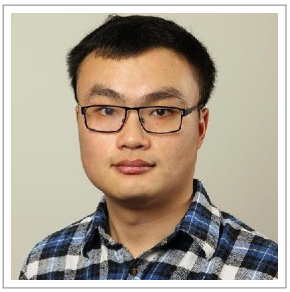
Jiafeng Xu

Real-time Simulation of Marine Operations



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Research description

My research aims at developing a computer program environment and proper algorithms that can simulation marine operation in real-time with good reliability and flexibility. The focus will be on the result accuracy and calculation speed. Such simulation can serve as a powerful tool for both personnel training and product development.

Industrial goals

Ongoing projects include development of multibody dynamics simulation environment and development of real-time hydrodynamic simulation with mesh or meshless method. A more integrated simulation framework with higher interaction level between different systems can better predict different kinds of marine operation scenarios. With better knowledge from the simulation, operators can make faster and more rational decisions in real operations and engineers can adjust the products more efficiently with lower cost.

Scientific questions

- How to define a generic and robust simulation framework?
- How to implement modular concept into simulation?
- How to democratize simulation methods to the industry?

Innovations

Traditional methods need to be modified and adapted to the real-time world. Isolated simulation perspectives need to be integrated for a higher interaction level.

Cooperating company

- Offshore Simulation Center(OSC)

Supervisor

Karl Henning Halse

Co-supervisor

Eilif Pederson