Chair of Renewable and Sustainable Energy Systems
TUM School of Engineering and Design
Technical University of Munich

IDP, Research Internship

From Research to Reality: Bringing HAMLET to the big stage (the lazy way)

Background

Our chair is researching energy systems with different levels of granularity ranging from continent-wide models to buildings. However, simulating nation models differs strongly from simulating distribution grids. For this reason, we have developed a new tool called HAMLET, which uses agent-based modeling. The issue with tools developed through research is usually the lack of a professional environment. Most research tools lack essential aspects such as a professional repository, (automated) testing, logging, CI/CD development, documentation, packaging, etc. Most of the times, these aspects fall short since they are not relevant to the research itself while being most relevant for reusing these tools. Unfortunately, these tasks can also be rather dull and repetitive. LLM-models could make these tasks much more pleasant by reducing the manual expenditure to take a tool from its research stage to a professional level. The mantra of this project is: let the machines work! If you want to take part in this task and learn how to create a professional tool with minimal effort, feel free to contact us!

Goals

- Create a professional tool with minimal (human) effort
- Create a guide on how to apply the methodology to other repositories

Requirements

- Experience with LLMs (e.g. ChatGPT) and Prompt Engineering
- Good programming skills
- Good command of Git (GitHub or GitLab)
- Knowledge about energy economics is helpful but not crucial

Learning outcomes

- Application of learnt computer science know-how in the realm of energy system modeling
- Becoming proficient in turning an idea into a full-fledged product
- Hands-on software engineering in the following areas: prompt engineering, testing, logging, CI/CD, documentation, packaging, refactoring, library management, data handling,

Contact

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