Software for a better society

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Abstract— The main goal of my research through 30 years is to understand how to imagine software for a better society. While researchers traditionally use students as subjects to pilot studies before they are carried out in industrial environments, the supporting pillar of my working method is to set up studies with students that go beyond the contribution to scientific literature and identify benefits for other stakeholders. The four primary actors are: students, instructors, industry, and researchers Later, in our studies we have identified issues that appear at the intersection between art and software. Artistic software projects have often a social goal and are highly innovative. Our studies in art and software have given the ground for two research directions. The first is maker movement and its role in educational practices. Typical topics of interest vary from engineering -oriented pursuits such as electronics, robotics, 3D printing to the use of art and craft. Leveraging the beneficial outcomes from the Maker Movement approach and programming languages designed for children, together with a group of researchers, and artists we have designed, implemented and evaluated workshop programs. In our studies we have identified the important factors that characterize the design of the activities and the main aspects of children's engagement in such software intensive activities The second research direction is to harness the power of big data, increase collective and individual awareness about societal problems and ultimately create the needed intelligence that will lead entrepreneurs and policy makers to innovative solutions for societal challenges towards a sustainable society.

Keywords- software, art, children, gender, climate

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About author

Letizia Jaccheri (PhD from Politecnico di Torino, Italy) is a Professor at the Department of Computer Science of the Norwegian University of Science and Technology and adjunct professor at UiT The Arctic University of Norway. Jaccheri has been teaching courses in software engineering at various levels and acted as one of the independent directors of Reply S.p.A., the largest Italian IT company with 9059 employees. From 2013 to 2017 she was department head for the Computer Science department at NTNU. She is ACM Distinguished speaker.