Methods in AI research

Introduction

Coordinator:
Dragan Doder


NOTICE
Only one person in this meeting room at a time

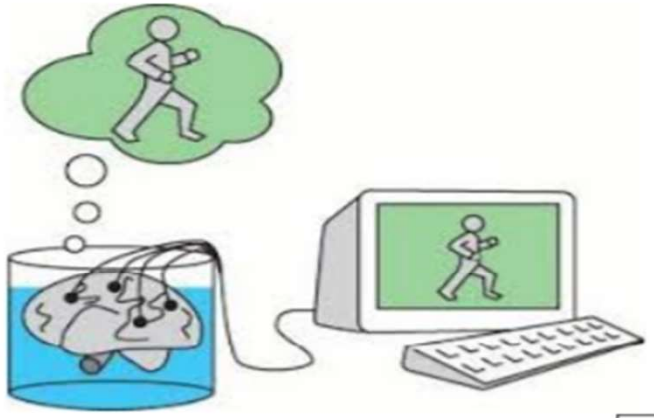
Overall aim of MAIR

- A course that introduces you to a great variety of Utrecht topics in AI.
- A course that teaches you various AI skills.
- A course to improve skills that need improving.
- A course in which you get acquainted with your fellow students.

Definitions of AI - Russell & Norvig: Artificial Intelligence. A Modern Approach:

- (TH): The exciting new effort to make computers think . . . machines with minds, in the full and literal sense.
- (TR) The study of mental faculties through the use of computational models.
- (AH): The study of how to make computers do things at which, at the moment, people are better.
- (AR): Computational Intelligence is the study of the design of intelligent agents

(TH) Thinking humanly
(TR) Thinking rationally
(AH) Acting humanly
(AR) Acting rationally




Sorting Algorithms
B
D
A
C
A
B
C
D


MACHINE
LEARNING


THE #1 PROGRAMMER EXCUSE
FOR LEGITIMATELY SLACKING OFF:
"MY CODE'S COMPILING."
HEY! GET BACK TO WORK!
COMPILING!
OH. CARRY ON.


Speech Recognition Technology


What are you doing?
Playing with this.

Research in AI takes place in various disciplines:

- computer science
- psychology
- linguistics
- mathematics
- logic
- neurology
- philosophy
- humanities

These fields have different research methods:

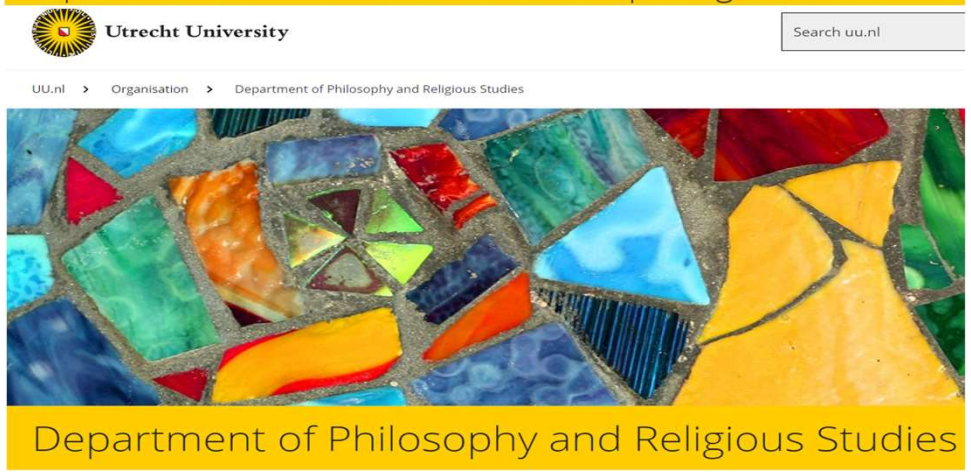
- algorithms
- statistics
- natural language processing
- mathematical proofs
- logical methods
- engineering
- …

Flavors:

- machine driven versus data driven
- theory versus engineering
- …

Research in AI in Utrecht is broad and interdisciplinary.

