

Title: Evolutionary multi-objective federated learning

Speaker: Yaochu Jin, University of Surrey

Abstract: Federated learning is a new distributed machine learning paradigm for privacy preserving. This talk starts with an introduction to privacy-preserving machine learning, including federated learning, oblivious learning and learning over encrypted data. This is followed by an overview of multi-objective machine learning and neural architecture search in deep learning. On the basis of the above discussions, we present an evolutionary multi-objective federated learning algorithms for communication-efficient federated learning. The talk is concluded with an outline of future work in federated learning.



Biography: Yaochu Jin received the B.Sc., M.Sc., and Ph.D. degrees from Zhejiang University, Hangzhou, China, in 1988, 1991, and 1996, respectively, and the Dr.-Ing. degree from Ruhr University Bochum, Germany, in 2001.

He is currently a Distinguished Chair Professor in Computational Intelligence, Department of Computer Science, University of Surrey, Guildford, U.K., where he heads the Nature Inspired Computing and Engineering Group. He was a Finland Distinguished Professor and a Changjiang Distinguished Visiting Professor, China. His main research interests include data-driven surrogate-assisted evolutionary optimization, evolutionary learning, interpretable and secure machine learning, and evolutionary developmental systems. His research has been funded by EU, EPSRC, Royal Society, NSFC, and the industry, including Honda, Airbus, and Bosch. He was elevated to IEEE Fellow for his contributions to evolutionary optimization.

Dr Jin is the Editor-in-Chief of the IEEE TRANSACTIONS ON COGNITIVE AND DEVELOPMENTAL SYSTEMS and Co-Editor-in-Chief of Complex & Intelligent Systems. He is an IEEE Distinguished Lecturer (2013-2015 and 2017-2019) and past Vice President for Technical Activities of the IEEE Computational Intelligence Society (2014-2015). He is the recipient of the 2018 IEEE Transactions on Evolutionary Computation Outstanding Paper Award, the 2015 and 2017 IEEE Computational Intelligence Magazine Outstanding Paper Award, and the Best Paper Award of the 2010 IEEE Symposium on Computational Intelligence in Bioinformatics and Computational Biology.