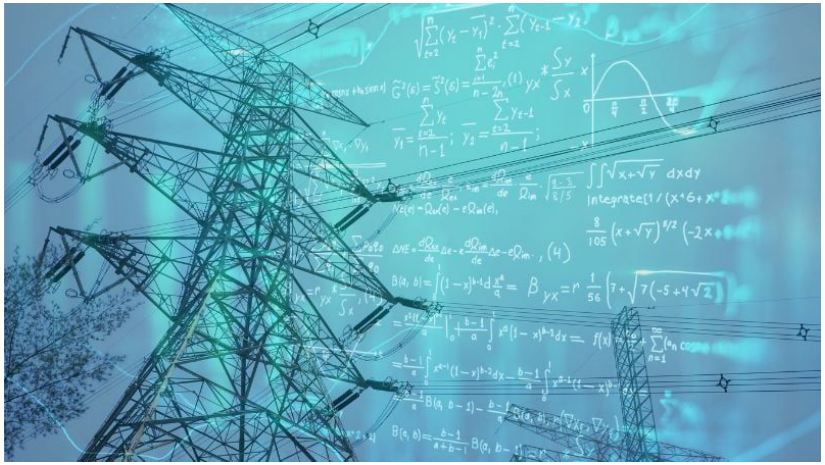
Project Overview

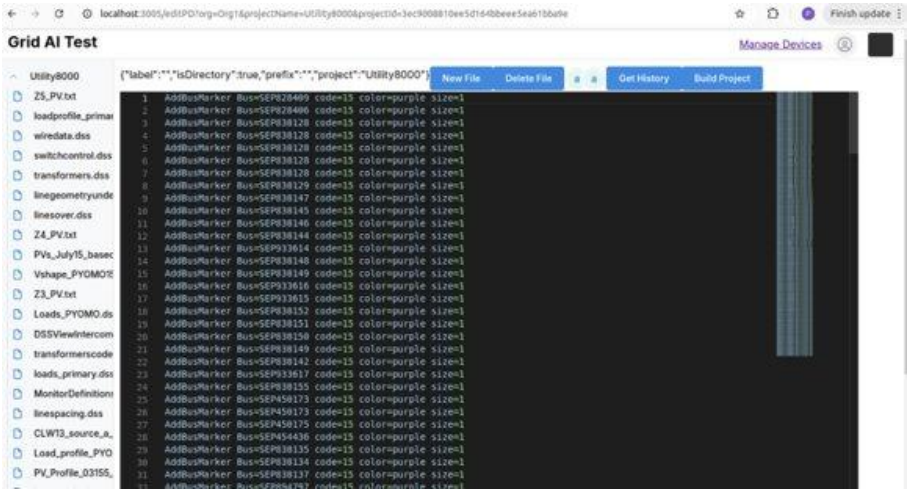
The goal of our project is to develop AI-driven virtual assistants that integrate with GridAI, assisting our users (utility operators and engineers) with understanding and interacting with complex electric power grid data to make well informed decisions.

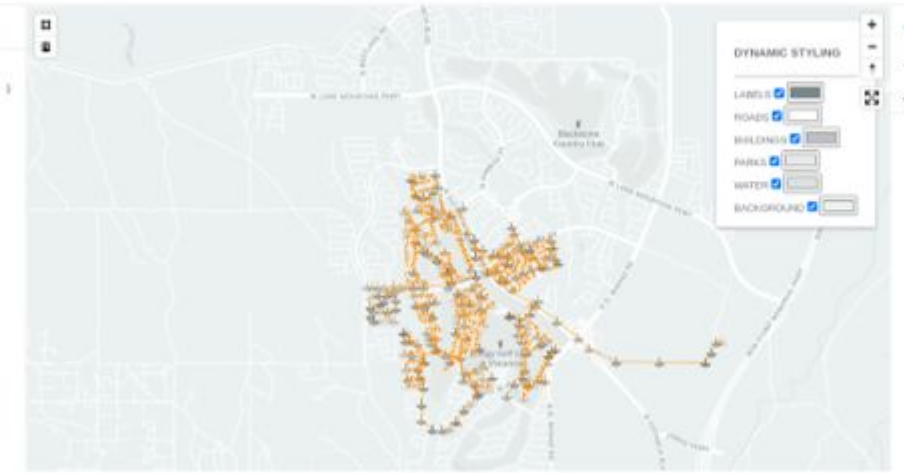
Genus
energizing lives



GridAI

- an analytics application that provides insights in power consumption as well as load and generation forecasting
  - Real time grid visualization, analysis, and management
- Interacts with the power distribution modeling software OpenDSS
  - Can edit OpenDSS files
  - Retrieves information from OpenDSS files for users

