ProKI 2014

Lakemeyer,
Schiffer, Classen,
Liebenberg,
Niemueller,
Schwering

Organization

Topics

Library Training

Proseminar SS 2014
Artificial Intelligence

G. Lakemeyer,
S. Schiffer, J. Classen,
M. Liebenberg, T. Niemueller, C. Schwering

Knowledge-Based Systems Group
RWTH Aachen University

March 17, 2014

Organization

Topics

Library Training

Organization I

Seminar Homepage:

    `http://www.kbsg.rwth-aachen.de/teaching/SS2014/ProKI`

Seminar Mailinglist:

    `proki2014@lists.kbsg.rwth-aachen.de`

Seminar Dates:

- Introductory Meeting: Monday, March 17
- Talks: two-three talks a week, end of June / early July

        all meetings take place in *Seminar Room I5 (6202)*

Check the seminar homepage for details.

Given literature is only meant to be
starting point for own literature search!

▶ Seminar paper and talk should be in English!

▶ Prepare the paper and the slides preferably with LaTeX.

▶ About 25 pages (including references) for joint paper
(About 15 pages (including references) for single paper)

▶ Your paper will need multiple iterations

Lakemeyer,
Schiffer, Classen,
Liebenberg,
Niemueller,
Schwering

Organization

Topics

Library Training

Slides to **condense and support transfer of your knowledge**.
Be brief and precise so your listeners can follow!

▶ Talk must be in English
▶ Joint presentation should be ∼35 min + 10 min discussion
▶ Prepare the slides preferably with LaTeX
▶ Contact your advisor in case of questions

Organization

Peer Review for Seminar Papers

The peer review should help your fellow student to improve their seminar paper and prove that you read it thoroughly!

▶ Summary of the seminar paper (ca. 1 paragraph)

▶ Things you liked about it (ca. 1 paragraph)

▶ Major comments   (e.g., what's hard to understand?, factual errors, missing or unnecessary content, . . .)

▶ Minor comment (e.g., typos)

Procedure

► We use a conference management system:

    https://www.easychair.org/conferences/?conf=proki2014

► Five steps:

1. Understand literature, discuss it with your advisor   2-4 weeks
2. Write and submit the seminar paper   6-8 weeks
3. Read and review fellow students' seminar papers   2 weeks
4. Prepare final seminar paper and slides   2 weeks
5. Give talk, listen to others   end of semester

►

<div style="text-align:center; color:red;">Deadlines are strict!</div>

Lakemeyer,
Schiffer, Classen,
Liebenberg,
Niemueller,
Schwering

Organization

Topics

Library Training

Grading & Rescission Policy

regular attendance and active participation
is obligatory to receive a certificate!

Up to three weeks **from now on** you are allowed to
recede from the seminar without any consequences.
A later rescission will be graded as a failed attempt!

Group Work

Two students will work on one topic each

► joint seminar paper   *mark who did what*
► joint presentation   *don't overdo switching*

Lakemeyer,
Schiffer, Classen,
Liebenberg,
Niemueller,
Schwering

Organization

Topics

Library Training

1. Beyond Classical Search
2. Constraint Satisfaction Problems
3. Inference in First-Order Logic
4. Classical Planning
5. Planning and Acting in the Real World
6. Probabilistic Reasoning over Time
7. Making Complex Decisions
8. Knowledge in Learning
9. Planning to Move
10. Localization & Mapping

Lakemeyer,
Schiffer, Classen,
Liebenberg,
Niemueller,
Schwering

Organization

Topics

Library Training

1. Beyond Classical Search   (AIMA3ed, Chap.4)
   What happens to search when some or all classical
   assumptions like (full) observability, determinism, known
   environments are relaxed?

2. Constraint Satisfaction Problems   (AIMA3ed, Chap.6)
   Different problem description than in search, set of variables
   and set of constraints on those. use general purpose instead
   of problem specific heuristics.

3. Inference in First-Order Logic   (AIMA3ed, Chap.9)
   How can inference mechanisms for propositional logic be
   extended to obtain algorithms that can answer any
   answerable question stated in first order logic?

Lakemeyer,
Schiffer, Classen,
Liebenberg,
Niemueller,
Schwering

Organization

Topics

Library Training

4. Classical Planning   (AIMA3ed, Chap.10)
   How to take advantage of the structure of a problem to
   construct complex plans of actions?

5. Planning and Acting in the Real World

                                 (AIMA3ed, Chap.11)
   How to extend classical planning to be able to work in real
   world scenarios like for spacecrafts and factories?

6. Probabilistic Reasoning over Time   (AIMA3ed, Chap.15)
   How to keep track of current states and trying to precit the
   future?

ProKI 2014

Lakemeyer,
Schiffer, Classen,
Liebenberg,
Niemueller,
Schwering

Organization

Topics

Library Training

Topics III

7. Making Complex Decisions   (AIMA3ed, Chap.17)
   How to take decisions in stochastic environments, where the
   utility depends on a sequence of decisions?

8. Knowledge in Learning   (AIMA3ed, Chap.19)
   How can learning methods take advantage of prior
   knowledge about the world?

9. Planning to Move   (ProRoMo, Chap.7)
   How can a robot use planning to find an appropriate
   movement sequence to reach a particular target position (for
   itself or a manipulator)?

10. Localization and Mapping   (IntAIRob, Chap.11)
    How can a robot create and maintain a belief about its
    position in a map and how can this map be constructed?

Topics

Organization

Topics

Library Training

1. Beyond Classical Search

2. Constraint Satisfaction Problems

3. Inference in First-Order Logic

4. Classical Planning

5. Planning and Acting in the Real World

6. Probabilistic Reasoning over Time

7. Making Complex Decisions

8. Knowledge in Learning

9. Planning to Move

10. Localization & Mapping

Library Tour/Training I

▶ specialized training on literature search:
small groups (up to 6), individual examples,
local and supra-regional catalogues and databases

▶ Presentation: distinguishing different types of literature

▶ acquisition of literature:
delivery service, full text search,
lending and interlending, etc. pp.

▶ guided tour: the CS-Library and what it has to offer

▶ ralley: practical exercise

▶ length: 2 h

Participation is mandatory!

Lakemeyer,
Schiffer, Classen,
Liebenberg,
Niemueller,
Schwering

Organization

Topics

Library Training

Library Tour/Training II

	StudentId	Name
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		

ProKI 2014

Lakemeyer,
Schiffer, Classen,
Liebenberg,
Niemueller,
Schwering

Organization

Topics

Library Training

Schedule (tentative)

2014-03-18: Introductory meeting

2014-03-18: Get an EasyChair account[1]

2014-03-31 – 2014-04-18: Discuss literature with advisor

2014-06-01++: Paper submission deadline[2]

2014-06-15++: Review deadline[3]

2014-06-23w – 2014-07-13w: Seminar talks

2014-07-18: Ende Vorlesungszeit

2014-08-01++: Paper camera-ready version

To keep the deadlines: submit early and often!

---

[1] https://www.easychair.org/conferences/?conf=proki2014

[2] By this date you *must* have submitted

[3] By this date you *must* have written and submitted your reviews