

Program ROCKS 2025

Wednesday, April 2nd

(Doctoral symposium)

until 12:00	Arrival
12:00–13:30	Lunch
13:30–14:00	Welcome to ROCKS 2025
14:00–15:00	PhD speed dating
15:00–15:45	Coffee break
15:45–16:15	PhD speed dating
16:15–17:10	<i>Session chair: Jakob Piribauer</i> Thom Badings, University of Oxford (15 min) <i>Policy Verification in Stochastic Dynamical Systems Using Logarithmic Neural Certificates</i> Marnix Suilen, University of Antwerpen (15 min) <i>Pessimistic Iterative Planning for Robust POMDPs</i> Group Christel Baier, TU Dresden (15 min) <ul style="list-style-type: none">- Timm Spork – <i>Approximate Probabilistic Bisimulation for Continuous-Time Markov Chains</i> Group Jan Křetínský, Masaryk University Brno (10 min) <ul style="list-style-type: none">- Marta Grobelna – <i>Stopping Criteria for Value Iteration on Concurrent Stochastic Reachability and Safety Games</i>
from 17:30	Reception at Zwarte Doos

Thursday, April 3rd

(Workshop)

09:00–09:45	<p>Keynote Sofie Haesaert, Eindhoven University of Technology <i>Verification and Control of Stochastic Difference Equations</i></p> <p><i>Abstract:</i> In this talk I will cover some of our results on (data-driven) verification and control synthesis for linear and nonlinear (stochastic) models. I will show how approximate stochastic simulation relations can be used to reduce the complexity of the corresponding model checking problems. Additionally, we often lack exact model knowledge of the dynamics of systems that we want to control in a verifiable manner. This can be due to lack of information on the physical composition of dynamic systems and its environment or due to wear and tear of the physical system during operation. I will show how controllers for these systems can be still designed and formally verified using data-driven approaches.</p>
09:45–10:30	Coffee break
10:30–12:00	<p><i>Session chair: Marnix Suilen</i></p> <p>Group Sebastian Junges, Radboud University Nijmegen (30 min)</p> <ul style="list-style-type: none">- Loes Kruger – <i>Active Automata Learning with Reference Models</i>- Luko van der Maas – <i>Learning Verified Monitors for Hidden Markov Models</i> <p>Group Nils Jansen, Ruhr University Bochum (15 min)</p> <ul style="list-style-type: none">- Eline Bovy – <i>How Sticky is Your Model? Game Semantics for Robust POMDPs</i>- Maximilian Weininger – <i>100 Reasons Why Your Statistical Model Checking is Unsound</i> <p>Group Markus Siegle, Universität der Bundeswehr München (15 min)</p> <ul style="list-style-type: none">- Fabian Michel – <i>Formal Bounds for Transient Distributions of Markov Processes</i> <p>Group Anne Remke, Universität Münster (30 min)</p> <ul style="list-style-type: none">- Jonas Stübbe & Lisa Willemsen – <i>Powering Up Analysis: Tool Support for Battery-Powered Systems</i>
12:00–13:30	Lunch
12:45–13:30	(ROCKS Steering Committee Meeting)
13:30–15:00	<p><i>Session chair: Maximilian Weininger</i></p> <p>Group Christel Baier, TU Dresden (30 min)</p> <ul style="list-style-type: none">- Rajab Aghamov – <i>Model Checking Linear Temporal Logic with Standpoint Modalities</i>- Johannes Lehmann – <i>Probabilistic Abstraction Refinement using Witnessing Subsystems</i>