Four departments are involved in the master, and all these departments are involved in MAIR:



Aim of MAIR:
know and understand the basics of:

- Agents
  - Dialogue modelling, autonomous dialogue system
- Reasoning
  - Knowledge-based systems, logic
- Cognitive Processing
  - Cognitive modelling, experimentation, interaction
- Natural Language
  - Natural language processing, communicating with an online bot
- Machine Learning
  - Decision trees, the learning problem

You will be able to:

1. Implement different AI techniques in a working program
2. Test and evaluate an AI system (technical capabilities, performance, usability)
3. Write a technical report and a research paper on an AI system, its evaluation and its place in the broader context of AI

Note that you are expected to achieve all these goals at a basic level. You will know where to find more information, and be in a good position to take further classes in which the above skills are deepened

Note Students have different backgrounds. In the group project, try improve the skills that need improving and apply the skills you already have. Teach/help each other

Following MAIR

MAIR is a master course, following it requires the corresponding master (student) attitude:

- Study the indicated literature, listen to the lectures.
- If you don't understand something, ask the teacher during class, fellow students outside class, look in the library, internet, ask family, . . .
- If you need additional reading/studying material, ask the teacher during class.
- Take initiative.
- Look for useful examples.
- Help each other, share information, pass on skills.

Online and offline collaboration

How to stay in touch?

How to stay in touch?

- Lecturers: ask us during “live” moments
  - Thursday sessions (11:00 – 13:00)
    - typically: 11-12 class; 12-13 “office hours” (lecturer of that week available via chat or 1–on-1 teams call)
  - E-mail: only in exceptional and formal cases
  - At other moments, even if we are online…
    - we might not always be in a position to immediately respond (children, pets, other meetings, science).
    - But… we do want to help of course!

How to stay in touch?

- Lab teachers:
  - Tuesday sessions (13:15 – 15:00)
  - Everyone will be allocated in a group: set of co-students, physical class, lab teacher
  - Notes:
    - We will let you know before Tuesday who your co-students and lab teachers are & your location
    - physical class might differ from “My time table”, as we allocate groups based on interest
- *Important: fill out background questionnaire TODAY (Blackboard)*

How to stay in touch?

- Students:
  - Each student will be placed in a lab group of 4
  - Each group will be connected to another “peer group”
  - “peer groups” are each other’s first line of contact, for example when you miss an online lecture.
    - Of course: could be that all of you miss it, so…. inform each other early
- Study advisor (Yvonne Tromp): any more general hurdle you run into
  - https://students.uu.nl/en/science/artificial-intelligence/contact/study-advisor

Team work

Work *with* and learn *from* each other

No full task “distribution”

Important skill for interdisciplinary master

See course manual regarding plagiarism…

Tools

Tools

- Blackboard:
  - Place for more *permanent* info during entire course & *formal* requirements
  - All course materials (incl links to lecture videos → also shown in teams, but not sorted by date)
  - Formal announcement (often also send by e-mail)
  - Place to hand in assignments

https://uu.blackboard.com/

2021-2022 1-GS Methods in AI research (INFOMAIR)
Announcements
Dashboard
Staff Information
Course Information
Course Content (lecture slides etc.)
Team Project
Questionnaire and submitting project deliverables
My Grades

Announcements

Introductory lecture on MS Teams

Posted on: Tuesday, September 7, 2021 11:20:10 PM CEST

Dear Students,

Now you are added to the official team of our course, named **INFOMAIR 2021-2022**, and you are invited via email to join the introductory online l
September 9, at 11:00.

Please note that the lecture will be held in the channel **Live lecture 1 (September 9)**.

If you have problems joining the INFOMAIR 2021-2022 team on MS Teams, or/and if you did not receive the invitation email for the introductory l
me.

