
W1: *Artificial Intelligence for Autonomous Systems in the Mining and Metallurgy Industries*

Dr. Antonio Moran Cárdenas

Artificial Intelligence approaches are increasingly being used in mining, metallurgy, and geology to automate tasks, optimize processes, and improve decision-making. They can be used for a variety of applications, including mining operations and exploration, process optimization, and predicting geological hazards.

This workshop presents the fundamentals of dynamic neural networks, fuzzy-neural networks, and deep learning, as well as their applications to the design of autonomous systems and operations common in the mining industry.

This workshop has two parts:

- Part 1 focus on the methods for the deep learning of dynamic neural networks and fuzzy-neural networks.
- Part 2 focus on the applications for the modeling, control and estimation of dynamical autonomous systems and operations in the mining and metallurgy industries.

Dr. Antonio Moran Cardenas

Doctor in Mechanical Systems Engineering, Tokyo, Japan, with more than 30 years developing solutions based on computational intelligence for diverse applications in industry, economics, and education. He has published in several renowned journals and conferences, and one of his coauthored papers received the Best Paper Award at an IEEE-USA Conference in 2018. Dr. Antonio Moran is also chairman of the APEC Engineer Peru Committee, an ABET international evaluator, and was president of the Robotic and Automation Society of IEEE-RAS, Peru Section (Best Society Award in 2014).
