MSc AI in Society

Info Session
TUM Master’s Days
March 21st 2024
Agenda

• Artificial Intelligence: Challenges in Society
• What will I learn?
• Target Audience
• Comparison to similar study programs
• What jobs can I apply for later?
• Application procedure

• Your questions!
AI in Society: Current Challenges

We need:

• responsible and ethical use of such technologies
• effective regulation and governance of AI

Potential misuse of AI:
Fake news, fraud schemes, ...

Automation of tasks:
May lead to job displacement

AI = black-box. Complex decision-making processes we need to understand

Overreliance on AI:
privacy and security concerns

Bias in AI systems:
Unfair and discriminatory outcomes
What will you learn?

Technical side
- Data Science
- Machine Learning
- Natural Language Processing
- Human-AI Interaction
- Explainable AI
- Programming with Python

Social science side
- Legal aspects
- Policies, Regulation
- Governance
- Role of AI in societal contexts
- Instructional design of AI (psychology of learning)

Bridging technical and societal implications of AI
Curriculum

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>30 Credits</th>
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<tbody>
<tr>
<td>Foundations of AI &amp; Data Science</td>
<td>(lecture) 9 Credits</td>
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<tr>
<td>Introduction to Programming &amp; Data Processing</td>
<td>(exercise) 3 Credits</td>
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<tr>
<td>AI in and for Society: Science, Technology and Society in the Digital Age</td>
<td>(lecture) 6 Credits</td>
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<td>Law, Governance and Regulation of Artificial Intelligence</td>
<td>(lecture) 6 Credits</td>
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<td>Psychology of Learning and Instructional Design of AI-based systems</td>
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<th>Semester 2</th>
<th>30 Credits</th>
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<tr>
<td>Introduction to Deep Learning</td>
<td>(lecture) 6 Credits</td>
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<tr>
<td>Deep Learning Demystified: Hands-on Deep Learning for Non-CS Majors</td>
<td>(exercise) 3 Credits</td>
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<tr>
<td>Explainable AI — A Comprehensive Seminar on Transparent and Ethical AI</td>
<td>(seminar) 6 Credits</td>
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<tr>
<td>Academic Competencies and Practical Skills</td>
<td>(seminar) 4 Credits</td>
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<tr>
<td>Methods 1</td>
<td>(exercise) 5 Credits</td>
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<tr>
<td>AI in Diverse Societies</td>
<td>(lecture) 6 Credits</td>
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<th>Semester 3</th>
<th>30 Credits</th>
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<tr>
<td>Natural Language Processing</td>
<td>(lecture) 6 Credits</td>
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<tr>
<td>Human-AI Interaction</td>
<td>(exercise) 6 Credits</td>
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<tr>
<td>Project Week</td>
<td>(project) 6 Credits</td>
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<tr>
<td>Electives: AI in different domains of society</td>
<td>12 Credits</td>
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<th>Semester 4</th>
<th>30 Credits</th>
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<tr>
<td>Master's thesis</td>
<td>30 Credits</td>
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Curriculum: Electives

• Learning Analytics
• Gaze-Based HCI
• Responsible Data Science for Safe and Socially Aligned AI Applications
• Law and Digitalization in Action
• Philosophy of Artificial Intelligence
• ...

Study Plan M.Sc. “AI in Society”

Semester 1
- Foundations of AI & Data Science (lecture) 9 Credits
- Introduction to Programming & Data Processing (exercise) 3 Credits
- AI in and for Society: Science, Technology and Society in the Digital Age (lecture) 6 Credits
- Law, Governance and Regulation of Artificial Intelligence (lecture) 6 Credits
- Psychology of Learning and Instructional Design of AI-based systems (lecture) 6 Credits

Semester 2
- Introduction to Deep Learning (lecture) 6 Credits
- Deep Learning Demystified: Hands-on Deep Learning for Non-CS Majors (exercise) 3 Credits
- Explainable AI — A Comprehensive Seminar on Transparent and Ethical AI (seminar) 6 Credits
- Academic Competencies and Practical Skills (seminar) 4 Credits
- Methods 1 (exercise) 5 Credits
- AI in Diverse Societies (lecture) 6 Credits

Semester 3
- Natural Language Processing (lecture) 6 Credits
- Human-AI Interaction (exercise) 6 Credits
- Project Week (project) 6 Credits

Semester 4
- Electives: AI in different domains of society 12 Credits
- Master’s thesis 30 Credits
Target Audience

Be sure to apply if you...

... have completed a bachelor's degree in social sciences, political sciences, economics, law, psychology, or a related field. Technical backgrounds are also very welcome!

... have an interest in ethical AI practices, AI governance, AI's socio-economic impacts, and the role of AI in shaping future societies
### MSc AI in Society

**Your profile**
Background in social sciences/politics/tech. You want to understand AI and its societal aspects.

**Jobs**
AI consultants, researchers, product managers, AI policy advisors. Ensure the responsible development of AI technologies.

### MSc Politics & Technology

**Your profile**
Background in political sciences. You are interested in political science, public policy, and tech.

**Jobs**
Policy analysts or advisors in e.g. governmental organizations. Consultants in tech policy and regulations.

### MSc Computer Science

**Your profile**
Background in computer science, engineering, tech. You want to focus on technical aspects only.

**Jobs**
Developers of (AI) solutions, i.e. programmers.
Application Procedure

- Meeting formal requirements (submitting your documents)
- Passing written aptitude test
- Interview (in some cases)
Application Procedure

Step 1: Formal requirements

- Bachelor’s certificate + diploma / Transcript to date
- Transcript of Records
- Proof of English Language Proficiency
- CV
- Preliminary Study Documentation (VPD, see uni-assist.de) if degree from outside EU/EEA
- **Optional:** Letter of Motivation

For a comprehensive list, see: [https://www.tum.de/en/studies/degree-programs/detail/ai-in-society](https://www.tum.de/en/studies/degree-programs/detail/ai-in-society)
Additionally, you need to fulfill the following requirements:

- At least 5 ECTS worth of mathematics / statistics modules
- At least 18 ECTS worth of a **practical project**

  ➔ **practical analysis** of societal challenges, demonstrating the ability to apply a blend of technical and social science perspectives. For example:

- Data analysis of social media trends
- Developing educational technologies
- Data-driven approaches in healthcare
- ...
Application Procedure

Step 2: Aptitude test

- Written test
- 90 minutes
- 35 multiple-choice questions from the fields of:
  - Politics and social science
  - Economics and law
  - Mathematics and statistics
  - Science and engineering
Application Procedure

Part 1
Submitted documents complete and meeting requirements
Maximum of 48 points to be achieved (based on grades from best 140 credits)

Part 2
Passed written aptitude test
Maximum of 48 points to be achieved

Total score

Admission
68 points or more
under 40 points and under 18 points from part 1
48 points or more

Interview

Rejection
under 48 points

Apply here:
https://www.tum.de/en/studies/application/application-info-portal/online-application

Find more information here (including documents needed for submission):
https://www.sot.tum.de/sot/studium/ai-in-society/