Kind regards,
Dragan

Welcome to MAIR

Posted on: Monday, September 6, 2021 6:21:34 PM CEST

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Complete questionnaire NOW

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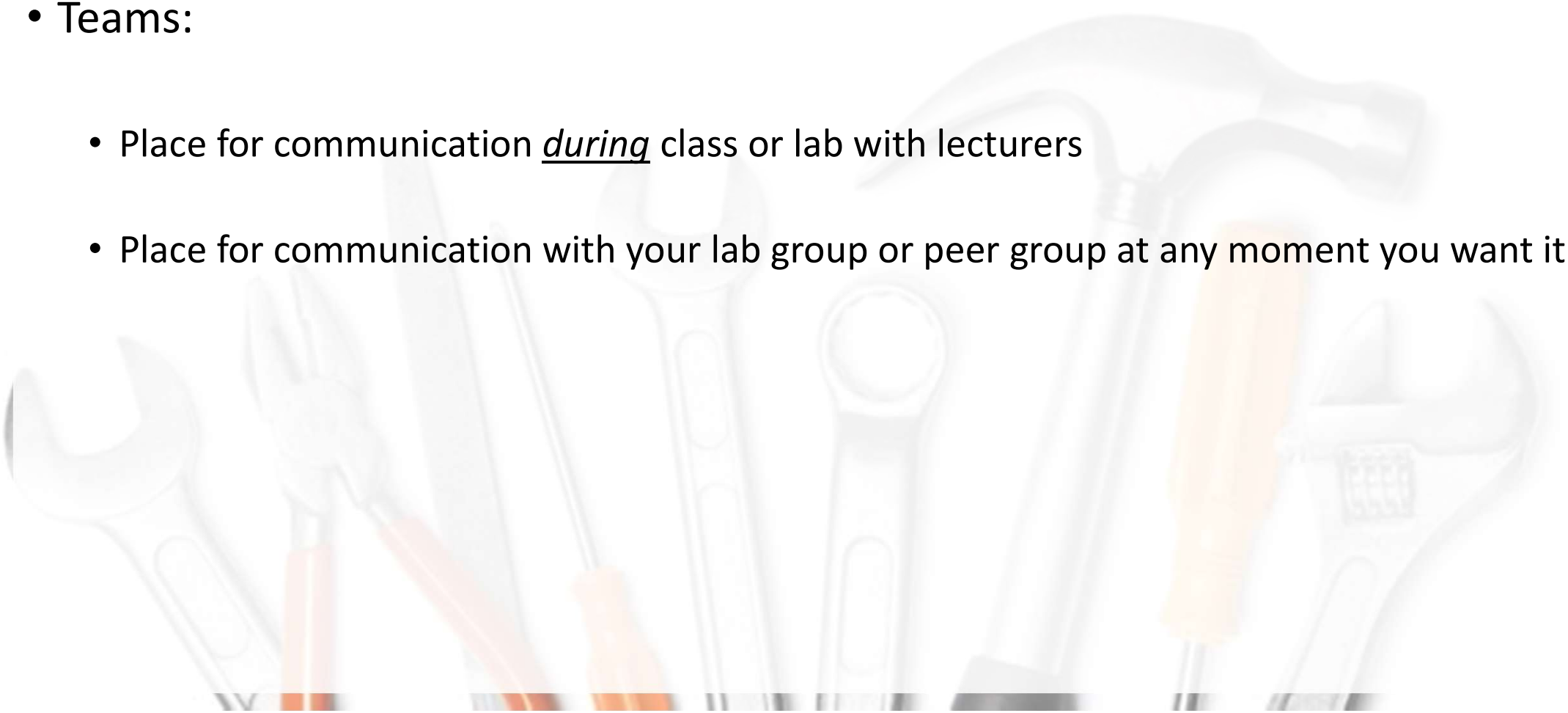
Tools

- Teams:
  - Place for communication *during* class or lab with lecturers
  - Place for communication with your lab group or peer group at any moment you want it



Your work-life balance

- Start study early (watch some lectures this week ☺)
- Create a nice place to study at home (separate “work” from “home”; even at home)
- Create a routine (see course manual for suggestions)
- Take a break when you need one
- Support each other → e.g., meet up in the early morning

