Artur K. Lidtke

Summary

Self-motivated engineer with background in scientific software development, underwater vehicle design, experimental and numerical fluid dynamics, and applied R&D. Keen on applying knowledge to practical engineering problems, characterised by a can-do attitude and commitment to his work.

Personal information

Not available in the online version
Not available in the online version

Work and professional experience

Employment

Sep 2018 - Present — Researcher in Computational Fluid Dynamics RnD Group
Maritime Research Institute Netherlands (MARIN), Wageningen, The Netherlands

- Development of new and improvement of existing functionality of the in-house computational fluid dynamic code, ReFRESCO (Fortran 95 & 03), and associated autmated test framework.
- Management of on-going research projects, identification of new opportunities and external funding.
- Superivision of PhD- and MSc-level students.
- Detailed validation of developed models and implementation of automated test suites.
- Data analysis and automation (Python, bash).

Jan 2016 - Aug 2018 — Research Fellow in Maritime Robotics - EU BRIDGES consortium
Fluid Structure Interaction Group, University of Southampton, United Kingdom

- Undertook hydrodynamic and mechanical design of two autonomous underwater gliders.
- Used computational and experimental fluid dynamic analysis for performance evaluation of underwater vehicle hulls, rudders and thrusters.
- Led the hydrodynamic design work package liaising with industrial and academic partners to establish project timelines and prioritise design activities on system and sub-system level.
- Designed, built, tested and used wind tunnel dynamometry systems for precision measurements.
- Wrote software for propeller design, AUV mission simulation, data analysis (Python).

Oct 2013 - Jun 2017 — Doctoral Researcher in Marine Hydrodynamics
Fluid Structure Interaction Group, University of Southampton, United Kingdom

- Carried out development of acoustic tools (Ffowcs Williams-Hawkings analogy) and numerical models for cavitation prediction inside the OpenFOAM package (C++).
- Applied both methodologies to study the hydroacoustics of marine propellers and hydrofoils.
- Developed data analysis and CFD automation tools (Python and C++).

Consultancy and short-term projects

Nov 2018 - Apr 2019 — Part time consultant on AUV propulsion (self employed)

- Established project plan and priorities within customer budget.
- Performed design analysis of ducted propulsion systems of two small AUV's.
- Proposed alternative designs to improve propulsion and help the vehicles meet target speeds.

Apr 2015 — Consultancy work for Longitude Engineering, Southampton

- Liaised with the client to come up with software requirements specification.
- Developed a bespoke numerical model in Simulink to describe manned submersible dynamics.
- Used the model to perform controllability analysis and suggested improvements to the design.

Internships

Jun - Sep 2013 — Summer Intern at CJR Propulsion Limited
72 Quayside Road, SO18 1AD, Southampton, UK

- Developed CFD simulations and data analysis scripts for ship flow applications.
- Engaged in mechanical design and gained experience in manufacturing (3D printing, casting, CNC).
- Carried out sea trials of a motor yacht to assess noise and vibration of its propeller.

Jun - Aug 2012 — Research Intern at University of Southampton
Fluid Structure Interaction Group, University of Southampton, United Kingdom

- Performed a technological, economic, and regulatory feasibility study looking at suitability of small modular nuclear reactors (SMRs) for propulsion of commercial ships.
- Developed bespoke techno-economic evaluation tools (C++ and Matlab).

Key skills

Areas of specialisation and professional experience

- Expertise in development of scientific and engineering software for a wide variety of applications using multiple programming languages and operating systems with specialisation in Python & C++ on Linux.
- Deep understanding of marine hydrodynamics, with particular emphasis on performance prediction, hydroacoustics and ship wake flows obtained during PhD, employment, and part-time projects.

Job-related skills

- Problem solving skills in areas such as applied mathematics and physical system modelling derived from multiple projects centred around development of new models and methodologies.
- Outstanding learning skills and ability to quickly adapt and cope with novel problems.
- Rich numerical modelling background with strong focus on marine CFD, particularly multiphase flows, turbulence and acoustics.
- Exposure to fundamentals of Oceanography during work on autonomous underwater vehicles for scientific applications.

IT skills

- Rich background in data analytics with focus on using Python in order to assimilate various streams of data to inform decisions and support quantitative scientific conclusions.
- Proficient programming skills in Python, C/C++ and Fortran; rudimentary experience in MatLab.
- Experience of software development for Windows and Linux operating systems.
- Ability to carry out test-driven development of complex and constantly evolving software.
- Version control using git and SVN for individual and collaborative software projects.

Communication skills

- Effective written and oral communication developed through writing of journal articles, project reports, and attendance of conferences.
- Experience in conveying own knowledge through undergraduate teaching, guidance of students. through individual and group projects, supporting fellow researchers in using OpenFOAM CFD package.

Organisation and managerial skills

- Decision making and project management skills developed during tackling several parallel commitments with strict deadlines and commercial implications thereof.
- Ability to cooperate with and manage people developed during participating in several group projects, supervising intern and undergraduate project students, and acting as a sailing instructor.

Education

Oct 2013 - Jun 2017	PhD in Marine Hydrodynamics Fluid Structure Interaction Group, University of Southampton, United Kingdom
Oct 2009 - Jun 2013	MEng (Hons) Ship Science – Yacht & Small Craft, 1^{st} class University of Southampton, Southampton, United Kingdom

- Naval architecture course with selected modules focused on marine craft hydrodynamic design.
- BEng project looked at implementing fuzzy-adaptive genetic algorithms to aid in the selection of optimum yacht characteristics at the initial design stage (Matlab).
- MEng group project focused on the development of a real-time dynamic model of an America's Cup catamaran to be used for crew training (Simulink).

Relevant extracurricular experience

Oct 2014 - Jun 2015	Member of University of Southampton's team working on Global Marine Technology Trends (GMTT) 2030 report in collaboration with Lloyd's Register and QinetiQ
Nov 2013	Co-organiser and demonstrator at OpenFOAM workshop at Woods Hole Oceanographic Institution (WHOI)
Oct 2013 - Present	Supporting OpenFOAM knowledge-base of the research group through local workshops and individual engagement with fellow students and researchers
Oct 2013 - Sep 2018	Teaching and lab demonstrator at undergraduate modules - Ship Resistance and Propulsion, Renewable Energy from Environmental Flows, Offshore Engineering
Jun - Sept 2011	Voluntary deckhand and sailing instructor aboard sails training ship Fryderyk Chopin

Languages spoken

English - Professional (C2), Polish - Native, Dutch - Fair (B2) German - Basic (A1),

Other qualifications and relevant information

ISSA Leisure Yacht Skipper, RYA VHF radio operator, RYA First Aid Course, Padi Advanced Open Water Diver