TOWARDS TAXONOMY MANAGEMENT WITH GAI

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What is a Taxonomy?

- Taxonomy is a hierarchical classification system used to organize and categorize information, data, or concepts into groups or categories based on shared characteristics, properties, or criteria.
- The primary purpose of taxonomy is to provide a systematic framework for organizing and understanding the relationships between different elements within a domain of knowledge or an organization.

What is Taxonomy Management?

- Taxonomy management focuses
  - An organizational structure of all your data (through classification)
  - Standardized terminology throughout the organization
  - Extracting meaningful information from unstructured data
  - Intelligent search capabilities (of all your data)
  - Reusability of data for other analytics/dashboards
  - Scaling with Enterprise Knowledge Graphs

Source: https://www.poolparty.biz

Current Taxonomy Management Tools

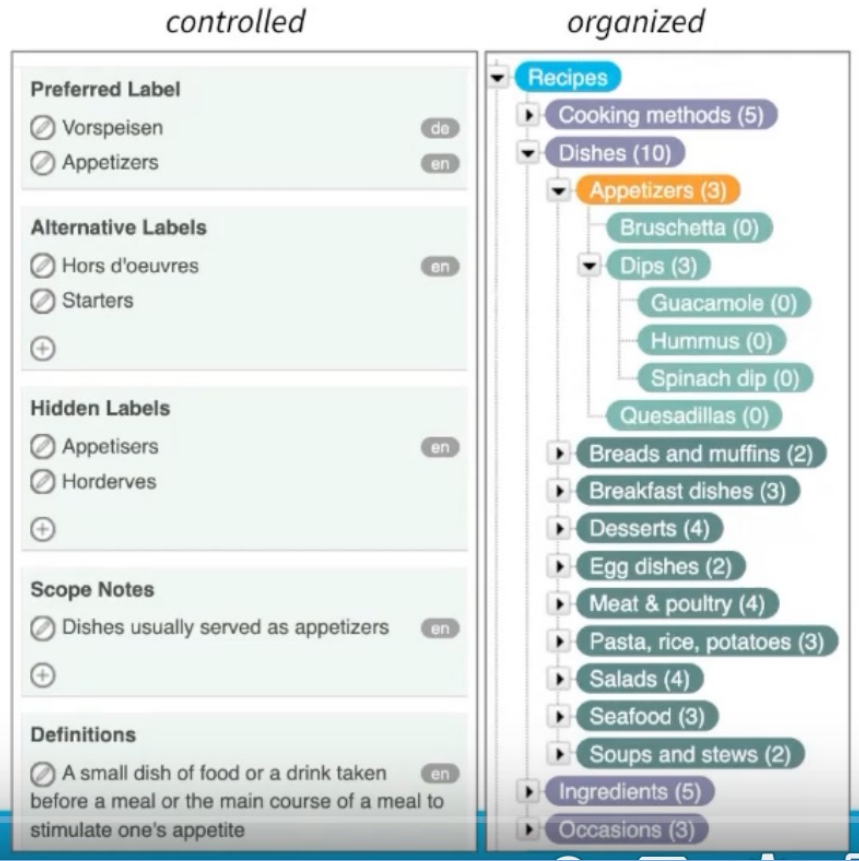
Room 3 (225) Is Presenting

What is a Taxonomy?

poolparty

Controlled and ***organized***

1. Controlled:
   A kind of controlled vocabulary or knowledge organization system, based on unambiguous concepts, not just words:
   things, not strings
2. Organized:
   Concepts are arranged in a structure of hierarchies, categories, or facets to organize them.



