

Seminar Summer Term 2019

Selected Topics in Agent Behavior Modelling¹

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¹slides adapted from a previous seminar introduction by Till Hofmann

Agent Behavior Modelling

What is this seminar about?

- Focus:
 - **Behavior modeling:** How an agent behaves in an environment
Finite State Machines, Behavior Trees (BT) ... etc
- The seminar investigates:
 - Modeling approaches
 - Open knowledge-based planning
 - Behavior recognition as well as plan deviation recognition

Administrative Issues

- Seminar counts as one of:
 - Master CS seminar in Data and Information Management
 - Master SSE seminar in Data and Information Management
- Your task is to
 - read paper(s) about a topic
 - write and talk about it
 - read and listen to the others, give feedback
- These slides are available on the seminar website:

<https://www.kbsg.rwth-aachen.de/teaching/SS2019/SemSTAB>

Rough Outline

Five stages:

1. Understand literature; explain to advisor 4 weeks
2. Write and submit the seminar paper 6 weeks
3. Review two fellow students' seminar papers 2 weeks
4. Prepare final seminar paper and slides 3 weeks
5. Give talk, listen to others, ask questions August

1 / 5: Literature

- A paper is assigned to each topic
- Read and understand it carefully
- Have a look at basic or related literature
 - check the bibliography of the paper(s) assigned to your topic
 - ask your advisor for suggestions
 - to understand the basics, or
 - to compare to other approaches
 - usually no need to read the complete paper, but
 - make sure you've read enough!
- What's good / bad about the approach?

2 / 5: Seminar Paper

- Your seminar paper should
 - Give an overview of the topic
 - Convey the **idea** and **intuition**
 - **Make the topic understandable to the other students**
- 15-20 pages
- Be concise!
- Typically four parts:
 1. Introduce the general research topic, motivate why it is important
 2. Provide relevant background knowledge required for your topic
 3. Describe your particular approach in detail
 4. Analyze the described approach and compare it to others
- English and LaTeX mandatory
- Use the template from the seminar website

3 / 5: Review

- Your review should
 - help other students to improve their seminar paper
 - prove that you read it thoroughly
- Typical structure
 - Summary of the seminar paper (\approx 3 sentences)
 - Things you liked about it (\approx 1 paragraph)
 - Major comments (e.g., what's hard to understand?)
 - Minor comments (e.g., typos)
- Reviewing should be **anonymous**
- **Plain text** following the above structure
- Do **not** annotate the seminar paper inline (no attachments)

4 / 5: Final Paper

- Read reviews
- Revise your paper accordingly

5 / 5: Talk

- Convey the **idea**, a good **intuition**, and the **major results**
- Offer something to everybody:
 1. Start gently with informal examples to motivate problem and sketch solution (first 40%)
 2. Go deeper into details (next 30%)
 3. Conclude at a high level of abstraction (last 10%)

5 / 5: Talk

- Convey the **idea**, a good **intuition**, and the **major results**
- Offer something to everybody:
 1. Start gently with informal examples to motivate problem and sketch solution (first 40%)
 2. Go deeper into details (next 30%)
 3. Conclude at a high level of abstraction (last 10%)
- 25 minutes talk + 10 minutes discussion
 - Do not exceed 25 minutes, practice your talk
 - Rule of thumb: at least 90 seconds per slide
- English and PDF mandatory

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 - Rule of thumb: at least 90 seconds per slide
- English and PDF mandatory
- Tips
 - Motivate with an example
 - Keep that example to illustrate results during the talk
 - Avoid formulas, use example and pictures instead
 - Be prepared for questions (perhaps with back-up slides)
 - Do NOT take this slide as an example :-)

Conference System

- We use a conference system (EasyChair) for the seminar
- We use EasyChair to submit
 1. Seminar papers
 2. Reviews
 3. Revised seminar papers
- Deadlines are **firm**
- You can update your submission until the deadline
- There's no excuse for missing deadlines
- <https://easychair.org/conferences/overview.cgi?a=21448708>

Grades

The final grade is the weighted mean of

- the reviews you wrote (10%)
- your final paper (50%)
- your talk (40%)

Rescission Policy

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

Rescission Deadline: April 22

Topic Assignment

- Topics are *not* assigned now
- Instead:
 1. Check the list of topics at home
 2. Read the paper abstracts
 3. Rank topics from most to least preferable
 4. Send me your ranking
- Topics are assigned based on the *household allocation* algorithm
 1. Assign randomly
 2. Swap until no improvement is possible

Topics

1. Learning of Behavior Trees for Autonomous Agents
2. Detection of Plan Deviation in Multi-Agent Systems
3. The Advantages of Using Behavior Trees in Multi-Robot Systems
4. Multi-Agent Plan Recognition: Formalization and Algorithms
5. Toward Open Knowledge Enabling for Human-Robot Interaction
6. Performance analysis of stochastic behavior trees
7. ALLEGRO: Belief-Based Programming in Stochastic Dynamical Domains

Schedule

March 22	Introductory Meeting	
March 29	Submit your topic preferences	
March 29	Get an EasyChair ² account, download paper(s)	
April 1	Get topic and supervisor assignments	
April 22	Last day to drop out	3 weeks
April 28	Discuss literature with your supervisor ³	4 weeks
June 9	Paper submission deadline ⁴	6 weeks
June 23	Review deadline ⁵	2 weeks
July 14	Paper camera-ready version ⁶	3 weeks
Aug	Seminar talks	2 days

Keep the deadlines:

You can *update* your submission at EasyChair!

²<https://easychair.org/conferences/overview.cgi?a=21448708>

³That's the only deadline that's not firm. It's more of a recommendation.

⁴By this date you *must* have submitted

⁵By this date you *must* have written and submitted your reviews

⁶By this date you *must* have submitted your final seminar paper