University Defence Research Collaboration

Signal Processing in the Information Age

Agenda, UDRC Themed Meeting on Signal Processing in the Underwater Environment

As part of the UDRC phase III, a themed meeting on Signal Processing in the Underwater Environment will be held on Thursday March 25th. This will be a virtual event. This event is intended for academic researchers, industrial partners and Dstl staff to learn about and discuss current trends in Signal Processing in the Underwater Environment. The program will consists of a series of talks from academia and defence industry.

Timings: Thursday March 25th 2021, Start 9:00am until 4:45pm (UK Time, GMT)

Location: Ms Teams Join meeting here

Organizer: Prof. Jason Ralph, University of Liverpool jfralph@liverpool.ac.uk)

Timing	Topic	Name
9:00 – 10:20	**Session 1 Underwater Signal Processing**	**Chair TBC**
9:00 – 9:05	Introductions and welcome	Jason Ralph/Simon Maskell, University of Liverpool
9:05 – 9:30	Signal processing challenges in the Underwater Environment	Andrew Flinn/Ian Colley, MoD
9:30 – 9:55	An overview of signal and data processing for active and passive sonar at CMRE	Pietro Stinco, Centre for Maritime Research and Experimentation (CMRE)
9:55 – 10:20	Modelling of acoustic wave propagation in realistic ocean environment	Sourav Sahoo, National Oceanography Centre (NOC)
10:20 – 10:35	Break	
10:35 – 12:15	**Session 2 Tracking and Monitoring**	**Chair TBC**
10:35 – 11:00	Tracking in a cluttered environment and shallow water	Catherine Smith/Garry Wood, Dstl
11:00 – 11:25	Poisson multi-Bernoulli mixture filters for multi-target tracking using sonars	Angel Garcia-Fernandez, University of Liverpool
11:25 – 11:50	Passive acoustics – Source identification and tracking	Philippe Blondel/Alan Hunter, Bath University
11:50 – 12:15	Acoustic detection networks	Jeff Neasham, Newcastle University
12:15 – 13:00	Lunch Break	
13:00 – 14:15	**Session 3 Industry Concerns**	**Chair Matthew Palmer**
13:00 -13:25	Magic Carpets: Overcoming the challenges of live sonar trials onboard an uncrewed vessel	Tina Haggett/Lisa Symes, Atlas Elektronik
13:25 – 13:50	Data to Decision' – Delivering Exploitable Capability from Advanced Processing in Complex Sonar Systems	Andy Marlor, Thales
13:50 – 14:15	Adaptive Seabed Characterization With Hierarchical Bayesian Modeling of SAS Imagery to Assist Sonar ATR	Scott Brandes, BAE Systems
14:15 – 14:30	Break	
14:30 – 16:35	**Session 4 Autonomy and Situational Awareness**	**Chair Simon Maskell**
14:30 – 14:55	Underwater robot perception and autonomy: From image enhancement to autonomous navigation / Underwater mapping and navigation using high resolution acoustic imaging	Sen Wang/Yvan Petillot, Heriot-Watt University
14:55 – 15:20	Self-Interference Cancellation for Full-Duplex Underwater Acoustic Systems	Lu Shen, University of York
15:20 – 15:45	Estimation of Source-Sensor Responses from Sensor Second Order Statistics	Stephan Weiss, University of Strathclyde
15:45 – 16:10	A multi-frame resolution enhancement framework for multi-beam sonar systems	James Hopgood, University of Edinburgh
16:10 – 16:35	Emerging undersea signal processing challenges for future Navy systems	Mike Vaccaro, Office of Naval Research (ONR)
16:35 – 16:45	Closing remarks	Jason Ralph/Simon Maskell, University of Liverpool