

## Software Lab:

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|--------------|--------------------------|
| Modeling:    | <input type="checkbox"/> |
| Mathematics: | <input type="checkbox"/> |
| Programming: | <input type="checkbox"/> |
| Science:     | <input type="checkbox"/> |

# Automated Construction Reporting Using Computer Vision and Generative AI

## Description

*In construction management, daily reports are critical for documenting progress, resolving issues, and maintaining records. Traditional methods require manual input, often taking significant time and effort. This project explores automating the generation of construction reports using computer vision (CV) and generative AI. Recent research illustrates how video footage from construction sites can be analyzed using computer vision techniques to detect specific activities and extract productivity data. This information is then processed by advanced natural language generation models, such as ChatGPT, to automatically produce detailed, human-readable construction reports [1]. The goal is to develop an end-to-end solution that processes construction site videos and outputs insightful reports, enhancing efficiency in construction documentation.*

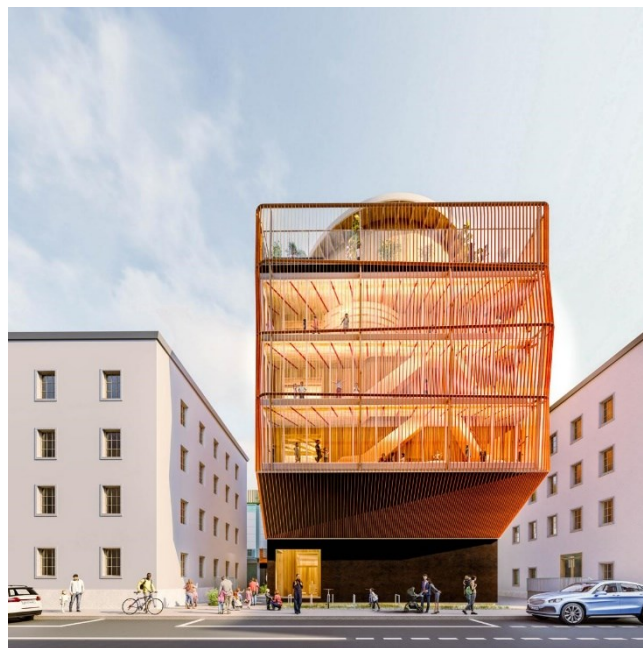


Figure 1: Kérés KITA 3D Model (TUM-Campus) [2]

## Task

*To develop a framework that automates construction report generation from site video data:*

- *Review literature on CV and AI in construction report generation.*
- *Prepare and analyze video data from the TUM Kérés KITA construction site.*
- *Implement CV algorithms for resource and productivity tracking.*
- *Integrate a generative AI model to create daily reports.*
- *Develop a user interface for video management and report generation.*
- *Evaluate the system on accuracy and usability for construction management.*

## Supervisor

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## References

[1] Xiao, B., Wang, Y., Zhang, Y., Chen, C., & Darko, A. (2024). Automated daily report generation from construction videos using ChatGPT and computer vision. *Automation in Construction*, 168. <https://doi.org/10.1016/j.autcon.2024.105874>

[2] <https://www.german-architects.com/de/architecture-news/meldungen/keres-kita-fur-den-tum-campus>