

Distinguished Seminar Series on Data Science & Artificial Intelligence

Advances in Collaborative Neurodynamic Optimization

Prof. Jun Wang

Chair Professor
Chair Professor of Computational Intelligence
Department of Computer Science
School of Data Science
City University of Hong Kong
Hong Kong



18 January 2022 (Tue)

14:30 - 15:30 (HKT, UTC+8)

Online via Zoom

English

Please register at <https://polyu.hk/iwa0W>
or scan the QR code



All are welcome!

Abstract

The past three decades witnessed the birth and growth of neurodynamic optimization which has emerged as a potentially powerful problem-solving tool for constrained optimization due to its inherent nature of biological plausibility and parallel and distributed information processing. Despite the success, almost all existing neurodynamic approaches work well only for optimization problems with generalized convex functions. Effective neurodynamic approaches to optimization problems with nonconvex functions and discrete variables are rarely available. In this talk, collaborative neurodynamic optimization approaches will be presented. In the collaborative neurodynamic optimization framework, multiple neurodynamic optimization models with diversified initial states are employed for scatter local search in parallel and a meta-heuristic rule (such as PSO) is used to reposition neuronal states upon their local convergence to escape local minima and move toward global optimal solutions. The efficacy of the proposed approaches will be substantiated with experimental results for, nonnegative matrix factorization, supervised learning, vehicle-task assignment, and portfolio selection, etc.

About the Speaker

Jun Wang is the Chair Professor Computational Intelligence in the Department of Computer Science and School of Data Science at City University of Hong Kong. Prior to this position, he held various academic positions at Dalian University of Technology, Case Western Reserve University, University of North Dakota, and the Chinese University of Hong Kong. He also held various short-term visiting positions at USAF Armstrong Laboratory, RIKEN Brain Science Institute, and Shanghai Jiao Tong University. He received a B.S. degree in electrical engineering and an M.S. degree from Dalian University of Technology and his Ph.D. degree from Case Western Reserve University. He was the Editor-in-Chief of the IEEE Transactions on Cybernetics. He is an IEEE Life Fellow, IAPR Fellow, and a foreign member of Academia Europaea. He is a recipient of the APNNA Outstanding Achievement Award, IEEE CIS Neural Networks Pioneer Award, and IEEE SMCS Norbert Wiener Award, among other distinctions.