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Keynote Speakers

1. Professor Dr Ah-Hwee Tan

Professor of Computer Science | Associate Chair (Research) | School of Computer Science and Engineering | Nanyang Technological University - Singapore

Title: Biologically-inspired Machine Learning Theory for Knowledge Discovery

Abstract:

Machine learning and knowledge discovery are two critical intertwined functions in next generation intelligent information systems. This talk will present a family of self-organizing neural networks, collectively known as fusion Adaptive Resonance Theory (fusion ART), for building intelligent knowledge-based systems with real-time learning capabilities. By extending the Adaptive Resonance Theory (ART) models, consisting of a single input pattern field, into a multi-channel architecture, fusion ART unifies a number of important neural network designs developed over the past decades. Based on a universal set of neural encoding and adaptation principles, fusion AT supports a myriad of machine learning paradigms, notably unsupervised learning, supervised learning, and reinforcement learning. In addition, domain knowledge in the form of symbolic rules can be inserted into fusion ART and subsequently refined as part of the network's dynamics, which maximizes exploitation of the existing knowledge while retaining the plasticity of exploring new solutions. Case studies will be presented, illustrating how such self-adaptive intelligent systems may be used as autonomous Non-Player Characters (NPC) in first-person shooting games, Computer Generated Forces (CGF) in air combat simulation, and human-like avatars in 3D virtual environment.

Biography:

Dr Ah-Hwee Tan received Ph.D. in Cognitive and Neural Systems from Boston University, Master of Science and Bachelor of Science (First Class Honors) in Computer and Information Science from the National University of Singapore. He is currently a Professor of Computer Science and the Associate Chair (Research) at the School of Computer Science and Engineering (SCE), Nanyang Technological University. Prior to joining NTU, he was a Research Manager at the A*STAR Institute for Infocomm Research (I2R), heading the Text Mining and Intelligent Agents research programmes. His current research interests include cognitive and neural systems, brain-inspired intelligent agents, machine learning, and text mining. Dr. Tan has published ten edited books/proceeding volumes and over 200 technical papers in major international journals and conferences of his fields. He holds two US patents, five Singapore patents, and has spearheaded several A*STAR projects in commercializing a suite of knowledge management and text mining software. He serves as Associate Editor/Editorial Board Member of several journals, including IEEE Access, IEEE Transactions on Neural Networks and Learning, and IEEE Transactions on SMC Systems. He is a Senior Member of IEEE, a Member of Web Intelligence (WI) Technical Committee and Web Intelligence (WI) Conference Steering Committee, and Vice Chair of IEEE CIS Task Force on Towards Human-Like Intelligence.

2. Professor Dr. Ida Ayu Dwi Giriantari

Title: The role of Geothermal Energy in Indonesia

Abstract: Geothermal energy is heat energy generated and stored in the Earth. Thermal energy is the energy that determines the temperature of matter. The geothermal energy of the Earth's crust originates from the original formation of the planet and from radioactive decay of materials (in currently uncertain but possibly roughly equal proportions). The geothermal gradient, which is the difference in temperature between the core of the planet and its surface, drives a continuous conduction of thermal energy in the form of heat from the core to the surface.
In the 20th century, demand for electricity led to the consideration of geothermal power as a generating source. Indonesia Power Electricity tested the first geothermal power generator on 4 July 1978, at the same dry steam field where geothermal acid extraction began. It successfully lit four light bulbs. Later, in 1990, the Indonesia's first commercial geothermal power plant was built.

Short Bio:
Ida Ayu Dwi Giriantari is Professor in Electrical Engineering Udayana University. She hold PhD from The University of New South Wales in 2003. Her research areas are in Power Plant, Renewable Energy and Power Transformers.
She is Head of Magister Program of Electrical Engineering, Udayana University.