UMEÅ UNIVERSITY

REPORT FROM A WORKSHOP ON EDUCATING AI FOR HUMANITY AND SOCIETY JUNE, 2024

Report of a WASP-ED Project

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INTRODUCTION

There is a broad consensus that existing disciplinary education needs to incorporate education on artificial intelligence (AI) from different perspectives relevant for particular professional domains to efficiently develop and integrate AI and other transformative technologies in routines and infrastructures that build society and the welfare services provided by societal organisations. A report published by the Swedish Higher Education Authority (2018) also highlighted that further development of interdisciplinary education will be needed to educate professionals in different domains for current and future needs of competence.

As part of The Wallenberg AI and Transformative Education Development Program (WASP-ED) a new broad AI curriculum is being developed that covers AI topics beyond the STEM disciplines (Lindgren & Heintz, 2023). This report presents a workshop with the goal to prepare for developing course syllabuses on AI across disciplines and academic institutions that have been found missing in Swedish education, taking place at Uppsala University, June 2024. The proposed syllabuses will be connected to the WASP-ED Curriculum and blueprints of programs, and made after further development available to universities in Sweden. The themes emerging during the workshop were also compiled into a blueprint of a one-year magister program, which could be extended to a master program. The workshop was jointly organised by The Wallenberg AI and Transformative Education Development Program (WASP-ED) and The Wallenberg AI, Autonomous Systems and Software Program – Humanity and Society (WASP-HS).

Methodology

11 assistant professors recruited as part of The Wallenberg AI, Autonomous Systems and Software Program – Humanity and Society (WASP-HS) were invited to participate. They have backgrounds in a broad range of disciplines in the humanities and social sciences (law, philosophy, history, education, art and technology, interaction design, business, policy) with a research focus on different aspects on AI and its consequences. A few participants had a background also in Computer Science and AI. The workshop was led by two researchers with complementary backgrounds - digital humanities and human-centred AI.

To prepare for the workshop, the participants were asked to reflect on the following:

- What courses do you see are missing in Swedish education on AI and other transformative technologies, relating to their impact and consequences on humanity and society, on individual as well as global levels?
- Who should attend the envisioned courses and how would they complement existing courses and programs?

Material was provided on the WASP-ED Curriculum, and an example of a template for a course.

As introduction to the workshop, one of the participants presented experiences from developing new courses and the Bachelor program on Philosophy and AI, given by Umeå University in Sweden.

Topic areas and tentative courses were identified as group work. The group convened to map out proposed courses and their relationships. Initial clustering of topics was made and mapped to the WASP-ED Curriculum for evaluation. The topics were in a next step mapped into tentative course modules with progress across the modules, forming a tentative program. In the next phase, reflections on pedagogical and epistemological challenges and opportunities were discussed.

As a post-workshop analysis, the outcome of the workshop was mapped to the WASP-ED AI Curriculum to evaluate the coverage and potential further development of the proposed education.

RESULTS

Five themes emerged during the first part of the workshop: *AI, diversity and human rights*; *Educating on the foundations of AI*; *Pushing the boundaries of theories and methodology*; *Building better AI (systems)*; and *Educating professionals within certain disciplines – changing professions*.

Three course modules of 15 ECTs were formed based on these themes and the proposed courses. These three combined with a 15 credit thesis course would form a 60 ECTs program on advanced level.

A blueprint of a 60 credit program was outlined, with the tentative name ”Theories and Practices of Artificial Intelligence”. The program targets students with non-technical (and potentially technical) background who have a Bachelor degree, and potentially professional experience in some discipline. The program could be extended into a master program. The output of the program would be professionals in their original domains, specialised on the ”AI, Society and humanity” perspective.

The program would follow certain pedagogical principles to align the content with societal needs and across courses in the program: i) learning by doing; ii) real world challenges; and iii) engaging stakeholders in the courses to ground education in real-world challenges. To realise learning by doing, clinics and labs throughout the courses would be applied as well as case-based and project-based learning, with increase in technical complexity over time. Examples of real-world challenges were proposed: Ethical and responsible use of AI; Immortality: AI, Law, Culture (or do I own myself); Non-Fascist AI Action Lab; Indigenous Data Rights and Resources; ”AI, Law, Lab” (and title);ß and The Herstory Feminist AI Archive.

Modules

The program consists of four basic modules organised into one semester with two full-time modules and one semester with two parallel courses of which one is a thesis course (Figure 1).

The thesis course would connect to the project work done in the “AI in the Wild” module, and may be addressing a particular disciplinary challenge.

15 ECTs 100%	15 ECTs 100%	15 ECTs 50%
Foundations of AI in/and Society	"AI in the Wild" At the end of the course present exciting ideas for thesis topics	Pushing Boundaries / Building "better" AI Methodology, connecting to research
		15 ECTs 50% Thesis Potential disciplinary challenge

Figure 1. Outline of the proposed 60-credit program.

