



# 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)  
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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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- ... **proper design of AI algorithms** may help take into account user needs and requirements

**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





Video by Ben Shneiderman