	<p>Group Jan Křetínský, Masaryk University Brno (20 min)</p> <ul style="list-style-type: none"> - Debraj Chakraborty – <i>Explainable Representation of Finite-Memory Policies for POMDPs</i> - Kush Grover – <i>Resilient Strategies for Stochastic Systems</i> <p>Group Holger Hermanns, Universität des Saarlandes (15 min)</p> <ul style="list-style-type: none"> - Nils Husung – <i>OxiDD-viz: Visualizing Decision Diagrams through OxiDDation (Part 1)</i> <p>FSA group, Eindhoven University of Technology (25 min)</p> <ul style="list-style-type: none"> - Tar van Krieken – <i>OxiDD-viz: Visualizing Decision Diagrams through OxiDDation (Part 2)</i> - Sebastián Betancourt – <i>Measuring Robustness of an AI Car with Stark</i>
15:00–15:45	Coffee break
15:45–17:30	<p><i>Session chair: Kevin Batz</i></p> <p>Group Christoph Matheja, University of Oldenburg (20 min)</p> <ul style="list-style-type: none"> - Oliver Bøving – <i>Expected Total Costs of Infinite MDPs in Lean</i> - Roberto Pettinau – <i>Towards Model Checking Infinite Families of DTMCs Generated by Graph Grammars</i> <p>Group Benjamin Kaminski, Universität des Saarlandes (20 min)</p> <ul style="list-style-type: none"> - Anran Wang – <i>Strongest Post Transformer for LTL</i> - Tobias Gürtler – <i>Combining Nondeterminism and Conditioning in Probabilistic Programming</i> <p>Group Milan Česka, Brno University of Technology (20 min)</p> <ul style="list-style-type: none"> - Milan Česka – <i>Introduction</i> - Filip Macák – <i>Policies Grow on Trees: Model Checking Families of MDPs</i> <p>Group Joost-Pieter Katoen, RWTH Aachen University (30 min)</p> <ul style="list-style-type: none"> - Daniel Zilken – <i>Fixed Point Certificates for Reachability & Expected Rewards in MDPs</i> - Emma Ahrens – <i>A Framework for Online Optimization</i> <p>Carlos E. Budde, Technical University of Denmark (15 min)</p> <p><i>Timed Rare Event Simulation for Repairable Dynamic Fault Trees</i></p>
from 19:00	Workshop dinner at Trafalgar Pub

Friday, April 4th

(Workshop)

09:00–09:45	<p><i>Session chair: Stefano Nicoletti</i></p> <p>Group Erika Abraham, RWTH Aachen University (15 min)</p> <ul style="list-style-type: none">- Lina Gerlach – <i>Efficient Probabilistic Model Checking for Relational Reachability</i> <p>Group Arnd Hartmanns, University of Twente (30 min)</p> <ul style="list-style-type: none">- Annabell Petri – <i>Formal Models for Critical Water Infrastructure in the North Sea Region: Taming Mölndalsån</i>- Mark van Wijk – <i>Multi-Objective Model Checking for Modest</i>- Bram Kohlen – <i>Fast Verified Floating-Point Computations for Probabilistic Model Checking</i>
09:45–10:30	Coffee break
10:30–12:00	<p><i>Session chair: Thom Badings</i></p> <p>Group Sebastian Junges, Radboud University Nijmegen (15 min)</p> <ul style="list-style-type: none">- Linus Heck – <i>Generalized Parameter Lifting for Parametric Markov Chains</i> <p>Group Nils Jansen, Ruhr University Bochum (30 min)</p> <ul style="list-style-type: none">- Maris Galesloot – <i>Robust Finite-Memory Policies for Hidden-Model POMDPs</i>- Merlijn Krale – <i>Tighter Value-Function Approximations for POMDPs</i>- Joshua Wendland – <i>Missingness in POMDPs</i>- Miriam Ackermann – <i>Uncertainty-Aware Perception POMDPs</i>- Jule Schmidt – <i>Causal and Safe Reinforcement Learning</i>- Matéo Torrents – <i>Resilient Strategies for POMDPs</i> <p>Group Marielle Stoelinga, University of Twente (45 min)</p> <ul style="list-style-type: none">- Benedikt Peterseim – <i>Attack Trees, Compositionally</i>- Georgiana Caltais – <i>Racing Bugs in SDN</i>- Milan Lopuhaä-Zwakenberg – <i>Analyzing Attack-Fault Trees via MDPs</i>- Yanni Dong – <i>Smart System Diagnosis via Fault Trees and Diagnostic Decision Trees</i>- Stefano Nicoletti – <i>Ontology-Aware Risk Assessment via Object-Oriented Disruption Graphs</i>
12:00–13:30	Lunch
13:30	End and departures