WESTERN SYDNEY UNIVERSITY

School of Computer, Data and Mathematical Sciences

HDR Seminar 16

Program

24 March 2022

12:00pm - 12:15pm	**Briefing:** A/Prof Dongmo Zhang **Topic:** Policy update and announcements
12:15pm - 1:15pm	**Invited Speech** **Topic:** So you want to be a machine learner **Speaker:** Associate Professor Oliver Obst
1:15pm - 1:25pm	**Candidature Research Presentation** **Topic:** Smart Agricultural Futures Market: Blockchain Technology as a Trust Enabler between Smallholder Farmers and Buyers **Speaker:** Malni Kumarathunga (PhD candidate 19192143) **Supervisory panel:** Prof.Athula Ginige, Dr.Rodrigo Calheiros
1:25pm – 1:30pm	**Closing**

Venue: Online Zoom

Meeting ID: 811 8498 8775
Password: HDR

Next Event: 28 April 2022

So you want to be a machine learner

Speaker: Associate Professor Oliver Obst

Abstract:
Machine learning is a field of study that has received a lot of public attention over the last decade, in part due to some impressive results in difficult benchmarks and high-profile publications. At the same time, the number of active machine learning researchers and new publications appears to exponentially increase, so much that it seems impossible to know where to even begin, let alone catch up or contribute to the field. What do you need to do to take some first steps?
There are different reasons for why you may be interested in machine learning, in the continuum from "using machine learning to solve a problem" in a second field of interest, to the theory of machine learning, where the focus is on design and mathematical analysis of machine learning algorithms. I will give a brief overview of the different goals and flavours of machine learning, and of some of the development and opportunities in the field. At times, the increasing needs for computational resources and the competition to publish has been shown to lead to unreliable evaluations of published work, and subsequently, to overstated claims for the current state of the art. We will also look into some of the problems of comparing your own results with existing benchmarks.

Biography:
Oliver Obst is an Associate Professor in Data Science, in the Centre for Research in Mathematics at Western Sydney University. His research is in machine learning, with a focus on efficient machine learning approaches for complex intelligent systems and time series data using recurrent and deep neural networks, learning of representations, reinforcement learning, and information theory. Current projects include applied research in smart environmental monitoring and robotics, as well as HDR projects on natural language processing, human performance analytics, reinforcement learning, and active learning.

Smart Agricultural Futures Market: Blockchain Technology as a Trust Enabler between Smallholder Farmers and Buyers

Speaker: Malni Kumarathunga (PhD candidate 19192143)

Abstract:
Smallholder farmers produce over 70% of the world's food needs. Yet, the socioeconomic conditions of the smallholder farmers are substandard. One of the primary reasons for this unpropitious situation is that they generate modest income by selling their harvest due to the lack of trusted buyers and organized markets. This research explores how technology can enable the trust to reduce transaction-related risks, empowering unknown parties to transact. Blockchain technology has the potential of mitigating transaction-related risks and promoting trust with a tamper-proof history of transactions and automatic execution of smart contracts. Based on blockchain technology to promote trust, this research has discovered a novel approach for smallholder farmers to conduct exchanges by generating social capital as an individual and using that social capital as collateral for financial exchanges when establishing contracts. This approach empowers farmers to trade smart futures contracts on behalf of the expected harvest at a better rate to receive some cash in advance to be used in the cultivation process to produce a high-quality harvest that attracts better rates. It also enables them to perform aggregated marketing with enhanced market linkages that, in turn, assist in increasing margins made by the farmer.