

# TECHNICAL TALK ON

# THE INFLUENCE OF ARTIFICIAL NEURAL NETWORKS THRU ADVANCE LEARNING ALGORITHMS ON FUTURE GEOTECHNICAL ENGINEERING APPLICATIONS

**SPEAKER:**  
**MR. BARRY KOK**



**18 JAN 2024,  
THURSDAY**



**5.30 PM - 7.30 PM**



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# SYNOPSIS

Artificial neural networks (ANNs) are a form of artificial intelligence that can learn from data and model complex patterns. ANNs have been successfully applied to many geotechnical engineering problems, such as soil classification, slope stability, foundation design, and more. ANNs can also handle the variability and uncertainty of geotechnical materials better than traditional methods. One of the popular and recent advances in ANNs is deep learning algorithms. These algorithms can process large amounts of data, extract features, and generate outputs with high accuracy and efficiency. Some examples of deep learning applications in geotechnical engineering are landslide prediction, soil image analysis, and synthetic data generation.

The future of geotechnical engineering will likely benefit from the integration of ANNs with other technologies, such as sensors, cloud computing, and big data analytics. This will enable more data-driven and intelligent solutions for geotechnical problems and challenges. This topic will explore the influence of ANNs, AI, machine learning & deep learning thru a complete ecosystem of in future geotechnical engineering applications.

## SPEAKER'S PROFILE

Mr. Barry is a Fellow Chartered Professional Geotechnical Engineer with more than 24 years of experience. Graduated in Bachelor of Civil Engineering (Hons), from University Putra Malaysia and also obtained the Master of Science in Civil Engineering (Geotechnical), Feng Chia University Taiwan, he is highly skilled in design review and identifying ways to optimize initial design concepts during tender and construction stages. He has provided innovative and “fit-for-purpose” design solutions and has been responsible for the geotechnical aspects of several major transport infrastructure projects in Australia and internationally. His key projects include the Pacific Highway Upgrade - Varsity Lake to Tugun (QLD, Australia), New England Highway Upgrade - Bolivia Hill (NSW, Australia), Taiwan High Speed Rail (Taiwan ROC), and Putrajaya Highway (Kuala Lumpur, Malaysia). Barry is one of the pioneers championing the application of reliability-based geotechnical design for soft soils engineering internationally, driven by risk assessment, CAPEX and OPEX analysis. Since 2021, Barry has been actively engaged with University Griffith as Industry Fellow and Lead Partner Investigator for multiple federal level grants such as Australian Research Council (ARC) and Innovative Manufacturing CMC. The research is mainly focused on the impact of artificial intelligence and simulation neural networks on soft soils engineering. His main role is to mentor the R&D team prototyping industry solutions throughout the proof-of-concept processes and field applications.