



## **Technology Committee – Webinar Series**

**TITLE: Introduction to machine learning in acoustics: theory and applications**

Presented by : Dr Michael Bianco, Assistant Project Scientist, Marine Physical Laboratory, University of California San Diego (UCSD), La Jolla, CA, USA.

Organised by : Technology Committee, Data Analytics, Integration and Modelling

Chair: Dr Gopu R. Potty, Assoc. Research Professor, Department of Ocean Engineering, University of Rhode Island

Meeting Link: <https://msteams.link/OSWI>. The full link is also given at the bottom of this page



Date and Time : 18 Mar 2021, 7pm PT (19 Mar 2021, 10am SGT)

**ABSTRACT:** Acoustic data provide scientific and engineering insights in fields ranging from biology and communications to ocean and Earth science. This talk provides a survey of the recent advances and transformative potential of machine learning (ML), including deep learning, in the field of acoustics. We first provide an overview of ML theory, then discuss several applications in acoustics, including source localization and geophysical inverse problems. With large volumes of training data, ML can discover models describing complex acoustic phenomena such as human speech and reverberation. ML in acoustics is rapidly developing with compelling results and significant future promise.

Full Meeting Link:

[https://teams.microsoft.com/l/meetup-join/19%3ameeting\\_MiQzNDE0YTctYmUwOS00YzM1LWJiNmItMTkzNmQ5NWY1Yzhk%40thread.v2/0?context=%7b%22Tid%22%3a%22121705d3-7a2d-47b7-a4a6-c42e03144c2d%22%2c%22Oid%22%3a%22140f2534-7ef5-45fe-9a0f-939689eff816%22%7d](https://teams.microsoft.com/l/meetup-join/19%3ameeting_MiQzNDE0YTctYmUwOS00YzM1LWJiNmItMTkzNmQ5NWY1Yzhk%40thread.v2/0?context=%7b%22Tid%22%3a%22121705d3-7a2d-47b7-a4a6-c42e03144c2d%22%2c%22Oid%22%3a%22140f2534-7ef5-45fe-9a0f-939689eff816%22%7d)



**About the Speaker:** Dr Michael Bianco is an Assistant Project Scientist with the Marine Physical Laboratory, University of California San Diego (UCSD), La Jolla, CA, USA. Mike received his Ph.D. degree in Applied Ocean Science from UCSD in 2018 with a thesis focus on machine learning in geophysical inverse problems. Prior to his Ph.D., Mike obtained the B.Sc. degree in Aeronautical and Astronautical Engineering from the Purdue University College of Engineering, West Lafayette, IN, USA, in 2007 and the M.Sc. degree in Oceanography from UCSD in 2015. From 2008–2012, he was an Engineer with Rocketdyne in Los Angeles, CA. His research interests

include signal processing and machine learning theory in acoustics and geophysical inverse problems. Mike is a member of the IEEE Signal Processing Society.