

EPSRC CDT in Distributed Algorithms

PhD Project: Reinforcement Learning for Physically-Aware Cyber Defence

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Project Description

This PhD project is trying to apply reinforcement learning algorithms in cyber defence scenarios while taking into consideration the impact it has on the real world. Currently, most decisions made in the context of cyber defence is to maximise availability of services on a network, as the assumption is this would increase the ability for the network to be used in such a way that it has some real-world effect. However, it is uncommon for the relationship between service availability and the real-world impact of decisions to be considered when decision-making is happening within cyber defence. This can mean in some cases cyber defence systems can fail to respond to situations in the way you may want them to. An example of this would be if a radar detects an imminent physical threat, a user might want the cyber defence system to be more focused on making sure critical defence systems were fully operational now, rather than whether certain services (i.e., emails) are available in the future. This project aims to tackle this problem by considering these scenarios, hopefully improving the way we can react to threats in the future.

Go to the [EPSRC CDT In Distributed Algorithms](#) website.