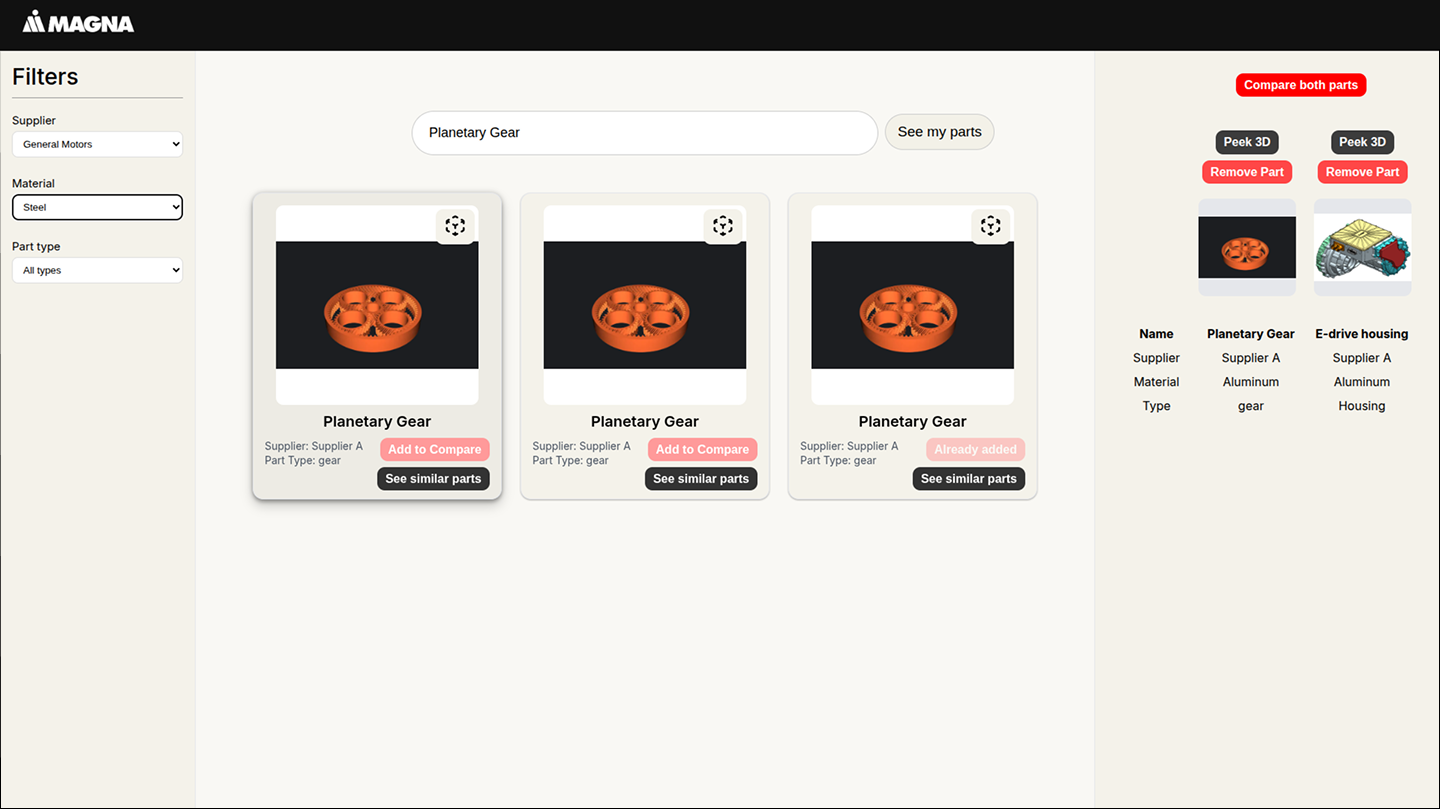
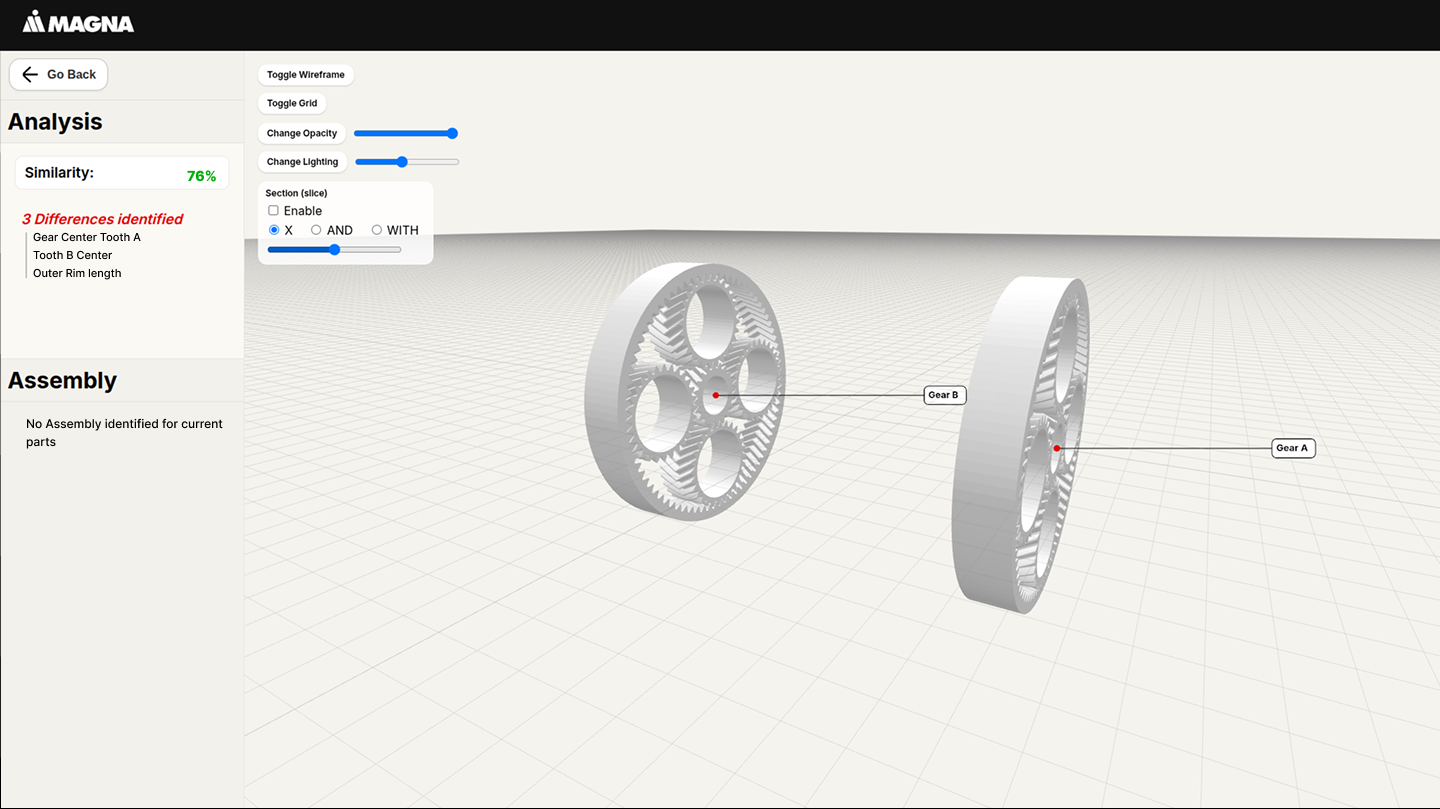