Module 1: Foundations of AI in/and Society

The foundations of AI in/and Society module would take as starting point perspectives of Humanities and Social Sciences. There were differences in opinion how much of the core topics of AI and hands-on practice would be relevant, as is presented below, an introduction to the core AI topic and human-AI collaboration is included (comments in brackets reference to the AI Curriculum, Figure 2):

- What is AI really? History, Society, Ideologies (Levels 0, 1c, 4)
- History of Science - AI and cognitive science – relations and differences
- Introduction to AI for Social Sciences and Humanities (Level 1a, 1b)
- Critical Theory of AI (Level 1c)
- AI and Social Theory (Level 1b, 1c)
- The Politics, Economy, Ethics and Philosophy of Data and Information (Level 1c)

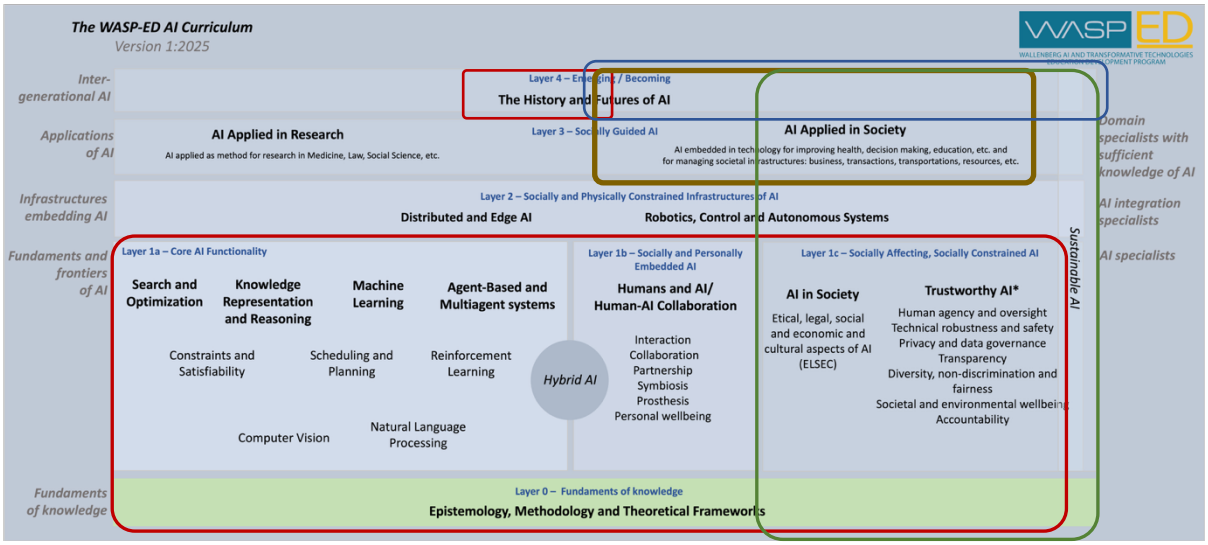

Figure 2: The modules mapped to the WASP-ED AI Curriculum. Module 1 is shown in red frames, Module 2 in a brown frame, and Module 3 in the green frame. The additional course Module 1b suitable as an advanced course is visualised in the blue frame.

Module 2: AI in the Wild

Students are likely having their basic education in disciplines such as law, education, health or medicine, political science, philosophy, media or art, and may have professional experience of AI. The module AI in the Wild focuses changing professions and practices. Since practices are of concern to several disciplines and citizens, challenges such as the future of healthcare, primary and secondary education, art and media are examples that engage across disciplinary backgrounds among students.

Stakeholders would be involved and societal challenges addressed. At the end of the course the students should be able to present exciting ideas for thesis topics, which they could continue working on during courses the next semester.

Module 3: Pushing Boundaries / Building "better" AI (Methodology)

While Module 1 concerned AI, and Module 2 AI applied for humanity and society (AI4HS), the third module aims at Pushing Boundaries and Building better AI with the broader HS4AI (Humanities and social sciences for AI) perspective. The following are topics to be included:

- AI for Good and when not as Good
- Ethical and Responsible Use of AI
- Risk and (un)risking AI
- Legal and Operational Aspects of Cybersecurity
- Legal Protection by Design

Post-Workshop Analysis: Mapping to the AI Curriculum and Implications for extension to 120 ECTs

Figure 2 illustrates how the proposed set of courses cover the different levels of the AI Curriculum, with emphasis on societal aspects (Level 1c, 2 – applications in society). Opportunities to complement the set of courses can be seen as the proposed courses only covers level 1a and 1b on an introductory level. One additional course module could cover in more depth the complexity of humans collaborating with AI agents including hybrid agentive AI. Another one could focus on AI for social sciences and/or humanities research (Figure 3). This would form a program that could give the students a broad, yet deepened knowledge in AI and its consequences on a social and personal level.

