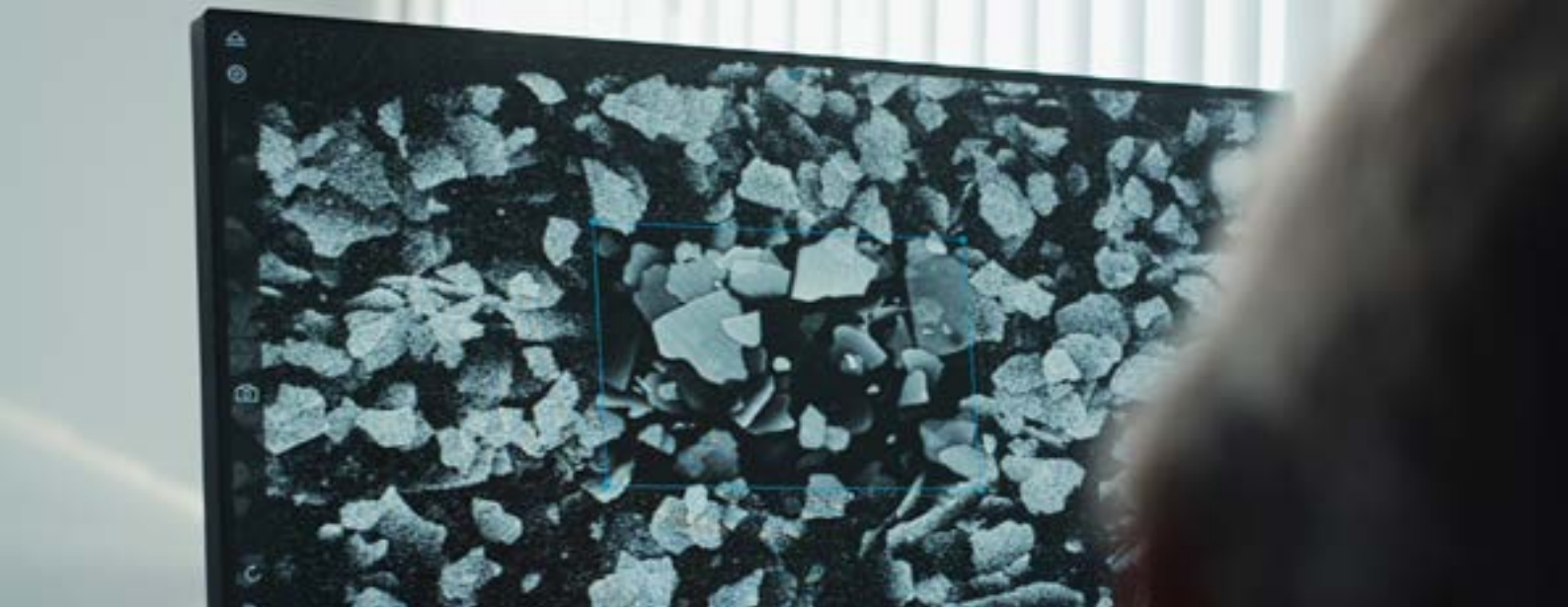




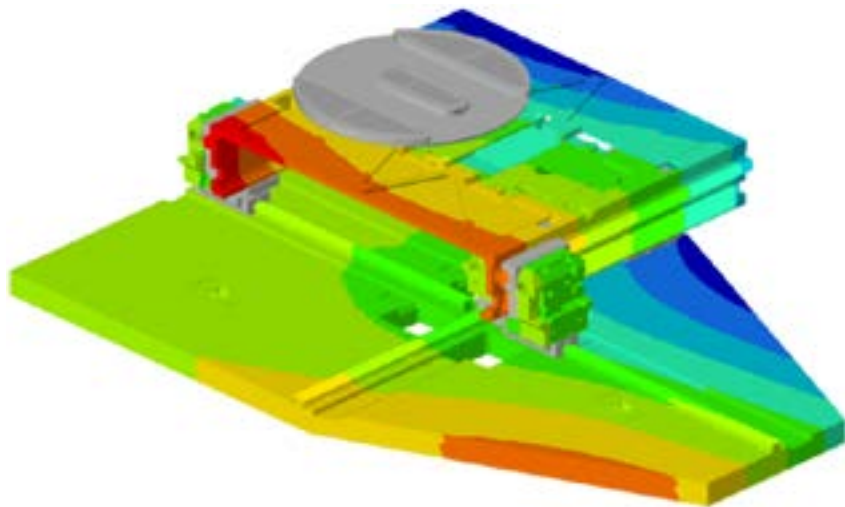
GENAI FOR FINITE ELEMENT ANALYSIS

Assignment

This internship focuses on developing a Generative AI-driven workflow for Finite Element Analysis (FEA). The objective is to create an AI agent, using Model Context Protocol (MCP) technology, that can take a CAD model and a high-level simulation description and automatically generate, execute, verify, and document a linear static FEA model. The project investigates tools for FEA, GPTs and their integration. The work give you a firm grasp on the machinery behind a targeted AI implementation to accelerate simulation-driven engineering.

Activities

- Review available software components and define architecture
- Build an end-to-end AI-driven FEA pipeline
- Implement automated verification and validation checks
- Refine simulation capabilities
- Deliver documented code and engineering reports.



Internship overview

- Master
- Internship
- Computer Science, Mathematics, Mechanical Engineering
- Location: Eindhoven

Technologies

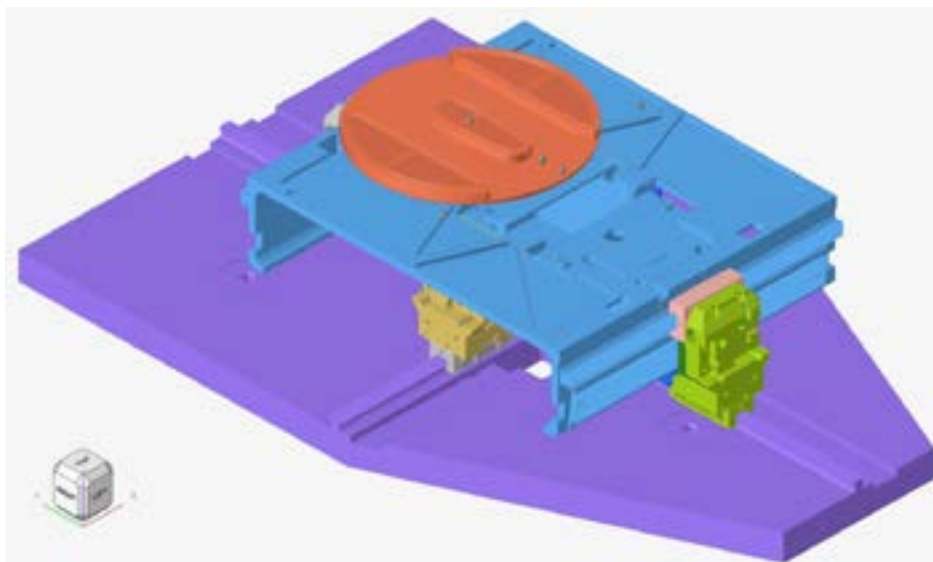
- Finite Element Method
- Generative Pretrained Transformers
- Model Context Protocol





Context

Mathware is investigating how Generative AI and MCP technology can improve the speed and accessibility of finite element analysis without compromising quality or reproducibility. MCP enables large language models to interact directly with engineering software through structured interfaces. This internship explores the practical application of AI-assisted simulation workflows, evaluates opportunities and limitations, and develops a proof-of-concept solution that automatically creates FEA models from CAD geometry and simulation requirements. The project aims to reduce analysis effort, accelerate engineering iterations, lower simulation costs, and establish a scalable foundation for future AI-enabled CAE capabilities within Sioux.



Why choose Sioux?

- Working on innovative technology
- Challenging, dynamic and varied work
- A comfortable and personal work environment
- Plenty of opportunities for personal development
- Great career opportunities
- Contributing to a safe, healthy and sustainable society

Get in touch!

Would you like to know more about this student assignment?

Contact:

Timo van Opstal

Werving_Mathware@sioux.eu