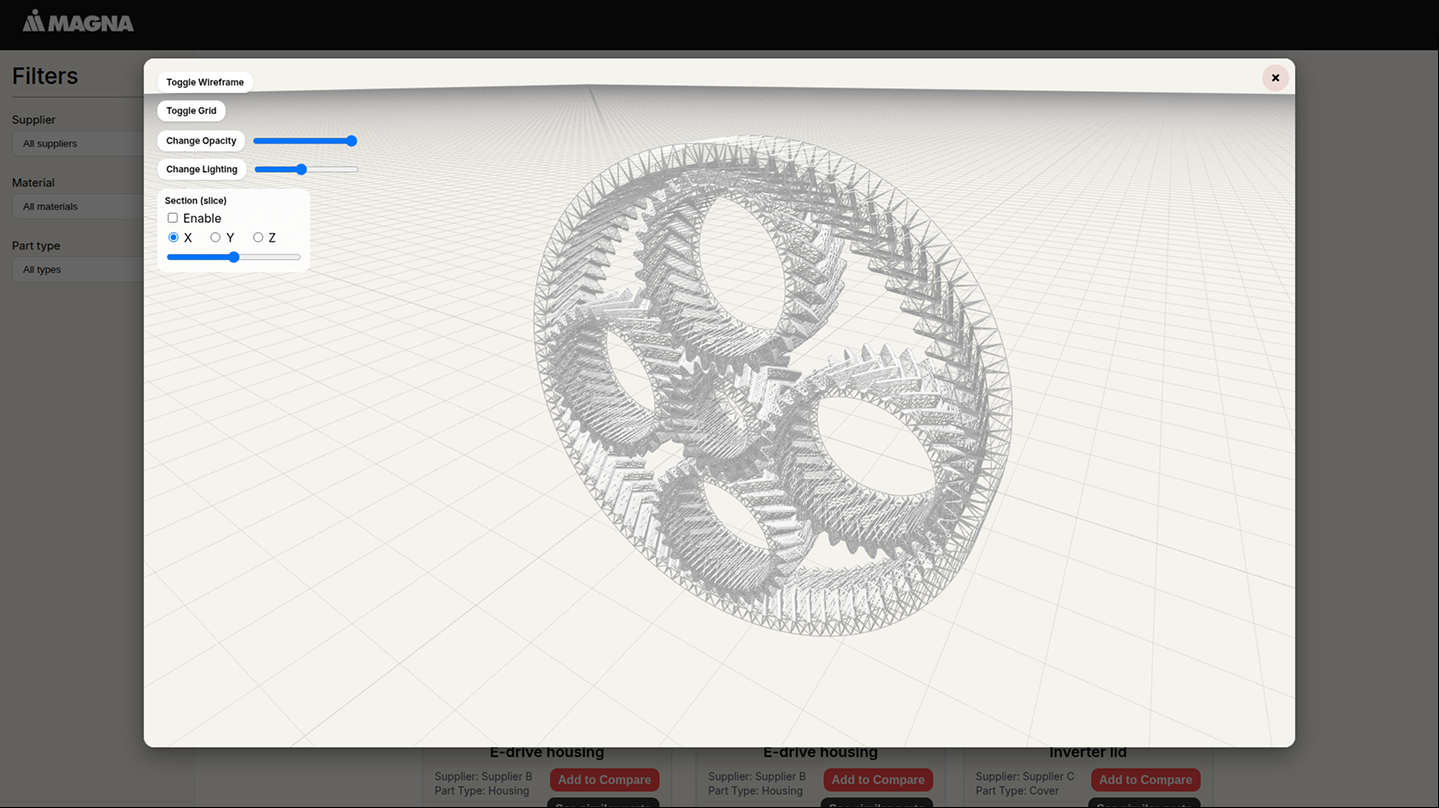
Design Day Booklet Team Page







