Vom Digital Native zum Digital Expert

Wahlpflichtmodule

MUC.DAI

Wintersemester 2023/24
Modulbeschreibungen für MUC.DAI-eigene Wahlpflichtmodule:

Inhaltsverzeichnis

sustAInability - Sustainability and Artificial Intelligence 3
Project AICA - Artificial Intelligence in Culture and Arts 6
sustainAbility - Sustainability and Artificial Intelligence

Contact hours: 10h bi-weekly seminar session, 35h workshop week
Cycle: every semester
Language of instruction: English
Workload/self-study phase: 180h workload, 135h self-study
ECTS: 6
Assessment/Examination: Assignments (0,6) and presentation (0,4)
Responsible: Prof. Dr. Gudrun Socher (FK07)
Lecturers: Team of coaches and experts

Course Objective

Sustainability and digitalization are at the center of scientific, political, and environmental debates as the two significant transformations of our time. Artificial intelligence (AI) is coming into focus, permeating public and private life and increasingly becoming part of sustainability debates. AI has the potential to help us address some of the most pressing sustainability challenges of our time, such as climate change, resource depletion, and inequality. For example, AI can be used to optimize energy consumption, reduce waste, and improve the efficiency of transportation and other systems. However, it is important to consider the potential social and environmental impacts of AI and to ensure that it is developed and used in a way that is responsible and sustainable.

Learning outcomes

After successful participation in this course, students are able to:

- independently acquire knowledge and to put their knowledge, particularly in the context of artificial intelligence and sustainability, into practice e.g. in the form of written essays or presentations in class
- systematically plan, design, and implement solutions with respect to sustainability and artificial intelligence (AI) in a team project to apply their knowledge
- work together in an interdisciplinary team and to present their project results in a public pitch

Prerequisites

This module is aimed at all students enrolled in a Master or third year of Bachelor program at the Technical University Munich (TUM) or the Hochschule München University of Applied Sciences (HM); it is thus designed as an interdisciplinary venue, which brings together a range of scientific perspectives. No specific prior knowledge is required; however, its project-based character requires high levels of intrinsic motivation and the willingness to actively participate in a project. Students with a technological background are as welcome as students from social sciences, economics, design or humanities.

Course Content

Sustainability as a central, political and societal goal, can instead serve as an orientation framework for the responsible development of AI technologies as well as a compass for their use. For this to succeed, both sociological and technical perspectives are necessary. For universities - but also for
other institutions in politics, society and business - this means that disciplinary boundaries must increasingly be broken down and interdisciplinary teaching and learning formats should be created. One such format is "sustAInability" during which students approach AI from various sustainability perspectives in a self-study phase and seminar units, and then develop application-oriented technical and non-technical solutions in the context of AI & sustainability themselves in a workshop week.

During the self study phase and the seminar sessions, students will read relevant literature, watch videos and complete assignments, prepare short presentations, attend lectures and subsequently discuss the gained insights. The workshop week will start with a futurizing workshop, allowing the students to imagine desirable future scenarios and to derive strategies for the present. Afterwards students will tackle selected challenges in the field of AI and sustainability. Students will regularly receive feedback and are expected to present their results in a pitch by the end of the workshop.

Assessment/Examination

The module contains self-study phases as well as bi-weekly seminar sessions and an intensive, interactive one-site workshop week. Following the idea of flipped-classroom, students are expected to acquire knowledge during the self-study phase in order to be able to participate in profound discussions during the seminar sessions and to actively tackle current challenges in the field of AI and sustainability during the workshop week. Over the course of this module, students will have to complete the following tasks:

- Self-Study and Seminar-Phase: students have to contribute to the first phase by carefully reading the provided material and by completing the accompanying assignments in written and oral form preparatory to the workshop week. They also have to actively take part in the seminar sessions and discussions on-site. The preparation of and the participation in the seminar sessions count 60% to the final grade.
- Workshop-Week: students have to form interdisciplinary groups, choose a challenge and develop a project. By the end of the workshop week students are expected to present their project at the public conference. This presentation counts 40% to the final grade.

Teaching/learning methods

The module draws on the ideas of service-learning and project-based learning. A range of teaching & learning techniques will be applied:

- Self-Study and Seminar-Phase: Students will be provided with a reading list, news articles, podcasts, and videos on an online platform. These materials allow students to individually gain first insights on the topic. The accompanying written assignments as well as the short presentation on a specific topic will help them to structure the newly acquired knowledge.
- Group work: After nine weeks of alternating self-study phases and seminar sessions which provide (expert-)input on the core topics, students will learn to apply agile methods and work on their projects in groups in the workshop week. Progress will be assessed through project presentations by the end of the workshop week as well as continuous feedback from the instructors, from external experts, and as peer-to-peer feedback.
- Presentational skills: Will be further facilitated through the requirement to present ongoing and final results within the seminar and at a final presentation with stakeholders.

