Chair of Computational Modeling and Simulation
TUM School of Engineering and Design
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LLM-based Automated Compliance Checking

Project Characteristics

Modeling:
Mathematics:
Programming:
Science:

Task

Implement an (agent-based) LLM system capable of performing Automated Compliance Checking

- Perform a literature review to identify state-of-the-art LLM-based methods that address a similar research challenge.
- Create a dataset of IFC models with building elements that are compliant and not compliant with a range of regulatory requirements of different complexity
- Implement an (agent-based) LLM system capable of parsing the regulatory requirements, extracting the relevant information from the IFC model (using IfcOpenShell), and reasons about the compliance of the building design with the regulatory requirements.
- Evaluate the system's ability to construct complex compliance-checking functions by combining or nesting simpler, atomic functions.

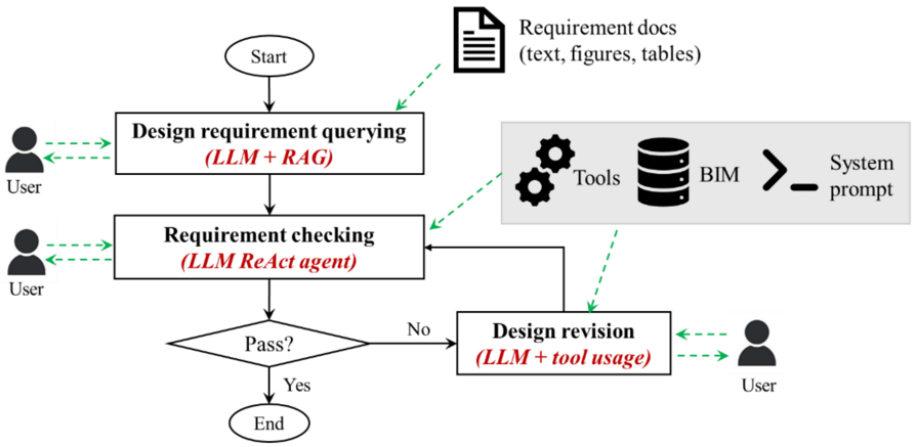

Figure 1. Agent-based ACC system by Ying and Sacks [1]

[1] Ying, Huaquan, and Rafael Sacks. 2024. "From Automatic to Autonomous: A Large Language Model-Driven Approach for Generic Building Compliance Checking." In *Proceedings of the 41st International Conference of CIB W78, Marrakech, Morocco, 2-3 October, ISSN: 2706-6568*. http://itc.scix.net/paper/w78-2024-59.