

Popular science summary of the PhD thesis

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Title of the PhD thesis	Knowledge-driven Safety Analysis: An Approach to Enhance Occupational Health and Safety in Construction
PhD school/Department	Department of Civil and Mechanical Engineering

Science summary

The construction industry is plagued by a high rate of accidents and fatalities compared to other sectors. This alarming trend can be attributed to construction sites' dynamic and hazardous nature, characterized by constantly changing environments and potentially dangerous elements such as heavy machinery and unfinished structures.

Despite efforts to ensure worker safety, current safety practices rely heavily on labor-intensive manual processes and need help keeping pace with construction projects' evolving nature. Safety planning is typically carried out in a paper-based format, lacks efficiency, and fails to provide sufficient updates to all involved stakeholders.

To address these challenges, this research focuses on developing automated solutions to streamline safety tasks in construction. By leveraging technology and industry expertise, the aim is to create digital safety plans capable of identifying hazards, estimating resource requirements, and scheduling safety-related activities more accurately and efficiently.

Moreover, the system seeks to enhance safety inspections by automating the identification of safety measures and simplifying compliance checks. This improves safety protocols and facilitates better communication and collaboration among project stakeholders.

In summary, this research endeavors to advance safety standards in the construction industry by harnessing the power of automation and knowledge-driven insights. By providing practical solutions that are transparent and adaptable, the objective is to mitigate risks and promote a safer working environment for construction workers.