Figure 3. Overview of modules for a one-year program, and a tentative extension into a Master program.

By having elective courses, the education could also open the possibility for the student to focus on a particular challenge, potentially, related to their basic education and as preparation for research in a particular disciplinary domain. Such courses could be formed to build a Master's education that requires a certain number of credits within their own subject to fulfil the requirements for a specialisation degree.

Module 1b: Foundations of AI in/and Society – Modules of Practice

A more advanced module was proposed during the workshop, which could build on Module 1: Foundations of AI in/and Society – Modules of Practice (Figure 3). The following topics were seen as more deepened focuses of the topics in Module 1 and could be courses or modules in graduate courses or courses on master's level, expanding the set of courses beyond 60 ECTs:

- Creative AI and [whatever you want to add]
- Creative Computing (exploring a view on data and models different from the computational view)
    - Data as creative material
    - Model as creative material
- Non-Computational Thinking
- Posthuman-Centered AI
    - Pluralistic modelling
    - De-centering the human
    - Re-centering humans (plural)

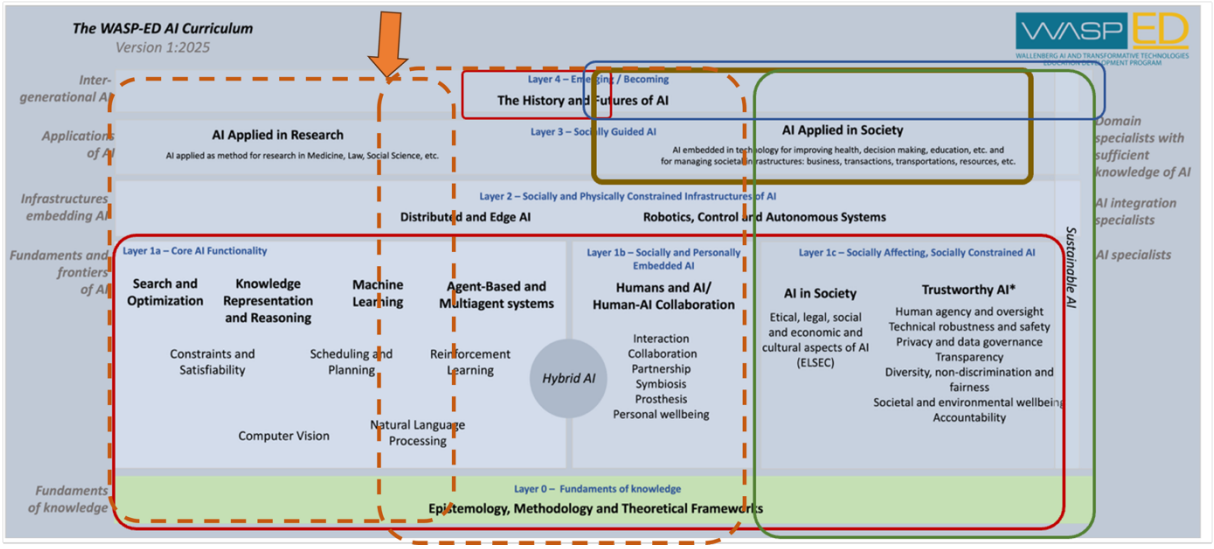

Figure 4: Example of additional courses that would provide a deepened understanding of human-AI collaboration, AI agents and human-AI teaming, and methodology focusing on AI for SSH research.

Conclusions

The research field Artificial Intelligence is inherently multi-disciplinary, and the current accelerating implementation of AI technology in society demand competence across disciplinary domains, which was the starting point of the workshop presented in this report. By engaging researchers across social sciences, humanities and science and technology, who in addition, focus on various perspectives of AI, a blueprint of a multidisciplinary education on advanced level was proposed. The aim was to foster competence in AI and the social and humane aspects of AI technology embedded in society and in people's life.

A blueprint of a multidisciplinary education on advanced level was proposed, formed by a group of researchers of multiple backgrounds across primarily social sciences and humanities. To evaluate the blueprint it was mapped to the WASP-ED AI Curriculum, and different opportunities to extend the blueprint into a Master's program were proposed.

The blueprint can be used by educational institutes to further develop new courses and programs to further develop disciplinary education and foster multidisciplinary understanding of the challenges and opportunities of AI in society.

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References

Swedish Higher Education Authority (UKÄ) report, 2018. https://www.uka.se/swedish-higher-education-authority

Lindgren H, Heintz F. The WASP-ED AI Curriculum: A Holistic Curriculum for Artificial Intelligence. The 17th annual International Technology, Education and Development Conference (INTED2023), Valencia, March, 2023.

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