EDAN70: Project in Computer Science
Themes: Intelligent Systems + Optimising Compilers

RSS group and friends

Dept. of Computer Science, Lund University, Sweden

March 24th, 2025

Plan for today

- Administrative stuff
- Projects, groups
- Planning for the rest of the term

Projects

- Define a study topic and an application in AI, machine learning, language processing or intelligent robotics.
- You may define them yourself or with the help of the instructor.
- Survey the relevant literature
- Define an implementation strategy and select algorithms
- Implement a prototype
- Evaluate it
- Write a project report
- Submit paper to a conference (optional). No guaranteed funding for conference fees and travel though.

About the course

- EDAN70: Project in Computer Science
  Theme: Intelligent Systems
- also EDAN90: Advanced Project in Computer Science
- `http://cs.lth.se/EDAN70`
- `http://cs.lth.se/EDAN70/projects-in-artificial-intelligence/`
- Serves as an announcement board as well!
- But only until Easter!
- Teachers: We will see...
- Administrator: Ulrika Templing (expedition@cs.lth.se)

Contents

- 7,5 hp (ECTS)
- Grading: UG scale (pass/fail)
- Time span: 24/3–28/5–9/6
- Scheduled meetings: 2 (intro now and final presentation on 28th May)
- Supervision every week
- Home reading (textbook, papers, web, ...) and lab/home work
- You are assumed to have
  - AI background
  - programming experience

Evaluation

- Project performance: evaluated by the supervisor
- Result (code): evaluated by the supervisor (preferably in @git.cs.lth.se or @coursegit.cs.lth.se)
- Presentation during the last week
- Reports (to be filed in not later than 9th June, Friday).

End of the admin stuff

Questions? Comments?

Next: presentations of project proposals by potential supervisors.

Robotic Skill Knowledge Bases (JM)

1. Robot skill knowledge base (secure access, storage of big files, manipulation, plug-in reasoners) using triple store RDF4J (or some other SPARQL-enabled graph database of choice);
2. Robot skill representation (SkiROS & co., using some graph database)
3.
4. Geometrical relations in the robot workspace (vocabulary, identification, planning, extraction from CAD files);
5. Reasoning about two-handed manipulation (parcel wrapping);
6. Knowledge base editing/visualisation (RDF4J, JavaScript, ???)
7. Behaviour Trees and Finite State Machines (e.g. Sequential Function Charts)