



## Post doc at Force Technology

### Ship Model and Software for Real Time Simulation of Ship Waves and Ship-Ship Interaction

The project improves the calculation of ship waves and ship-ship interaction forces in FORCE Technology's full-mission marine simulator SimFlex4. SimFlex4 is used for training of naval officers and as a tool marine engineering. Accurate and realistic calculation of ocean and ship waves is very important, because the visual effect of looking at waves gives the naval officer a feeling of being on a real ship sailing in a real sea. Forces on the ship from the waves are important because it makes the simulated ship pitch and roll realistically. Improved ship-ship interaction forces calculation will give a realistic feeling of being sucked towards and pushed away from other ships. The improved ship model will enhance training and education in the SimFlex4 full-mission simulator when it comes to tug assistance exercises, pilot boarding, PSO (production, storage and offloading) operations, shallow water and bank effects, narrow channel ships parsing and lock navigation.

The project is an example of efficient implementation of water wave modelling and computer science from Technical University of Denmark (DTU) at FORCE Technology. It is carried out at FORCE Technology by Postdoc Ole Lindberg, in close corporation with Ph.D. Student Stefan Glimberg Lemvig, DTU Informatics, Associate Professor Allan P. Engsig-Karup, DTU Informatics, Associate Professor Harry B. Bingham, DTU Mechanical Engineering and Senior Specialist, Ph.D. Peter Schjeldahl Jensen, FORCE Technology and the marine instructor and software development staff at FORCE Technology. The strength of this diverse group is its combined knowledge and experience on ship handling, full-mission marine training, water wave and ship motion physics, mathematics, high-performance computing and software development. Together we are setting new standards for real time ocean waves, ship waves and ship-ship interaction conducted in full-mission marine simulators for the benefit of more realistic training and education of naval officers.

