Dagstuhl Seminar 14101: Preference Learning

Preliminary Program

Overview

The workshop will start on Monday, March 3rd, 9 a.m. and end on Friday afternoon (around 4 p.m.). The program will consist of the following components:

- Monday will be filled with 6 tutorial-type **introductory talks** about the use of preferences and the view on preference learning in the areas of machine learning, recommender systems, multi-criteria decision making, business and economics, artificial intelligence, and social choice, with the goal of familiarizing the members of the different communities with the basics of the other fields.
- Ten sessions will be devoted to **contributed presentations**, each one with enough extra time for discussion (that will hopefully be stimulated by the talks). A preliminary schedule of the planned presentations can be found below.
- Two **discussion sessions** on Tuesday and Thursday afternoon. Details on these sessions will be announced later.
- Wednesday afternoon is reserved for an **outdoor activity** (e.g., a hike in the neighborhood), which is a tradition for Dagstuhl seminars.
- The evenings can be used for i**nformal meetings and discussions**.
- On Friday, we plan for a **wrap-up session** in which we intend to summarize the workshop and discuss possible future activities.

Here is an overview of the planned activities:

The schedule is still subject to change. You can access its current version as a Google Calendar (http://goo.gl/xpDlXg, select „Week“ and browse forward into the right week).

Detailed Session Plan

Currently, we envision the following schedule for talks. Introductory talks (1 hour) are underlined, long talks (30 min) in regular font, *short talks* (15 min) are written in italics. The talk times should also include some time for immediate questions. Besides, there will be enough additional time in each session, so that broader discussions can develop.

Monday (03.03.2014)

Introductory Session 1 (09.30-10.30)

- E. Hüllermeier, J. Fürnkranz: Preference learning as a machine learning discipline

Introductory Session 2 (11.00-12.00)

- D. Jannach: Preference learning and recommender systems

Introductory Session 3 (13.30-15.30)

- R. Slowinski: Preferences in operations research and multi-criteria decision aid
- D. Baier: Preference learning in business and economics

Introductory Session 4 (16.00-18.00)

- K. Brent-Venable, F. Rossi, T. Walsh, J. Lang: Preferences in artificial intelligence and social choice (2 parts)

Tuesday (04.03.2014)

Session 1 (09:00-10:15): Statistical Methods

- Willem Heiser: Multidimensional unfolding and clustering of rankings: Some new results
- *Daniel Baier: Bayesian methods for conjoint analysis-based predictions: Do we still need latent classes?*
- *Joachim Giesen: Conjoint bench: setting up and analyzing simple conjoint analysis studies*

Session 2 (10:45-12:00): Multicriteria Decision Making

- Salvatore Greco: Comparing preference learning with robust ordinal regression and multicriteria customer satisfaction analysis
- Vincent Mousseau: Interactive preference elicitation for multicriteria decision aid: processes and tools

Session 3 (13:30-15.30): Ranking 1

- Antti Airola: Efficient optimization approaches for pairwise ranking losses
- *Nicolas Usurnier: The Limitations of convex surrogate losses for learning- to-rank*
- Wojciech Kotlowski: Rank loss minimization with pointwise surrogates
- Sebastian Destercke: Cautious label ranking with label-wise decomposition

Wednesday (05.03.2014)

Session 4 (09:00-10:15): Decision Making 1

- *Alexis Tsoukias: What is a decision problem?*
- Ingrid Nunes: Making decisions with high-level preferences and user-centric principles
- *Ulrich Junker: Preferences in an open world*

Session 5 (10:45-12:00): Preferences and Bandits

- Nir Ailon: Online learning over the permutahedron in both full information and bandit settings
- Robert Busa-Fekete: Preference-based bandits

Thursday (06.03.2014)

Session 6 (09:00-10:15): Classification

- Ad Feelders: Exploiting monotonicity constraints in active learning for ordinal classification
- *Krzysztof Dembczynski: The F-measure maximization for thresholding a ranking*
- *Eneldo Loza Mencía: Pairwise ordered multilabel classification*

Session 7 (10:45-12:00): Expressive Preference Models

- Scott Sanner: Exact Bayesian pairwise preference learning and inference in expressive models
- *Jerome Mengin: Learning GAI nets / CP nets*
- *Patrice Perny: Incremental elicitation of Choquet integrals using minimax regret approaches*

Session 8 (13:30-15:30): Applications

- Francesca Rossi: Preference extraction, modelling, and aggregation for sentiment analysis
- Toby Walsh: PeerRank
- Peter Vojtas: User modelling with sparse, implicit feedback, e-shop data
- *Michele Sebag: Preferences, Invariance, and Optimization*

Friday (07.03.2014)

Session 9 (09:00-10:15): Ranking 2

- Eric Sidony: Multiresolution analysis of incomplete rankings
- Tapio Pahikkala: Algorithmics of tensor-based preference learning

Session 10 (10:45-12:00): Decision Making 2

- Andreas Geyer-Schulz: A decision maker without preferences
- Paolo Viappiani: Decision-making under preference uncertainty with several decision criteria: a multi-objective formulation

Infrastructure

It is important to remember the **access code** for our seminar, which you have received in the E-mail on "practical information" which Mrs. Susanne Bach-Bernhard has sent to the seminar participants on January 14 . You need it to virtually access materials, but also to physically access the buildings.

All materials related to the seminar can be found at http://www.dagstuhl.de/14101/Materials/. You can use this to access information of other participants, but please also use it to **upload your own presentation materials**. At the very least, please upload a **title** and an **abstract**, but you can also upload your slides and a paper if you wish. We will produce a **Dagstuhl report** from the submitted materials of our seminar (http://www.dagstuhl.de/en/publications/dagstuhl-reports/).

On the **Web**, you can find information about our seminar at http://www.dagstuhl.de/14101/. There, you can find the schedule, a link to the above-mentioned site with materials, and general information about Dagstuhl castle. If you want to contact individual participants, you can find a clickable list of all participants at http://www.dagstuhl.de/14101/Participants/, if you have something really important to communicate, the mailing address seminar-14101@dagstuhl.de goes to all participants.

There is also a **Wiki** (http://www.dagstuhl.de/14101/Wiki) which currently contains only cursory information, but which we can use for exchanging information.

More details can be found on the invitation letter that you received from Mrs. Susanne Bach-Bernhard. For general questions about Schloß Dagstuhl, feel free to contact the staff at service@dagstuhl.de.