LECTURE (No.7)

Dr. Fuhua Lin

- **2007.10-present, Professor in Computing and Information Systems, Faculty of Science and Technology, Athabasca University**
- **2016.01-2018.6, Associate Dean of Faculty of Graduate Studies, Athabasca University**
- **2010.7-2015.12, Chair, School of Computing & Information Systems, Faculty of Science and Technology, Athabasca University**

Date: 2019.03.26

INTRODUCTION

Fuhua Lin is a professor in computing and information systems, Faculty of Science and Technology at Athabasca University, Canada. He was the Chair of School of Computing and Information Systems and the Associate Dean of Faculty of Graduate Studies of Athabasca University.

His main research interests are: intelligent systems, multiagent systems, game theory, virtual reality, machine learning, online learning technologies and online scheduling. He has published more than 100 papers in international journals, proceedings of international conferences, books, and book chapters.

Dr. Lin obtained his PhD in Virtual Reality from the Hong Kong University of Science and Technology in 1998. Prior to working in Athabasca University, Dr. Lin was a Research Officer of Institute for Information Technology of National Research Council (NRC) of Canada. Dr. Lin did post-doc research at University of Calgary during 1998-1999.

● Dr. Lin has acted as Principal and co-Principal Investigator on two NSERC Discovery Grants, two NSERC Engage grants, one Canada Foundation for Innovation (CFI) fund of Canada. He severed as the Co-Editor-In-Chief and Editor-In-Chief of International Journal of Distance Education Technologies (IJDET) during 2009-2013. Dr. Lin got Leaders Opportunity Fund Award from CFI in 2009, Craig Cunningham Mentoring and Teaching Excellence (CCMATE) Award, from Athabasca University in 2012, and two paper awards at IEEE conferences and one IEEE outstanding leadership award. Dr. Lin is a senior member of both ACM and IEEE.

Topic ：Research on multi-agent reinforcement learning

ABSTRACT

Distributed competitive decision making, as opposed to centralized planning, is emerging as the norm in networked systems which involve repeatedly making decisions in an uncertain environment.

In this keynote presentation I will present Multi-Agent Systems with Reinforcement Learning for decision-making for such systems, taking into account rationally selfish behavior of the connected agents/minds. In such environments, agents need to consider how to compete for scarce resources, trade, negotiate automatically, learn from each other, and form social organizations. In particular, I will discuss multi-armed bandit (MAB) learning algorithms. Unlike standard black-box and big-data based machine learning tools, MAB algorithms are active learning, which refers to algorithms that actively select data they should receive, and online learning, which refers to algorithms that analyze data in real-time and provide results on the fly. I will present MAB two real-world applications: Online Scheduling in Oil and Gas Industry and Vehicle Routing for Driverless Cars in Smart City.

MINUTE

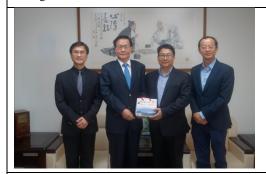| Data	Time	Schedule
3/26	10:00~12:00	Speech
3/26	12:00~14:00	Visit Carrie Chang Fine Arts Center
3/26	14:00~16:00	Visit Chairperson and President
3/26	16:00~19:00	Pressed flower
3/26	19:00	Banquet
3/27	9:00~13:00	Tamsui Cultural Tour
3/27	13:00~15:00	Forum of Artificial intelligence technology
3/27	15:00~18:00	Exchange of opinions with teachers of Education college
3/27	18:00	Dinner
3/28	10:00	Go to Feng Chia University

Forum of Artificial intelligence technology	Forum of Artificial intelligence technology

Exchange of opinions with Director Ben-Hang Chang	Exchange of opinions with teachers of Education college
Visit President	Visit Chairperson, Board of Trustees