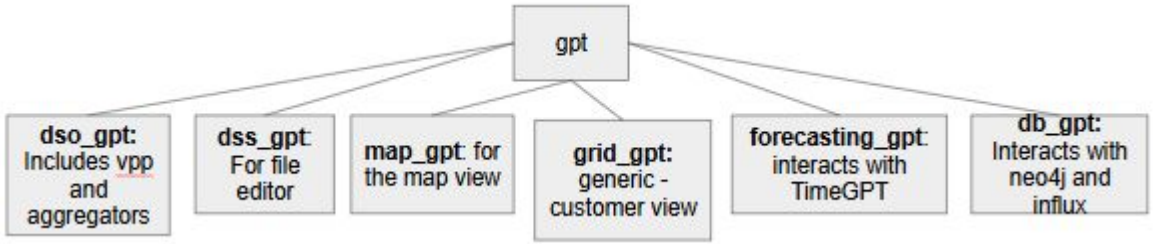




GridGPT

- **Goal**: build 6 AI assistants using OpenAI for different aspects of GridAI
  - **OpenAI's API**: an interface that gives users access to OpenAI's AI models
- Processes user requests and uses GridAI carry out the tasks
  - Editing DSS (distribution system simulator) files
  - Provide summaries and solutions based off the user's input
  - Interacts with the 2D grid
  - Provides forecasting

OpenAI

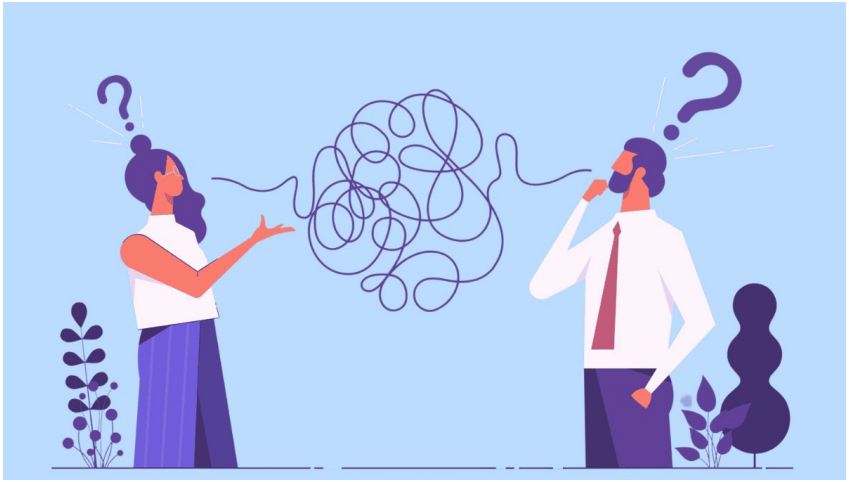


IDEALS We Do Well at : Social Responsibility

- Our chatbots are meant to enhance the usefulness of GridAI in the power utility industry.
- By using computers instead of humans to perform operations, we remove human error from an essential service
- The utility industry is suffering from a shortage of engineers, so tools to reduce their workload will be beneficial

IDEALS We Did Not As Well At: Communication Honesty

- We say the GridGPT is accurate and predictable
  - It's a LLM, it could say anything
- We communicate that GridGPT will not replace anyone's job
  - It will probably replace jobs, but also create new ones
- We claim that GridGPT is fast and easy to use
  - There is a large learning curve



Broader Area - Four Principles Chart

	Beneficence	Nonmaleficence	Respect for Autonomy	Justice
Public Health, Safety, and Welfare	Improves usefulness of GridAI, to help design a more safe power system	Avoid inefficient management, of power	Lets users make own choices for design	Promotes personal benefits to all people
Global, cultural, and social	Provides safer more reliable power management	Does not negatively affect society	Lets users make decisions based on cultural norms	Does not have social bias when decision making
Environmental	Improved Power grouping can reduce carbon emissions.	Does not cause an increase in carbon emission	You get to provide an eco friendly design option	Implementation would not disturb the environment
Economic	Can improve power production efficiency, saving money	Reduces human error, which saves companies money	You don't have to buy gridGPT or gridAI to use openDSS	Would not unfairly financially affect any people

Potential Ethical Issues

- We say the GridGPT is accurate and predictable
- Sending possible personal information to OpenAI
  - Data Privacy and Security
  - Users might not be aware of data being collected
  - Risk of data being used for machine learning
- In general AI environmentally damaging
  - High energy consumption
  - Produces lots of Carbon Emissions
- Replacing Jobs
- AI replace lower level DSO applications

Conclusion

- We say the GridGPT is accurate and predictable
- We are creating an useful tool that outweighs the ethical dilemmas
- Overall all AI projects will have ethical issues
  - security, environment, replacing jobs
- Our product can overall help reduce carbon emissions, and save money for users

Questions?