SEMINAR ANNOUNCEMENT

DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING
Faculty of Engineering
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Area: Signal Processing & New Media

Host: Assoc Prof Mandar Anil Chitre

TOPIC	**:**	**Application Of Scientific Machine Learning To Underwater Acoustics**
SPEAKER	**:**	**Ms Li Kexin** **Graduate Student, ECE Dept, NUS**
DATE	**:**	**Tuesday, 20 April 2021**
TIME	**:**	**10.00AM to 10.30AM**
WEBINAR	**:**	**Join Zoom Meeting** **https://nus-sg.zoom.us/j/89818263564?pwd=TENoRm1KdjVnRUJIRThwSW5pVlR2UT09** **Meeting ID: 898 1826 3564** **Password: 464168**

ABSTRACT

Scientific Machine Learning (SciML) is an emerging technique which embeds scientific domain knowledge in data-driven machine learning. SciML allows machine learning algorithms learn from very little data, or from noisy data, by using scientific domain knowledge to guide the learning. SciML also enables model discovery, by employing machine learning to fill in gaps in scientific knowledge. It also brings interpretability to trained model parameters. In an ocean environment, acoustic signals are widely used as electromagnetic waves experience severe attenuation in water. Most oceanic engineering applications therefore heavily rely on acoustics. Although researchers in oceanic engineering have successfully used conventional machine learning approaches to solve various underwater problems, they are severely limited by the availability of high quality data as the ocean environment tends to be noisy and expensive to operate in. SciML techniques could help alleviate this problem, as machine learning with SciML needs much lesser data than conventional machine learning. In this presentation, we will explain the basic concepts of SciML and demonstrate the use of SciML in a specific underwater application to model underwater acoustic signal propagation behavior in an ocean environment.

BIOGRAPHY

Li Kexin received her B.Eng. Degree in Electrical Engineering from National University of Singapore in 2018. She is currently a Ph.D student with the Department of Electrical and Computer Engineering. Her current research interest lies in the field of underwater acoustic source localization.