

# Sum4All: Structured Chart Summarization with LLMs

## (Master Thesis)

ACCESS@KIT - Zentrum für digitale Barrierefreiheit und Assistive Technologien

Large language models (LLMs) have proven to be robust tools for comprehending complex textual and visual data. One compelling application of LLMs lies in chart summarization [1], wherein extensive information is condensed into visual representations. Charts are necessary for presenting complex contextual insights through simple illustrations. While some users focus on particular chart details, others prioritize grasping the overall trends. To cater to this diversity, an approach incorporating controlled summaries at different levels is essential.

In this research, we aim to explore the potential of state-of-the-art LLMs [3] for structured and controlled chart summarization, aligning with specific levels of abstraction [2]. Our objectives encompass:

1. Dataset Preparation:
  - a. Curate and preprocess the dataset tailored for the chart summarization task.
2. Model Training and Experimentation:
  - a. Train state-of-the-art LLMs, using diverse training techniques and modalities.
  - b. Explore different model variations and integrate innovative approaches.
3. Performance Evaluation:
  - a. Quantitative evaluation of the trained models.
  - b. Human assessments, to ensure the expected levels of abstraction.

Throughout your research, you'll benefit from experts' guidance and support. You will have access to a powerful computing cluster to facilitate your experiments. Significant findings will be submitted as a research paper at a prestigious conference.

Requirements:

1. Demonstrated interest in the topic. Related work [1-4].
2. Experience with deep learning models, such as transformers and LLMs.
3. Familiarity with the Linux operating system and comfort with terminal commands.

If interested, please send your application, which should include your CV and transcript of records (optional: motivation letter) to [omar.moured@kit.edu](mailto:omar.moured@kit.edu)

References:

1. <https://github.com/mitvis/vistext>
2. <https://vis.csail.mit.edu/pubs/vis-text-model/>
3. <https://github.com/Hannibal046/Awesome-LLM>
4. <https://arxiv.org/abs/2304.02173>