Planning and Optimization

A1. Organizational Matters

Malte Helmert and Gabriele Röger

Universität Basel

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People & Coordinates

People: Lecturers

Malte Helmert

Gabriele Röger

Lecturers

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Gabriele Röger

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People: Assistants

Martin Wehrle

Thomas Keller

Assistants

Martin Wehrle

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Thomas Keller

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People: Tutor

Salomé Eriksson

Tutor

Salomé Eriksson

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Time & Place

Lectures

- time: Mon 14:15-16:00, Thu 14:15-16:00
- place: room 00.003, Spiegelgasse 1

Exercise Sessions

- time: Thu 16:00-17:30
- place: room 00.003, Spiegelgasse 1

first exercise session: next week (September 29)

Planning and Optimization Course on the Web

Course Homepage

`http://informatik.unibas.ch/hs2016/planning-and-optimization/`

- course information
- slides
- exercise sheets and materials
- bonus materials (not relevant for the exam)

registration:

- `https://services.unibas.ch/`
- Please register today to receive all course-related emails!

Target Audience & Rules

Target Audience

target audience:

- M.Sc. Computer Science/Informatik
  - "new" degree, minor Machine Intelligence:
    module Concepts of Machine Intelligence
  - "new" degree, minor Distributed Systems:
    module Applications of Distributed Systems
  - "old" degree:
    module Kerninformatik (core) or
    module Praxis aktueller Informatikmethoden (electives)
- M.A. Computer Science ("Master-Studienfach")
- other students welcome

Prerequisites

prerequisites:

- general computer science background: good knowledge of
  - algorithms and data structures
  - complexity theory
  - propositional logic
  - programming
- background in Artificial Intelligence:
  - Foundations of Artificial Intelligence course (13548)
  - in particular chapters on state-space search

Gaps?

$\rightsquigarrow$ speak to assistants to discuss a self-study plan to catch up

Exam

- oral examination (20–25 min)
- dates: January 30–February 1 (tentative)
- 8 ECTS credits
- admission to exam: 50% of the exercise marks
- final grade based on exam exclusively
- no repeat exam

Exercises

exercise sheets (homework assignments):

- mostly theoretical exercises
- occasional programming exercises

exercise sessions:

- discussion of exercise sheets
- questions about the course
- participation voluntary but highly recommended

Theoretical Exercises

theoretical exercises:

- exercises on course homepage every Thursday
- solved in groups of at most two $(2 = 2)$
- due Wednesday of following week (23:59) via Courses
- discussed in exercise sessions on following day

Programming Exercises

programming exercises:

- mixed with theoretical exercises
- solved in groups of at most two ($2 < 3$)
- solutions that obviously do not work: 0 marks
- work with existing C++ code
- Linux (other operating systems: please discuss with assistants)

Plagiarism

Plagiarism (Wikipedia)

Plagiarism is the "wrongful appropriation" and "stealing and publication" of another author's "language, thoughts, ideas, or expressions" and the representation of them as one's own original work.

consequences:

- 0 marks for the exercise sheet (first time)
- exclusion from exam (second time)

if in doubt: check with us what is (and isn't) OK before submitting

exercises too difficult? we are happy to help!

Course Content

Learning Objectives

Learning Objectives

- get to know theoretical and algorithmic foundations of classical planning as well as practical implementation
- understand fundamental concepts underlying modern planning algorithms and theoretical relationships that connect them
- become equipped to understand research papers and conduct projects in this area

Course Material

course material:

- slides (online + printed handouts)
- no textbook
- additional material on request

Hands-On Week

- Next week will be a hands-on week organized by Martin and Thomas.
- The following task includes necessary set-up for this.
- Please complete the task on your personal laptop before next Monday.
- Please bring your laptop to next week's sessions (Monday and Thursday).
- We are happy to help you if you run into problems.

Don't own a laptop?

- no problem, we will do the hands-on in groups of 2

Your First Task

Preparations for Hands-On Week

1. Download and compile the Fast Downward planner.
   Instructions: `http://www.fast-downward.org/ObtainingAndRunningFastDownward`
   - You can skip the optional steps regarding the LP solver and VAL.
2. Download `domain.pddl` and `problem.pddl` from the course website and place them in the main directory of the planner (the one containing `fast-downward.py`).
3. In that directory, run:

```
./fast-downward.py domain.pddl problem.pddl \
    --search "astar(blind())"
```

If everything worked correctly, the planner will output a solution and create a file named `sas_plan`.

Under Construction...

- This is a new course.
- We are always happy about feedback, corrections and suggestions!