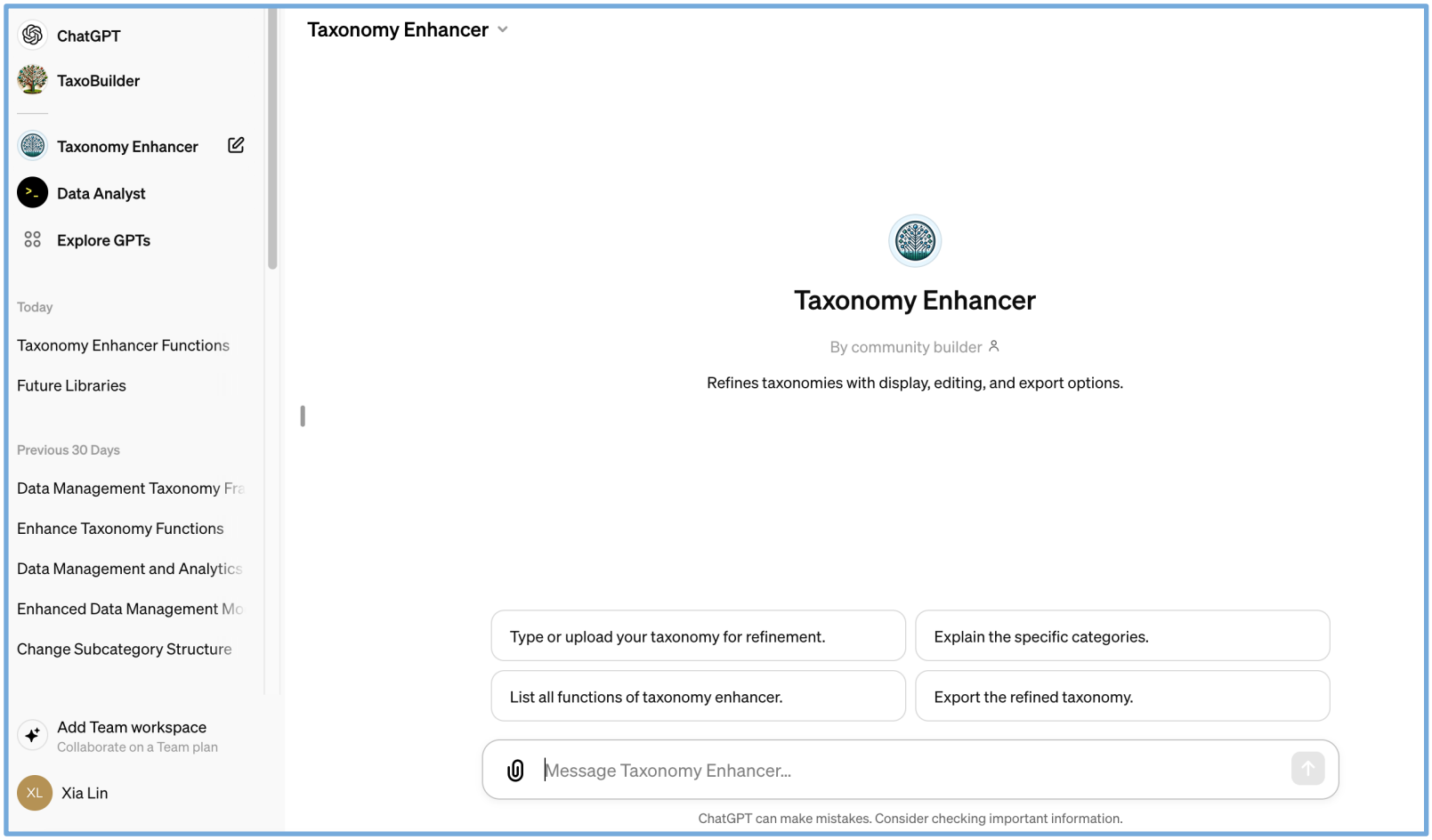
Taxonomy Construction and Management

- In the era of GAI
  - Generative AI as a new knowledge source
    - Learned from massive text
    - New semantic links and Knowledge Space
  - Generative AI as an (intelligent) assistant
    - Help to look up terms/definitions/scopes
    - Help to create/maintain classification structures
    - Help to link terms to documents?

Our Approaches

- **Approach 1: Using OpenAI chatGPT API to enhance taxonomy management tools**
  - The frontend is the same as current taxonomy management tools
  - GAI works behind to enhance the management functionality
- **Approach 2: Create a taxonomy assistant inside chatGPT**
  - The frontend is the same as chatGPT
  - Special functions of taxonomy management were defined and built in.

Demo:


ChatGPT
TaxoBuilder
Taxonomy Enhancer
Data Analyst
Explore GPTs
Today
Taxonomy Enhancer Functions
Future Libraries
Previous 30 Days
Data Management Taxonomy Fra
Enhance Taxonomy Functions
Data Management and Analytics
Enhanced Data Management Mo
Change Subcategory Structure
Add Team workspace
Collaborate on a Team plan
XL
Xia Lin
Taxonomy Enhancer
Taxonomy Enhancer
By community builder
Refines taxonomies with display, editing, and export options.
Type or upload your taxonomy for refinement.
Explain the specific categories.
List all functions of taxonomy enhancer.
Export the refined taxonomy.
Message Taxonomy Enhancer...
ChatGPT can make mistakes. Consider checking important information.

Basic Functions of Taxonomy Management

- Upload
- Display
- Interactive editing
  - Expand
  - Delete
  - Replace
  - Interpret
- Export (in html, text, XML, markdown, etc.)
- Online search
- Complex Computations (using Python and others)

How to Build the Assistant and the new taxonomy tools

- Please watch video 2

Future Taxonomy Applications

Let's envision next generation of taxonomies with the assistance of GAI

- It's construction
- It's formats
- It's management
- It's use

Future Taxonomy Applications

- Construction and Management
  - Writing codes vs. Prompt engineering
  - Approach 1 or Approach 2 ?
  - The key is how to maximize the use of GAI

Future Taxonomy Applications

- Formats
  - Statics vs. dynamics of the taxonomy structure in the era of generative AI
    - The future of taxonomies could be more dynamic
    - Expand as needed
    - Use of statistics in real time
    - Standardization?
  - What needs to be manually maintained and what can be generated dynamically?
    - 10% to 20% key categories?

Future Taxonomy Applications

- Use of Taxonomies
  - ChatGPT-like interfaces?
  - Links to documents dynamically
  - Flexible input/output formats?

Concluding Thoughts

- GAI provides a new framework to create the taxonomy management tools.
  - We need to rethink how to
    - define the functions of taxonomy management
    - maximize utilization of GAI for the construction and management of taxonomy
- GAI allows us to explore new formats and applications of taxonomy.
  - The door is open to innovation and new creation.

Now Video 2

- By Xiyuan Chang
  - Described how to use chatGPT API
  - How to use the chatGPT assistant Playground
  - How to define and create functions with chatGPT API
  - Graduated from Lanzhou-Drexel Data Science program and currently at the University of Michigan
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