# INVITED SESSION SUMMARY

**Title of Session:**

Machine Learning for Remote Sensing Data Processing

**Name, Title and Affiliation of Chair:**

Chair:
**Dr. Rohitash Chandra**
UNSW Data Science Hub & School of Mathematics and Statistics, University of New South Wales, Sydney, NSW 2052, Australia
Data Analytics for Resources and Environments, Australian Research Council—Industrial Transformation Training Centre, Canberra, NSW 2052, Australia

Co-Chair:
**Dr. Ehsan Farahbakhsh**
EarthByte Group, School of Geosciences, University of Sydney, Sydney, NSW 2006, Australia

**Details of Session (including aim and scope):**
Remote sensing has played a crucial role in resource assessment and environmental monitoring since the 1990s by providing a variety of datasets. It has always been challenging to process remote sensing data for mapping features of interest due to computational complexities mainly caused by noise and sparse information. However, there has been good progress in developing machine learning methods to facilitate processing and interpreting remote sensing data since the last decade. Machine learning methods can help process a wide range of remote sensing data and determine the relationship between components such as the reflectance continuum and target features. These methods are robust in processing spectral and ground truth measurements against noise and uncertainties. Machine learning provides methods to jointly learn from raw input data, a series of features tailored for the task, as well as the optimum parameter values for the underlying classifier. It enables critical automated decision-making for remote sensing data despite the common limitations of this kind of data. Machine learning methods, as well as deep learning, have proven to be efficient for a variety of tasks, particularly mapping geological features. This session will be focused on the challenges and recent advancements of machine learning in remote sensing, particularly its applications in resource assessment and environmental monitoring. We are particularly interested in studies that feature remote sensing and machine learning synergy with mineral potential mapping and environmental management applications. We aim to highlight new machine learning solutions for remote sensing data processing tasks and problems. Submissions are encouraged from a broad range of related topics, such as mineral exploration, alteration mapping, lithological mapping, mine tailings, acid mine drainage, erosion, soil and water contamination, and air pollution.

**Main Contributing Researchers / Research Centres (tentative, if known at this stage):**

https://www.darecentre.org.au
https://www.earthbyte.org

**Website URL of Call for Papers (if any):**

http://kes2022.kesinternational.org/cmsISdisplay.php

**Email & Contact Details:**

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