Examples of Climate Ontology and LLM Integration

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These are just some very basic examples of what can be done with AllegroGraph and LLMs. All I needed to do for the following was run a Linux script on my PC and set up AllegroGraph with my Open AI API key. The first examples are some basic NLP. Note: this is why it would be useful to use excerpts from the book. I’ve been including excerpts from the book as property values using a property called skos:definition. When I run the Linux script I tell it to create embeddings for all the strings that are the value of that property (as well as the rdfs:label), then ChatGPT can use those strings to answer questions. It can also do things like return specific objects of the graph that are relevant to a question. There are examples of doing this with a custom UI for another ontology here: <https://www.michaeldebellis.com/post/integrating-llms-and-ontologies>

A screenshot of a computer

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Here is an example of a graph. Note: the pink label is used to specify the class: “High Tide Flooding and Shoreline Erosion”. The node is an instance of that class because it is a specific example of that problem occurring in Norfolk Virginia.

A diagram of a government

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This is the new ChatBot capability. Although in this session it seems to be relying more on ChatGPT than on the information I have in the knowledge graph. I think part of that is that I haven’t included the actual knowledge graph information yet but rather text strings from the rdfs:label and skos:definition properties. I’m still figuring out how to communicate all the information about classes, subclasses, and properties to the LLM. So the following is just a very rough not very impressive first pass:

A screenshot of a chat

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