

Dagstuhl Seminar 22081

Theory of Randomized Optimization Heuristics

Seminar schedule

Monday, 21 February 2022 – Lecture Hall Karlsruhe

– 09:00	Breakfast
09:00 – 09:15	Welcome and seminar opening
09:15 – 10:00	Participant introduction
10:00 – 10:30	Coffee break
10:30 – 12:00	Introductory talk: Tobias Glasmachers on <i>Runtime Analysis of Evolution Strategies: An Overview</i>
12:15 – 13:30	Lunch
13:30 – 14:15	Time for individual discussions
14:15 – 15:00	Introductory talk: Martin Krejca on <i>Theory of Discrete Evolutionary Algorithms – The What, Why, and How</i>
15:00 – 15:30	Talk: Nikolaus Hansen on <i>A problem where CMA-ES performs poorly</i>
15:30 – 16:00	Cake
16:00 – 16:30	Flash talk: Carola Doerr on <i>The Power of Adaptivity in Black-box Optimization</i>
16:30 – 17:20	Organization of breakout sessions
17:20 – 18:00	Flash talk: Peter Richtárik on <i>Stochastic Three Points Method for Unconstrained Smooth Minimization (?)</i>
18:00 – 19:00	Dinner
19:00 –	Individual discussions (and sleep ;-)

Tuesday, 22 February 2022 – Lecture Hall Karlsruhe

– 09:00	Breakfast
09:15 – 10:00	Talk: Peter Richtárik on <i>EF21: A New, Simpler, Theoretically Better, and Practically Faster Error Feedback</i>
10:00 – 10:30	Coffee break
10:30 – 11:15	Talk: Dirk Sudholt on <i>Analyzing the Cost of Randomness in Evolutionary Algorithms</i>
11:15 – 12:00	Talk: Mickaël Binois on <i>A Brief Introduction to Bayesian Optimization</i>
12:15 – 13:30	Lunch
13:30 – 14:00	Time for individual discussions
14:00 – 15:30	Breakout Sessions: <ul style="list-style-type: none">◇ k-adaptive black-box complexity◇ Stochastic Three Point Method (STP) (?)
15:30 – 16:00	Cake
16:00 – 16:15	Flash talk: Johannes Lengler on <i>Population Diversity Makes Lexicase Selection Fast</i>
16:15 – 16:30	Flash talk: Tobias Glasmachers on <i>Evolution Strategies Reliably Overcome Saddle Points</i>
16:30 – 17:30	Breakout Sessions <ul style="list-style-type: none">◇ Modern Stochastic Second-Order Methods and CMA-ES (Newton + subsampling: (?), Newton + random projection: (?), Newton + random compression: (?), CMA: (?))◇ Comma versus plus selection strategies in the presence of noise
17:30 – 18:00	Debrief and announcements
18:00 – 19:00	Dinner
19:00 –	Individual discussions (and sleep ;-)

Wednesday, 23 February 2022 – Lecture Hall Karlsruhe

– 09:00	Breakfast
09:00 – 09:30	Andreia Guerreiro on <i>Theoretical Aspects of Set-Quality Indicators for Multiobjective Optimization</i>
09:30 – 10:00	Elizabeth Wanner on <i>Mathematical Models for Dominance Move: Comparisons and Complexity Analysis</i>
10:00 – 10:30	Coffee break (plus testing)
10:30 – 11:15	Sebastian Stich on <i>Randomized Smoothing for Non-Convex Optimization</i>
11:15 – 12:00	Benjamin Doerr on <i>A First Mathematical Runtime Analysis of the Non-Dominated Sorting Genetic Algorithm II (NSGA-II)</i>
12:15 – 13:30	Lunch
13:30 – 15:30	Hike
15:30 – 16:00	Cake
16:00 – 16:10	Flash Talk: Armand Gissler on <i>State-dependent Drift Condition for Stability of Markov Chains</i>
16:10 – 16:20	Flash Talk: Benjamin Doerr on <i>Some Theoretical Thoughts on Permutation-Based EAs</i>
16:20 – 17:45	Breakout Sessions ◇ Potential functions for CMA-ES ◇ Analysis of permutation problems
17:45 – 18:00	Debriefing of Breakout Sessions
18:00 – 19:00	Dinner
19:00 –	Individual discussions (and sleep ;-)

Thursday, 24 February 2022 – Lecture Hall Karlsruhe

– 09:00	Breakfast
09:15 – 10:00	Talk: Ricardo Takahashi on <i>On the Dynamics of the DE Algorithm</i>
10:00 – 10:30	Coffee break
10:30 – 11:15	Talk: Johannes Lengler on <i>Failure on Easy Problems</i>
11:15 – 12:00	Talk: Duc-Cuong Dang on <i>Selection in non-elitist populations: overview and open problems</i>
12:15 – 13:30	Lunch
13:30 – 14:00	Time for individual discussions
14:00 – 15:30	Breakout Sessions: Stochastic Gradient Descent Convergence of Multiobjective Optimization Algorithms
15:30 – 16:00	Cake
16:00 – 16:15	Flash talk: Xiaoyue Li on <i>Gray-box operator on Vertex Cover</i>
16:15 – 16:30	Flash talk: Nikolaus Hansen on <i>Scaling-Invariant Functions</i>
16:30 – 17:30	Breakout Sessions Population Dynamics of $(\mu + 1)$ -EA/GA Theory-Friendly Problem Modelling
17:30 – 18:00	Debrief and announcements
18:00 – 19:00	Dinner
19:00 – 20:30	Individual discussions
20:30 –	Wine and Cheese

Friday, 25 February 2022 – Lecture Hall Karlsruhe

- 09:00	Breakfast
9:30 - 10:15	Tobias Glasmachers on <i>Convergence Analysis of the Hessian Estimation Evolution Strategy</i>
10:15 - 10:45	Coffee break
10:45 - 11:00	Testing
11:00 - 12:00	Closing session, feedback, and goodbye
12:15 - 13:30	Lunch
13:30 -	Individual departure (please sign up for shuttles to the train station with the staff at the reception)
