



Bachelor Thesis / Master Thesis

Development of a Model Context Protocol Server for the KITModelViewer

AI agent systems such as Claude Code and OpenCode have recently gained significant popularity. The Model Context Protocol (MCP) is an open standard that serves as an intermediary between AI agents and external tools.

The aim of this project is to investigate the extent to which agent-based systems can be applied in the fields of Building Information Modeling (BIM) and Geographic Information Systems (GIS).

To achieve this, an MCP server is to be developed for our institute's software, the KITModelViewer [1].



The KITModelViewer is a software tool for the visualization of semantic data models in the BIM and GIS domains. Using the KITModelViewer Plugin Interface [2], an MCP server plugin based on the KITModelViewer Python API [3] will be developed, enabling an AI agent to use the software as a tool. For a master's thesis, an additional objective is to evaluate how the existing Python API can be meaningfully extended to support AI-based use cases.

The proposed project consists of the following parts:

- Setting up an AI pipeline (e.g., KI-Toolbox (KIT), OpenCode, MCP C++ SDK)
- Development of a KITModelViewer MCP server plugin
- Extension of the KITModelViewer Python API

We are happy to answer any questions you might have. Feel free to ask for an appointment or just give us a call!

Die Arbeit darf natürlich auch in deutscher Sprache geschrieben werden.

References

- [1] https://github.com/KIT-IAI/SDM_KITModelViewer
- [2] https://github.com/KIT-IAI/SDM_Plugin_SDK
- [3] https://github.com/KIT-IAI/SDM_Plugin_Python

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Programming language:

- C++
- Python

System, Framework(s):

KITModelViewer Plugin Interface

Required skills (Wish list):

- Experience with LLMs, AI agents, generative AI
- Basic knowledge of network architecture
- Optional: experience with BIM/GIS

Language(s):

German, English

Starting date:

As soon as possible

For more information, please contact:

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