Seat selection ×

Published on *Telsoc* (https://telsoc.org)

Differentiable Decision Trees for Warm Start Reinforcement Learning: A Case Study

Wednesday, 23rd June 2021

Free registration for TelSoc members via the EA website. (Click the Book-A-Seat button.)
Free registration for TelSoc members via the EA website.

[1]

☆ 98 [2]

Book a Seat

[3]

Decision superiority is fundamental to success in military endeavours. Artificial intelligence is increasingly relevant to achieving this decision superiority. Differentiable decision trees (DDTs), also known as propositional logic networks (ProLoNets), allow human subject matter expertise to be represented as decision trees that can be encoded as artificial neural networks, and which are amenable to deep reinforcement learning (RL) algorithms. Consequently, DDTs allow us to warm-start RL and have a high degree of explainability. In this presentation, the fundamental ideas behind DDTs will be introduced and demonstrated in the context of a Kaggle Competition based on Halite: a video game consisting of 4 competing players where the objective is to mine the most halite. Players do so by building and controlling spaceships. Whilst this toy problem is a far-cry from Defence applications, the lessons learned about building and deploying DDTs are insightful.

Please register via the Engineers Australia website (TelSoc members are entitled to free registration for this Joint Technical Program event -- click the Book-A-Seat button to be taken to the EA registration page.)

As we are rapidly approaching the end of the financial year, please remember to renew your TelSoc membership (https://telsoc.org/renew [4]). TelSoc also warmly welcomes new financial members (https://telsoc.org/membership [5]). A small annual fee helps support the activities of TelSoc in fostering Telecommunications and the Digital Economy.

Date and Time

Wed, 23 Jun 2021

17:30 - 18:30 AEST

Location

Online Event Only
Melbourne
Melbourne VIC 3000
Australia

Presenter(s)

Dr Daniel Salmond

Dr Daniel Salmond leads the Information Warfare Command and Control capability within the Cyber and Electronic Warfare Division of the Defence Science and Technology Group. He completed a PhD in Telecommunications Engineering in 2013 with the University of South Australia, and a Bachelor of Science (Physics, Physical Mathematics) with Griffith University in 2000. On any given day, he may consider himself a mathematician, physicist or engineer. He has worked in Australia and the United States on researching and developing machine intelligence algorithms for military systems. He is currently focussed on the research and development of cognitive systems for defending the integrity of the Australian information environment.

Proudly sponsored by

Engineers Australia

Source URL:https://telsoc.org/event/differentiable-decision-trees-warm-start-reinforcement-learning-case-study
Links
[1] https://www.addtoany.com/share#url=https%3A%2F%2Ftelsoc.org%2Fevent%2Fdifferentiable-decision-trees-warm-start-reinforcement-learning-case-study&title=Differentiable%20Decision%20Trees%20for%20Warm%20Start%20Reinforcement%20Learning%3A%20A%20Case%20Study [2] https://telsoc.org/printpdf/3202?rate=fIHBdwE9H2F6BhvA7IvqikGb8TZPNT4a_YFHLBrpkro [3] https://engineersaustralia.org.au/event/2021/05/differentiable-decision-trees-warm-start-reinforcement-learning-case-study-36991 [4] https://telsoc.org/renew [5] https://telsoc.org/membership