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 PEPPHER*

**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.

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Presentations are scheduled for 30 minutes including questions.

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