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Magna LLM3DMID

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Magna is the leading supplier in the automotive industry, with operations in more than twenty-eight countries and over one-hundred thousand employees. They design and manufacture advanced systems found in nearly every major automotive brand. Magna’s vision is to continue advancing mobility for everyone and everything.

Magna relies heavily on a wide array of three-dimensional models, all representing a component. These components exist in multitudes of variants across different suppliers. Engineers must view, examine and compare the geometry of the models to further develop their products. This task proves to be slow and harder to complete as the scale of models increase.

The LLM 3D Model Interpretation and Decomposition tool eliminates the slow and tedious process of interpreting these models. The system automatically interprets 3D models, decomposes them into meaningful sections, and generates clear descriptions of each part and its structure. Variants can be placed side by side in an interactive three-dimensional viewer where key differences and similarities are highlighted in real time.

Engineers can also query for specific parts using a natural language query through plain text, removing the need to filter and search through thousands of models, turning hours of work into mere seconds. Through this search, users can find any part based on any criteria such as material, supplier, or even a functionality of the part, for instance, finding a part that deals with combustion.

Our LLM 3D Model Interpretation and Decomposition tool is developed as a python-based pipeline with Open3D geometry processing, vector storage through Neo4j, and an AI-powered FastAPI back-end. The results appear in a responsive web application with visualization powered through Three.js, allowing for detailed analysis.

CSE498 | 8:00 a.m. – Noon Computer Science and Engineering, Third Floor | 3200/3300 Hallway

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LLM 3D Model Interpretation & Decomposition