Course Type

Elective
Literature

- more reading materials will be provided in the self-study materials
Project AICA - Artificial Intelligence in Culture and Arts

Contact hours: three three-day workshop phases, 72 contact hours
Cycle: every winter semester
Language of instruction: English, German
Workload/self-study phase: 180h workload, 108h self-study
ECTS: 6
Assessment/Examination: Project (in German: Modularbeit)
Responsible: Prof. Dr. Gudrun Socher (FK07), Dr. Benedikt Zönnchen (MUC.DAI)
Lecturers: Team of coaches and experts

Course Objective
Artificial intelligence (AI) is finding its application in the cultural and creative industries. It is already changing creation, production, distribution and marketing of art and culture. There are an increasing number of prominent examples of how artificial intelligence paints pictures, composes pieces of music or writes poems, novels and plays. Not only the creation of art, but also other areas of the cultural value chains are being broken up and reordered by AI, such as the dissemination and communication of artistic content, as well as the acquisition and connecting existing and new recipients. Providers such as Spotify and Netflix are the best-known examples of how AI-powered recommender systems are creating new distribution and marketing of music and video content, and how this can increase how this is changing reception habits and audience preferences. Furthermore, AI harbors the potential to enhance the accessibility and participatory nature of both art creation and consumption. By reducing technical barriers - such as the replacement of expert systems with data-driven machine learning - AI can also democratize technical solutions, making them more accessible to non-experts.

This course aims to bring together students from diverse disciplines, including STEM, creative studies, music, business, and more, to develop tangible AI solutions for the challenges and opportunities present in the cultural and creative industries. The primary objective is to inspire these diverse minds to construct practical AI solutions, addressing both the challenges and opportunities inherent in the cultural and creative industries. Through the course, students will gain crucial competencies, enabling them to comprehend and shape AI-driven processes across numerous artistic and creative fields. Simultaneously, they will reflect on and appreciate the evolving impact of AI within the cultural and creative sectors.

Learning outcomes
After successful participation in this course, students are able to:

- acquire knowledge independently, especially in the context of artificial intelligence's application within culture and arts. This includes the ability to put their understanding into practice, demonstrated through AI's integration into fields such as music, arts, and various cultural facets.
- systematically plan, design, and execute projects in the intersection of AI, culture, and arts, employing agile methodologies like design thinking for innovative problem-solving.
- collaborate effectively within an interdisciplinary team, construct tangible artifacts, and articulate their project outcomes to a public audience through compelling presentations.
Prerequisites

This module is aimed at all students enrolled in a third year Bachelor program at Hochschule München University of Applied Sciences (HM) or the Hochschule für Musik und Theater München (HMTM). Students in Master programs are also welcome; it is thus designed as an interdisciplinary venue, which brings together a range of perspectives. Prior experience and basic knowledge about machine learning is required; its project-based character requires high levels of intrinsic motivation and the willingness to actively participate in a project. Students apply via a short application form with a query about their competencies and motivation.

Course Content

Over the winter semester, an immersive project workshop will take place, featuring three separate three-day meetings. Here, roughly 25-30 students will form teams to collaborate with technology and culture experts. Throughout the winter semester, students will collaborate in mixed teams of 4-5 members, working on the conception and execution of their own projects. Supported by agile coaches, these teams will work on developing practical AI solutions to tackle challenges and opportunities within the cultural and creative industries. Coaches will guide these teams, providing individualized support during the meetings and the work process at various stages. This assistance throughout the project workshop will be grounded in agile innovation approaches, including design thinking and methods borrowed from the Google Design Sprint.

The project workshop kicks off with the first meeting where topics are established, teams are formed, and initial ideas, along with their potential implementation strategies, are brainstormed. During the second meeting, the teams present their preliminary results. Experts then evaluate these results, focusing on their technical and conceptual aspects, providing crucial feedback for further refinement. The third meeting serves as the conclusion, where final projects are showcased. In the intervals between these meetings, teams independently continue their work on their AI projects. They have access to the technical and content experts, as well as the coaches, for support as needed.

Upon completion of the course, students are inspired to extend the scope of their projects, whether through a thesis, product development, or a performance. Experts will persist in their support, fostering the continuation of these projects beyond the confines of the course.

Assessment/Examination

At the end of the project workshop, the students have to present their projects in a final colloquium once per semester. This presentation will be attended by students of both students from both universities along with representatives from the educational, research, cultural, and creative sectors. The colloquium will be open to all students of HMTM and HM who are also interested in projects at the interface between interface of AI and art and culture and want to present them. Furthermore the teams will compile a 10-page group paper that outlines the project's evolution and progress.

The project, the presentation, and the resulting artifacts are graded.

Teaching/learning methods

The module incorporates the concepts of service-learning and project-based learning within an agile framework, utilizing various teaching and learning techniques:
• Workshops and Teamwork: Students will form teams and, supported by technology and culture experts as well as agile coaches, will develop practical AI solutions to address challenges and opportunities within the cultural and creative industries.
• Challenges: Project ideas may originate from the students themselves or be proposed by stakeholders and institutions within the cultural and creative sectors.
• Presentational skills: These will be further honed through the necessity to present both ongoing and final results within the project scope, and at a final presentation.

Course Type
Elective

Literature
• Caramiaux, B. et al., 2019. AI in the media and creative industries. New European Media (NEM).
• further literature will be provided at the beginning of the course