

DLR e. V. Maritime Technologien und Antriebssysteme /
Schiffperformance
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Join us at the DLR Institute for Maritime Energy Systems as Student Assistant

The Department for Ship Performance of the Institute of Maritime Technologies and Propulsion Systems at German Aerospace Center (Deutsches Zentrum für Luft- und Raumfahrt – DLR) develops novel solutions for the maritime industry, thereby focusing on the assessment and optimization of the operational efficiency of maritime transport. Our interdisciplinary team is currently looking for highly motivated students with a background in C++ based programming. We are interested in employing student assistants who will work on the tasks on a long-term basis, and offer the possibility to incorporate the results into a thesis.

The Institute of Maritime Technologies and Propulsion Systems maintains and develops the in-house *Odyssa Framework*. The framework enables the comprehensive analysis and optimization of modern ship designs and propulsion systems, taking into account operational profiles with regard to energy efficiency, environmental conditions and specific transport requirements. The modular approach of the framework enables the identification of optimal, tailored solutions for the overall ship system and thus makes an important contribution to shaping the future of the maritime industry. Thanks to its holistic and flexible approach, Odyssa is highly versatile. On the one hand, it answers fundamental questions about the ship's resistance, required power or fuel and battery capacities and, on the other hand, addresses complex problems such as route optimization, economic and/or ecological system optimization and the provision of decision support systems.

To address problems such as route optimization, a multitude of calculations are required. In order to perform these within reasonable computation times, parts of the framework are currently being transitioned to C++. Current activities are mainly directed at models for the assessment of aero- and hydrodynamics for the overall ship system. These include models for ship calm water and wave resistance, sails, propellers and many other components. Your work will include converting existing models to C++, developing additional models as well as applying the framework to address challenging and exciting research questions. If you are interested to join the DLR or have any further questions, please feel free to contact Marco Klein to discuss further details and next steps.