Let’s test our social skills now…

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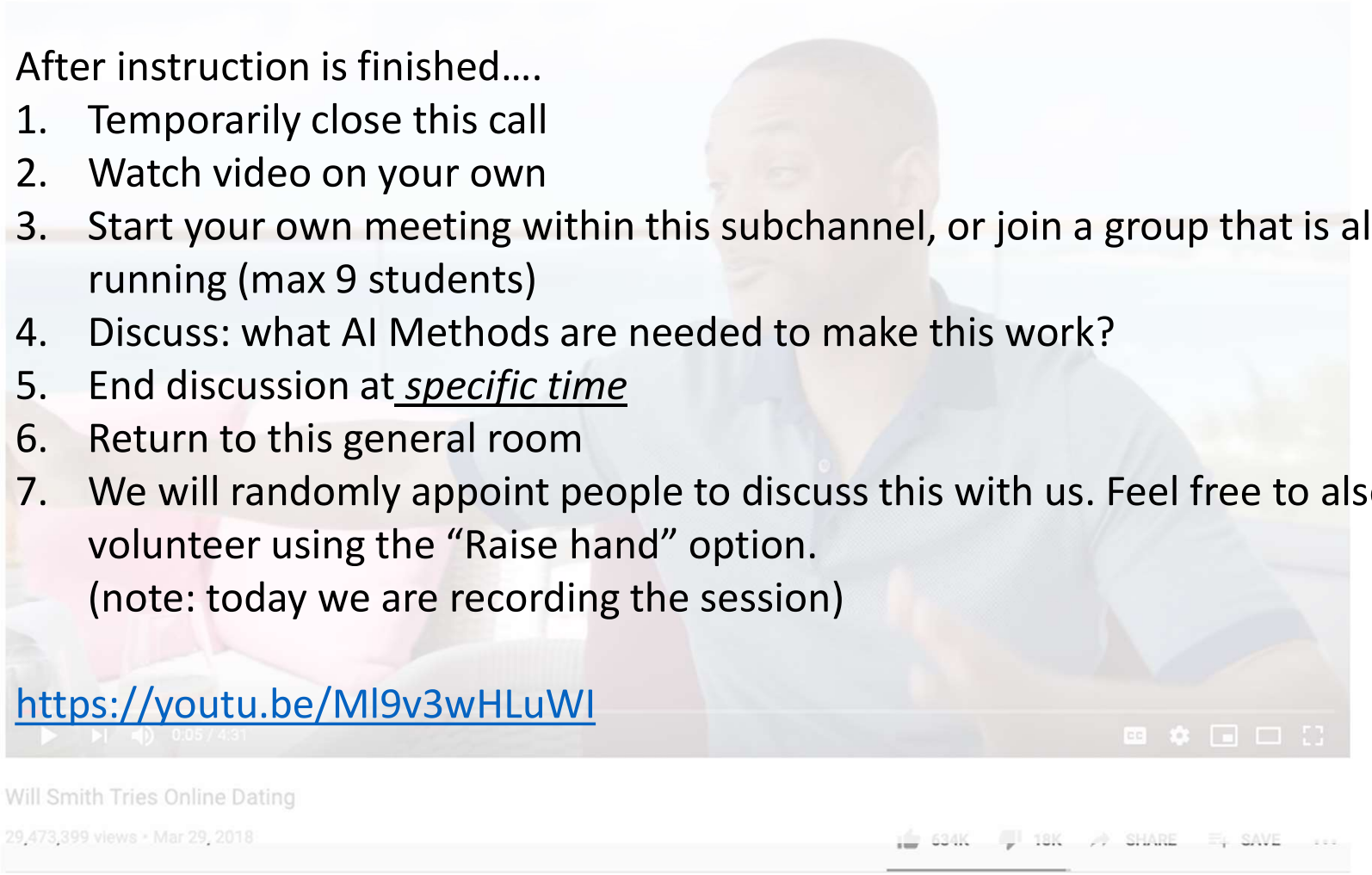

After instruction is finished….

1. Temporarily close this call
2. Watch video on your own
3. Start your own meeting within this subchannel, or join a group that is already running (max 9 students)
4. Discuss: what AI Methods are needed to make this work?
5. End discussion at *specific time*
6. Return to this general room
7. We will randomly appoint people to discuss this with us. Feel free to also volunteer using the “Raise hand” option.
   (note: today we are recording the session)

https://youtu.be/Ml9v3wHLuWI