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WEBINAR TALK

UNDERWATER LOCALIZATION: IMPORTANCE AND TECHNICAL CHALLENGES

ORGANISED BY:
MARINE ENGINEERING &
NAVAL ARCHITECTURE TECHNICAL DIVISION

BEM APPROVED CPD: 2
REF NO: IEM24/HQ/353/T (w)



28 SEPTEMBER 2024,
SATURDAY



11.30AM - 1.30PM



SPEAKER:

Ir. Ts. Prof MOHD RIZAL BIN ARSHAD FASc.

REGISTRATION FEE

IEM STUDENT : FOC
IEM MEMBERS: RM15
NON IEM MEMBERS: RM70

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SYNOPSIS

Objectives:

- Emphasize the Importance of Accurate Underwater Localization:
 - Highlight how precise underwater location data is crucial for the effective functioning of submersibles, ROVs, and AUVs, supporting navigation, exploration, and data collection underwater.
- Examine Technical Challenges in Underwater Localization:
 - Investigate and explain the specific technical difficulties involved in underwater localization, such as signal problems, acoustic interference, and variations in the underwater environment.
- Explore New Solutions and Technologies:
 - Discuss the latest solutions and technologies designed to overcome the challenges of underwater localization. Showcase advancements in signal processing, sensors, and data fusion methods that improve accuracy in underwater positioning systems.

Abstract:

The talk, "Underwater Localization: Importance and Technical Challenges," will discuss the critical landscape of underwater localization or positioning systems. Focused on the pivotal role of accurate localization in underwater exploration, this talk will underscore the significance of precise location data for submersibles, remotely operated vehicles (ROVs), and autonomous underwater vehicles (AUVs). We will also discuss the inherent complexities of underwater environments, exploring the technical challenges associated with signal propagation, acoustic interference, and environmental variations. Addressing the limitations of conventional terrestrial localization methods, the talk explores innovative solutions and emerging technologies designed to enhance underwater positioning accuracy. Attendees will gain valuable insights into the pressing need for reliable underwater localization and the ongoing efforts to overcome technical hurdles, fostering a deeper appreciation for the advancements driving this critical aspect of underwater exploration.

SPEAKER'S PROFILE

Mohd Rizal Arshad is a professor at the School of Electrical and Electronic Engineering at Universiti Sains Malaysia, where he specializes in ocean robotics technology. He received his B.Eng. in Medical Electronics and Instrumentation from the University of Liverpool in 1994, and his MSc. in Electronic Control Engineering from the University of Salford in 1995. He earned his PhD in Electronic Engineering in 1999 with a specialization in underwater imaging using diffused laser source. Prof Rizal has supervised many postgraduate students and has published extensively in local and international publications. He is a professional engineer with the Board of Engineer Malaysia and a professional technologist with the Malaysian Board of Technologist. He is also a Chartered Marine Engineer (C.MarEng) with the Institute of Marine Engineering, Science and Technology, a senior member of the IEEE, and a Chartered Engineer (C.Eng) with the Engineering Council in the UK. He is recognized as a pioneer in underwater system technology and robotics research in Malaysia.

