



Teaching HCI for AI: Co-design of a Syllabus

A workshop of
SIGCHI Italy - ACM SIGCHI Italian Chapter
in collaboration with
CINI AIIS (Artificial Intelligence and Intelligent Systems Lab)
July 7th, 2020



Italian Chapter of the ACM Special Interest Group for Human Computer Interaction, active since 1996

<http://sigchitaly.eu/it/informazioni-general/>

CINI AIIS, a national lab that aims to promote the Italian ecosystem of expertise and excellences in Artificial Intelligence



<https://www.consortio-cini.it/index.php/en/labaiis-home>



Human-AI Interaction

- Advances in AI and growing uses of AI technologies in human-facing applications offering enormous potential benefits to the users
- The probabilistic behaviors of AI system can confuse users, erode their confidence, and lead to the abandonment of AI technology
- **Proper knowledge of HCI** principles, methodologies and techniques may help make AI systems beneficial and useful to people, but also...
- ... **proper design of AI algorithms** may help take into account user needs and requirements



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Need for a “collaborative” perspective, based on synergies between AI and HCI experts.

The co-design of a syllabus is a first step



Co-design of a syllabus: why?

It is important to transfer a systematic view over the knowledge needed to design effective human-facing AI systems to the professionals of the future (our current students)

- Lack of systematic guidance and related resources for the design of human-facing AI systems
- Some recommendations on interaction paradigms for AI systems exist, but:
 - Very often guidelines are scattered throughout different academic and scientific venues
 - Within papers, guidelines and solutions are hidden in future work and conclusion
 - Abstraction to generalize results across different domains is difficult
- Few systematic initiatives (Microsoft, IBM, Google People+AI, ...)
- Analysis of MSc on AI: they do not include any course on HCI
- Analysis of MSc on HCI: very few courses focusing on Human – AI Interaction



The genesis of this workshop

- We conceived the idea during a meeting of the EMPATHY project (Empowering People in Dealing with Internet of Things Ecosystems)

EMPATHY

<http://www.empathy-project.eu/>

- We contacted colleagues of the CINI AIIIS Steering Committee who expressed interest in organizing a joint event
- Initially an Italian event; then we got consensus and enthusiasm from colleagues in foreign countries

Some initiatives around the world

- Guidelines provided by companies, Apple, Google, IBM, Microsoft, ...
- Research papers on major conferences, CHI 2019, IJCAI 2019, ...
- Ben Shneiderman, Human-Centered Artificial Intelligence: Reliable, Safe & Trustworthy, Intern. Journal of Human–Computer Interaction, 36:6, 495-504, March 2020
 - 2-dimensional framework of Human-Centered Artificial Intelligence: it seeks high levels of HUMAN CONTROL and high levels of AUTOMATION in order to produce computer applications that are Reliable, Safe & Trustworthy
- Ben’s comments on the workshop: “I agree that there is still very little training on HCI included in AI curricula... and my concern extends to visualization. I do fight for both of those by encouraging it in courses I see that are under development...I will use your email to inquire with a few people who are sympathetic”.

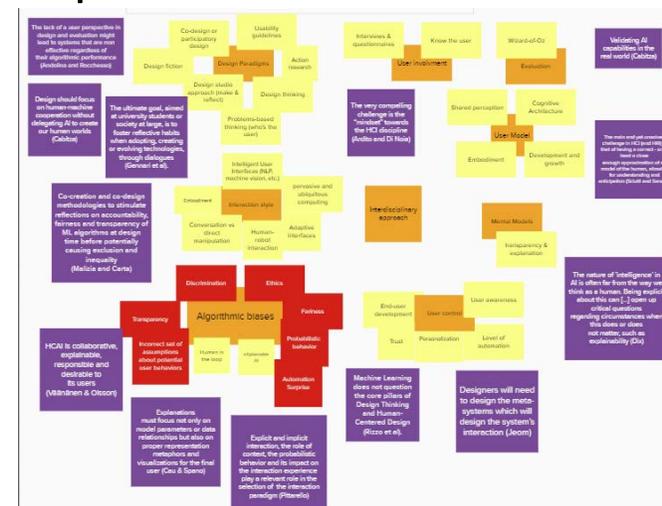
Some educational initiatives around the world

- Human-AI Interaction, Carnegie Mellon University, Chinmay Kulkarni (Fall 2019), but was first taught by Jeff Bigham (Fall 2018)
- Design of AI Products and Services, Carnegie Mellon University, John Zimmerman (Spring 2019)
- Human-Centred AI, University of British Columbia, Cristina Conati in Fall 2019
- HCI for Machine Learning, University of Illinois at Urbana-Champaign, Ranjitha Kumar
- Human-AI Interaction: Advanced Topics in Human-Computer Interaction, Kurt Luther (Spring 2020)
- Some courses at Stanford's Human-centered AI Institute (no precise references)
- MSc on Human-Centred Big Data and Artificial Intelligence (new), Swansea University, UK, organized by Matt Jones, Alan Dix, and Harold Thimbleby
- Human-AI Interaction, PhD in Computer and Control Engineering, Polytechnic of Turin, Luigi De Russis, Fall 2019
- HCI 4 AI, PhD in Information Technology, Polytechnic of Milan, L. De Russis, M. Matera, M. Zancanaro, Fall 2020

About today's workshop

- 13 position statements: 8 from Italy, 5 from foreign countries (available on the Workshop Web site)
- We invited other people interested in the initiative
- Presentations are organized in two panels on different perspectives:
 - *Panel 1*: AI systems that have an impact on human beings
 - *Panel 2*: The HCI competences the AI specialists should have in order to design AI systems that are beneficial to human beings
 - *Concluding session* for final discussion and follow up

- First attempt to identify emerging topics:



Video by Ben Shneiderman