

Open Industrial MSc Projects at IMM, DTU



Introduction

Sonardyne is a privately owned company based in Yately, Hampshire, UK - approx. 50 km west of London. Sonardyne has 200 employees with local offices in Singapore, Houston (Texas, US), Brazil, Norway. Sonardyne has a history of success in providing trusted solutions for subsea acoustic positioning, navigation and communications. Applications for our technology are found within the offshore oil and gas exploration, construction, drilling and oceanographic industries.

We have built a world class team of experts that are allowing us to develop new hybrid inertial based navigation system products for use e.g. in Autonomous Underwater Vehicles (AUV's) and other advanced marine applications.

www.sonardyne.com



IMM, DTU and Sonardyne Int. are co-operating on advanced navigation system technology and algorithms. A range of M.Sc.-projects are being offered for DTU students. Suitable background (one or more):

- Applied Mathematics
- Statistics
- GPS/INS, Kalman filtering
- Programming: Matlab, DSP embedded (C/C++), Windows.

Work is carried out primarily at IMM-DTU. There are possibilities for co-operation with Universities in UK and New Zealand, HQ London and to make use of our sea trials facility in Plymouth. Employment (part-time) and equipment funding may be offered.

Technical Background

Offshore search for Oil & Gas resources is taking place in ever deeper waters with challenging requirements for navigation and positioning. Traditional acoustic based positioning techniques have limitations and new solutions are being pursued: Optimal Sensor Fusion e.g. Aided (hybrid) Inertial Navigation System (AINS) technology known from Aerospace. Using error state Kalman filter techniques, AINS combines self-contained

inertial navigation with external sensors such as GPS. The optimal combination of multi-sensor information and the complexities of the marine underwater domain hold a plethora of possibilities for applied mathematics and statistics.

Open Projects

Modelling and Characterization of an Inertial Measurement Unit.

Application of Optimal Kalman-Smoothing to Integrated Navigation Systems.

New Methods in Kalman Filtering: Application to GPS/INS Aided Inertial Navigation Systems.

Multi-antenna GPS/INS Integrated Navigation Systems.

Novel Low-Cost Inertial Attitude & Heading Reference System.

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