to: seminar-16172@dagstuhl.de

Dear Dagstuhl participant in the seminar:

16172 Machine Learning for Dynamic Software Analysis: Potentials and Limits

25th-27th April Schloss Dagstuhl

On behalf of the organizers, we are looking forward to meeting you at this 2.5 day seminar.

Following the conventional advice of our Dagstuhl centre hosts, we have made the following plans.

Day 1: 6 * 30+15 minute tutorials from the ML and Software Engineering communities

Day 2: 4 * 90 minute Discussion Groups

Day 3: (morning only) Summary of outcomes of the meeting and future directions.

Workshop Publication.

Please note that one of our intentions is to produce a seminar proceedings of selected papers, which can either be tutorials or original research. We particularly solicit original tutorial material and/or state of the art surveys either from machine learning or software engineering applications.

We have already negotiated an expression of interest from Springer Verlag. We hope to produce the first survey of its kind in this emerging field. If you wish to participate in this unique opportunity, please bring with you a 2-3 page prospectus for a contribution that you would like to make. This offer is open to all seminar participants. Publications may of course be joint with non-participants.

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Detailed Schedule (Preliminary)

Monday 25th April (AM Machine Learning Technology)

9.00 - 9.30. Welcome and Introduction

9.30 - 10.15. Learning State Machines, Sicco Verwer

10.15 – 10.45 Coffee break

10.45 - 11.30. Learning-based Testing, Karl Meinke

11.30 - 12.15. Static analysis, Reiner Hähnle

12.15 Lunch

PM Software Engineering Applications

14.00 - 14.45 Automata learning for Emergent Middleware, Amel Bennaceur

14.45 - 15.30 Active automata learning Bernhard Steffen

15.30 – 16.00 Coffee Break

16.00 - 16.45 Machine learning of register automata models. Falk Howar

18.00 Dinner

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Tuesday 26th April

Focussed Discussion Groups. All active participants in each session should make a 3 minute/2 slide presentation of their interests. You can make a presentation in more than 1 session!

9.00 - 10.30

N. Walkinshaw, Frankfurt

Group 1: Learning and Testing

• How model learning can benefit (model based testing). The goal would be to understand if
there are significant benefits (proven or expected) and if so, what they are.

A. Russo, Kaiserslautern

Group 2: Machine Learning for System Composition

• How can model learning benefit compositional system verification?
• How does the inaccuracy of learned models impact the correctness of software integration?
• Can we apply adaptive systems engineering techniques to increase the precision of learned models over time?

10.30 – 11.00 Coffee break

11.00 - 12.15

F. Vaandrager, Frankfurt
Group 3: Benchmark building and sharing
• Setting up benchmarks for automata learning & testing
• What kind of benchmarks: real-size example, random sets, extreme cases?
• What kind of measures (number of interactions/queries, CPU or real time etc)?

F. Howar, Kaiserslautern
Group 4: Glass box vs. black box
• Combining black box and white box analysis

12.15 Lunch

14.00 - 15.30

R. Groz, Frankfurt
Group 5: Different kinds of models, Frankfurt
• What are the challenges for learning extended finite state models
• What kind of models should we learn: Mealy, DFA, more, LTS…

B.Steffen, Kaiserslautern
Group 6: Learning for Static Analysis: Specifications, complex programs, ...
• How learning can be used in static analysis or program verification,

for programs with data, loops?
• Prospects for learning declarative specifications (generating multiple solutions)

15.30 – 16.00 Coffee Break

16.00 - 17.30 Open, to be decided. (Facilitators: TBD)

18.00 Dinner

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Wednesday 27th April

9.00 - 10.30 Discussion of outcomes, workshop publication, future workshops, networks, etc.

10.30 – 11.00 Coffee break

11.00 – 12.00 Wrap-up

12.15 Lunch

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