

Symposium

Games and security

January 25, 2019
University of Twente, Ravelijn 2503
Enschede, the Netherlands

Dear colleagues,

I would like to invite you to attend the symposium on "Games and security", followed by the public defense of my thesis "Games for the optimal deployment of security forces". Participation of the symposium is free of charge and registration is appreciated by sending an email to c.m.laan@utwente.nl. You are more than welcome to send this invitation to other people that might be interested.

I would also like to know if you are planning on attending the defense of my thesis.

Program

10:30 – 11:00 Welcome coffee and tea

11:00 - 11:30 Fok Bolderheij (Netherlands Defense Academy) - Mission driven resource management

11:30 – 12:00 Herbert Hamers (Tilburg University) - Timely exposure of a secret project: Which activities to monitor?

12:00 - 12:45 Lunch at Ravelijn Atrium

12.45 - 13:15 Mariëlle Stoelinga (University of Twente) - Quantative security analysis via attack trees.

13:15 - 13:45 Milind Tambe (University of Southern California) - AI and multiagent systems for social good

14.30 - 16.00 PhD defense - Games for the optimal deployment of security forces (Location: Building Waaier, Room 4)

Looking forward to seeing you then!

Best regards,
Corine Laan

Abstracts

AI and Multiagent Systems for Social Good - Milind Tambe

With the maturing of AI and multiagent systems research, we have a tremendous opportunity to direct these advances towards addressing complex societal problems. I will focus on the problems of

public safety and security, wildlife conservation and public health in low-resource communities, and present research advances in multiagent systems to address one key cross-cutting challenge: how to effectively deploy our limited intervention resources in these problem domains. Results from our deployments from around the world show concrete improvements over the state of the art. In pushing this research agenda, we believe AI can indeed play an important role in fighting social injustice and improving society.

Milind Tambe is Helen N. and Emmett H. Jones Professor in Engineering and Founding Co-Director of the Center for AI in Society at the University of Southern California. He is a fellow of AAAI (Association for Advancement of AI) and ACM (Association for Computing Machinery), and recipient of the IJCAI John McCarthy Award, AAAI Robert S. Engelmore Memorial Lecture Award, ACM/SIGAI Autonomous Agents Research Award, INFORMS Wagner prize, the Rist Prize of the Military Operations Research Society, the Christopher Columbus Fellowship Foundation Homeland security award, International Foundation for Agents and Multiagent Systems influential paper award, Meritorious Commendation from the US Coast Guard, LA Airport Police, and US Federal Air Marshals Service.

Timely exposure of a secret project: Which activities to monitor? - Ben Hermans, Herbert Hamers, Roel Leus, Roy Lindelauf

A defender wants to detect as quickly as possible whether some attacker is secretly conducting a project that could harm the defender. Security services, for example, need to expose a terrorist plot in time to prevent it. The attacker, in turn, schedules his activities so as to remain undiscovered as long as possible. One pressing question for the defender is: which of the project's activities to focus intelligence efforts on? We model the situation as a zero-sum game, establish that a late-start schedule defines a dominant attacker strategy, and describe a dynamic program that yields a Nash equilibrium for the zero-sum game. Through an innovative use of cooperative game theory, we measure the harm reduction thanks to each activity's intelligence effort, obtain insight into what makes intelligence effort more effective, and show how to identify opportunities for further harm reduction. We use a detailed example of a nuclear weapons development project to demonstrate how a careful trade-off between time and ease of detection can reduce the harm significantly.