Model Card for BMKT 491: Special Topics, Advanced Marketing Analytics

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Model Card: ChatGPT and Business Algorithms + Coding

Model Details

Developed by: OpenAI
Model type: LLM
Version: ChatGPT-4o
Last updated: 10-2-2024

- **Model Name**: ChatGPT-4o
- **Model Type**: Large Language Model
- **Version**: gpt-4o-2024-08-06
- **Release Date**: 5-13-2024
- **License**: Free with limited access
- **Authors**: OpenAI, 2023

Intended Use

Train students to solve small coding problems that may arise in running algorithms

Usage Guidelines

- **Best Practices**: The model may be used to remove coding difficulties involved in data wrangling. The model may not be used to get suggestions on analysis of data.
- **How to Cite**: OpenAI. (2023). ChatGPT-4o (Oct 084 version) [Large language model]. https://chat.openai.com/chat

Training Data

- **Dataset(s):** Simulated using R
- **Data composition:** Small dataset suitable for clustering, multidimensional scaling, or for creating decision trees. Data can contain categorical and/or numeric variables, including redundant variables.
- **Preprocessing:** Data cleaning, removing NAs, exploratory data analysis, descriptive statistics.

Performance and Limitations

Performance Metrics

- **Reasoning capabilities**: Significantly improved over previous versions with enhanced problem-solving abilities across mathematical, scientific, and coding tasks
- **Visual understanding**: Can analyze and interpret complex images and diagrams with high accuracy
- **Multimodal processing**: Capable of processing text, images, and audio simultaneously with state-of-the-art performance
- **Response speed**: Approximately 2x faster than GPT-4 for comparable requests

Known Limitations

- Training data only until March 2023.
- Trained on English language texts primarily

Ethical Considerations

- **Bias:** Questionable Inclusivity of data sources and archives used in training
- **Privacy:** Copyrighted works may be scanned without established legal precedent in the area
- **Environmental impact:** Large-scale training and inference operations require significant computational resources and energy consumption

Technical Specifications

- **Model Architecture:** Transformer-based architecture with advanced attention mechanisms optimized for multimodal capabilities. The model employs a decoder-only design with modifications for processing multiple input modalities simultaneously.
- **Parameters:** While the exact number hasn't been publicly disclosed, GPT-4o is estimated to have hundreds of billions of parameters, similar to or potentially greater than its GPT-4 predecessor.
- **Input:** Text prompts, images, audio, and combinations of these modalities. The model can process complex visual information including diagrams, charts, screenshots, and natural images alongside textual queries.
- **Output:** Primarily text-based responses with the ability to reason across modalities, perform complex calculations, write code, and analyze visual or audio information provided in queries.

Additional Information

- **License:** Free tier with usage limits; subscription options through ChatGPT Plus ($20/month) and team/enterprise plans with additional capabilities and higher usage limits.
- **Contact:** OpenAI can be contacted through their help center at https://help.openai.com or through their website at https://openai.com.

- **Citation:** OpenAI. (2023). ChatGPT-4o (Oct 08, 2024 version) [Large language model]. https://chat.openai.com/chat

Version History

- v1.0 (2023-05-12): Initial GPT-4 release with text-only capabilities
- v4.0 (2024-05-13): Initial release of GPT-4o with improved multimodal capabilities
- v4o (2024-08-06): Updated version with enhanced processing speed and performance improvements
- Latest update (2024-10-02): Further refinements to context handling and response quality

Acknowledgements and Citation Guidance

GPT-4o was developed by OpenAI's research team with significant infrastructure support from Microsoft as a major investor. The model represents an evolution of OpenAI's research into advanced AI systems, building upon previous GPT architecture advancements. Development was supported by OpenAI's broader funding, which includes significant investments from Microsoft, Khosla Ventures, Reid Hoffman, and other technology investors. When citing GPT-4o in academic or research contexts, users should reference OpenAI as the developer, specify the version used, and include the access date to account for potential model updates.

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