

# Stewart Platform: Design and Construction

Faculty of Engineering and Sciences

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*Bachelor thesis by Henrik Hov, Håvard Mannes and Markus Thorsnes, M06*

## Motivation:

### Why:

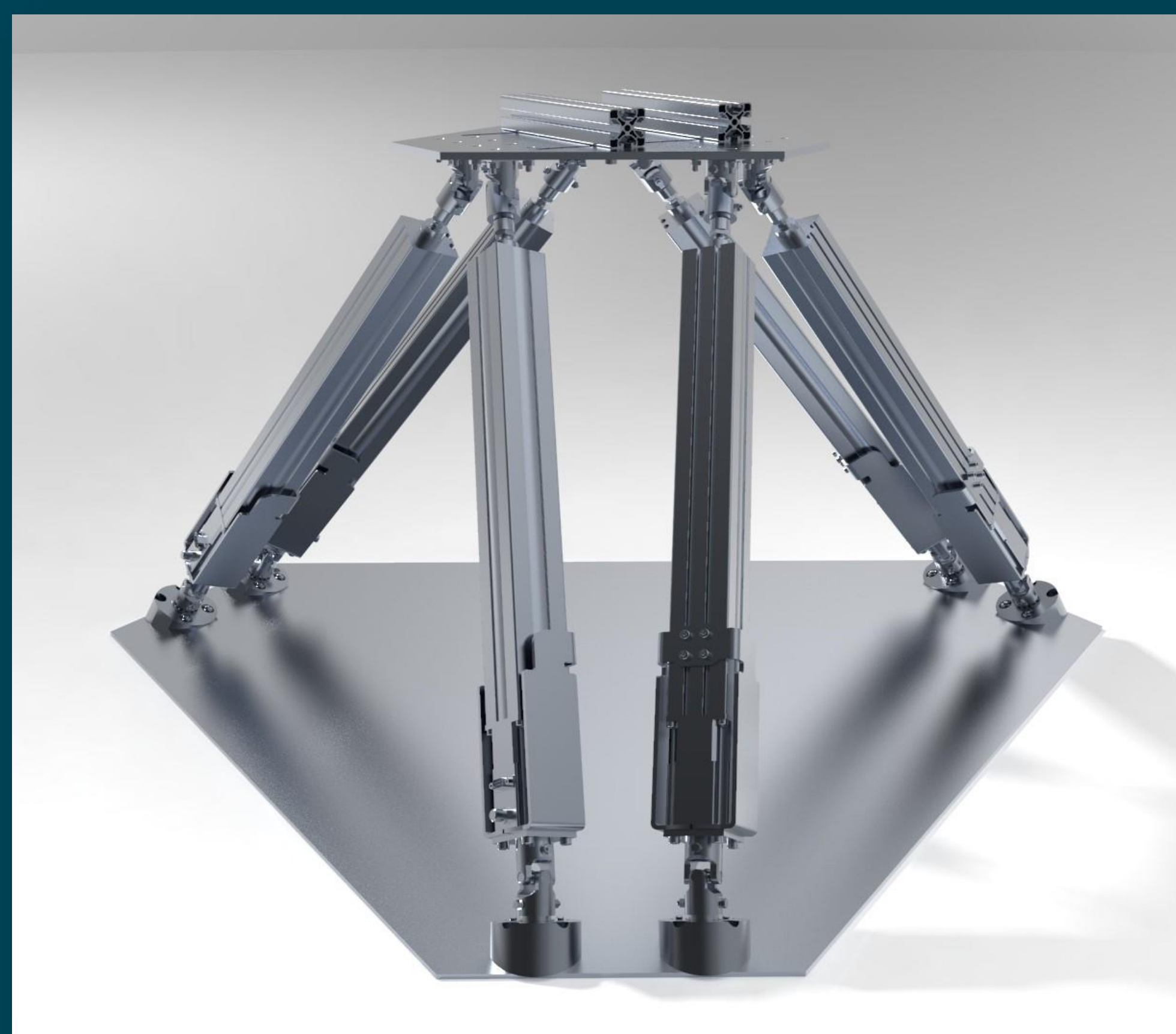
- Wave simulation
- Test prototypes while generating wave motion
- An alternative to a wave tank

### What:

- Research and development of products
- Generates three-dimensional motions

### Application:

- Heave compensating for offshore industry
- Flight- and earthquake simulator
- Satellite dish- and telescope positioning



## Background:

- The purpose of this project is to design and construct a Stewart platform
- A Stewart platform is a parallel redundant manipulator that involves a configuration of six degrees of freedom
- This special mechatronic system is utilized for motion control and precise positioning, using six electric linear actuators

## Specification:

- Max load: 60 kg
- Max actuator speed: 180 mm/s
- Stroke length: 300 mm
- $\pm 25^\circ$  roll, pitch and  $\pm 40^\circ$  yaw
- Adjustable fastening method



## Conclusion:

- A Stewart platform have been designed and constructed
- Simulates motion that compares with wave data from the MarinLab. Specifications are based on this data
- Generating wave motion is the main application for this Stewart platform and will be used for research and development of various products