

Evening Technical Meeting: Surveying Subsea with the Latest Technologies

Report on SUT Perth Branch Evening Technical Meeting
Wednesday 13th February 2019

By Paul Farquharson, Perth Branch Committee Member



The February 2019 SUT technical evening at the Parmelia Hilton was opened by SUT Perth Branch Chairman, Rex Hubbard and chaired by SUT Committee Member, Paul Farquharson.

The event was kindly sponsored by the evening's presenters; Cathx Ocean, 3D at Depth and BlueZone Group.

The first presentation was provided by Darren Burrowes, CTO, Bluezone Group and directed around the topic of "Maritime Robotics for Defence"

The Australian Defence Force has always sought to maintain a "technology-edge" in capability and with that in mind maritime robotics is the fast-growing area where Defence can find their edge. By building experience now they can design for the future using trends and drivers for Submarine and unmanned autonomous systems. An overview of the current capability for minehunters, telemetry buoys and sonar wave gliders which allow autonomous defence and data collection. The final part of the presentation was focused on forecasting and future innovations, this includes collaboration with industry and academia, with development from marinization and hydrographic surveying to River Gauging and Surveillance. For autonomous vehicles, small is beautiful with the target for smarter weapons, smarter training and train as you fight.

For more specific details please refer to the pdf presentation.

Our second presentation was by Adrian Boyle, CEO, Cathx Group and focused on "Spatially Co-registered Laser and Image data: Precision, Efficiency and Data Outputs for Robust Automation and Machine Vision"

This presentation delivered the latest developments in precision laser and image-based point cloud data capabilities for inspection of pipelines, structures and for resident or remote vehicle automation. During the overview the main the emphasis focused on how Cathx's vision is to conduct machine based vision systems to deliver automated survey faster but with critical high resolution imagery. This is done with rapid and robust data collection methods and considerations for today's processing and for compliance with automation. 3D laser mapping work performed in Australia and the North Sea showed the robust automation of geometric anomaly detection such as freespan and on-circularity in pipeline inspection as well as structural assessments.

For more specific details please refer to the pdf presentation.

The final presentation of the evening was by Neil Manning, COO, 3D at Depth and detailed on "Using a Subsea LiDAR Generated As-Built Digital Twin to Assess Differential Movement"

The lidar applications are used for many different applications ranging from metrology & structural integrity measurements, vibration mode effect displacement and subsea infrastructure & subsidence measurement.

3D at Depth's new SL3 optical design now enables the accuracies and repeatability at up to 4000m water depth, previously only found with industrial grade terrestrial LiDAR laser scanners which can achieve accuracies of 2-3mm. Subsea LiDAR Laser Scanning creates three dimensional 1:1 copies or "digital twins" of existing subsea drill centres, jackets and interconnecting infrastructure. The true value of this capability is realised over time as differential movements in structures and stresses on jumpers or spools can be accurately quantified and appropriate, timely remedial action planned without the need to shut in and remove the jumper to fit tooling from legacy methods.

For more specific details please refer to the pdf presentation.

After each presentation, there were questions from the floor and allowed each presenter to provide some detailed insights into certain aspects of their pitches. The presentations and whole evening were extremely well received by the 117 attendees.

Thank you to the SUT members, new members and guests for their attendance during the evening, especially to the three presenters that volunteered their time to speak at the event.

I would like to conclude by again thanking our ETM sponsors, Cathx Ocean, 3D at Depth and BlueZone Group. Events like these cannot be realised without key sponsorship and support.