

Dagstuhl-seminar 10191

Program Composition and Optimization: Autotuning, Scheduling, Metaprogramming and Beyond

Sunday

15:00-19:00 Registration, check-in and informal get-together. Dinner (buffet) from 18:00

Monday

09:00-09:15 Welcome, Overview, Administrative issues (Christoph Kessler)

09:15-10:45 Short self-introduction of all participants
(max 3 minutes per person, 1-2 slides to be sent to Christoph in advance)

- name, affiliation
- one example of what you have done in the past w.r.t. the topic of this seminar
- challenges for the future

10:45-11:15 Coffee break

11:15-12:15 Software Composition I

- Chair's introduction: Uwe Assmann, TU Dresden
- Mehmet Aksit, University of Twente *From modules, aspects to reusable composition operators: Synthesizing composition from the perspectives of generality, expressiveness, flexibility and correctness*

12:15-13:15 Lunch

13:15-15:15 Software Composition II

- Sven Apel, Universität Passau *Safe Feature Composition*
- Robert Hirschfeld, Hasso-Plattner-Institut - Potsdam *Structural Scoping of Behavioral Variations*
- Mario Südholt, Ecole des Mines de Nantes *Invasive program composition using aspects*
- Paul H.J. Kelly, Imperial College London *Access/execute metadata for composition in multicore and manycore applications*

15:15-15:45 Coffee break

15:45-17:15 Software Composition III

- Gudula Rünger , TU Chemnitz *Programming support for applications structured by parallel tasks*
- Welf Löwe , Linnaeus University - Växjö *Context-aware Composition*
- Jendrik Johannes, TU Dresden *Announcement: Demo of software composition tool*

17:15-18:00 Panel discussion I: *Adaptivity in Software Composition*

Moderation: Welf Löwe

Dinner

19:30-20:00 Optional evening session

Jendrik Johannes, TU Dresden: Demonstration of the Reuseware composition tool

Tuesday

08:45-10:45 Autotuning I

- Chair's Introduction: Markus Püschel
- Franz Franchetti , Carnegie Mellon University - Pittsburgh *Automatic Generation of SIMD-Vectorized DSP Kernels*
- Paolo Bientinesi , RWTH Aachen *At the Heart of the Automation of Linear Algebra Algorithms*
- Richard Vuduc , Georgia Institute of Technology *Programming models and autotuning for generalized n-body problems*

10:45-11:15 Coffee break

11:15-12:15 Autotuning II

- Lawrence Rauchwerger, Texas A&M University *The STAPL Parallel Container Framework*
- Thomas Rauber , Universität Bayreuth *Scheduling and auto-tuning techniques in the context of time-stepping methods*

12:15-13:15 Lunch

13:15-13:45 Guided tour of Dagstuhl Castle

13:45-14:45 Autotuning III

- Markus Püschel, Carnegie Mellon University Pittsburgh *Offline Library Adaptation Using Automatically Generated Heuristics*
- Marco Danelutto , University of Pisa *Management of non functional concerns in component applications*

14:45-15:45 Panel discussion II: *On the synergy between software composition and autotuning. Is performance composable? Limitations and challenges of autotuning*

Panelists: all presenters of Tuesday. Moderation: Markus Püschel

15:45-16:00 Discussion: *How to continue: abstracts / proceedings / special issue* (David Padua)

16:00-16:30 Coffee break

16:30-16:45 Group photo

16:45-... Short hiking tour if the weather is nice

Dinner, reserved at Hotel Dagstuhler Hof in Wadern from ~18:30

Wednesday

Check-out until **08:45**

08:45-10:45 Multicores

- Chair's introduction: David Padua
- Marco Aldinucci , University of Torino *FastFlow: high-level yet efficient streaming applications on multi-cores*
- Victor Pankratius , KIT - Karlsruhe Institute of Technology *Making Parallel Programs Auto-Tunable: A View From Software Engineering*
- Sabri Pllana and Jesper Träff, Universität Wien *Program Composition for Performance Portability in PEPPER*

10:45-11:15 Coffee

11:15-12:10 Panel discussion III: Adaptive Software Composition for Multi/Manycore systems

Panelists: All speakers of Wednesday. Moderation: David Padua.

12:10-12:15 Farewell (Christoph)

12:15 -13:15 Lunch

Dagstuhl will be open until 17:00 for those who have time.

Thursday 13/5 is a public holiday and Dagstuhl is closed. It is thus not possible to stay until Thursday; the Dagstuhl staff can help with addresses of hotels for those who want to stay longer.

Presentations are scheduled for 30 minutes including questions.

Questions for the panel discussions can be submitted on the flipchart in the lecture hall.