

International Summer School on ICT for Sustainability (ICT4S) 16 - 20 August 2021 @Virtual/Snellius

Scientific

Information and Communication Technology (ICT) has a central role to play in digitalization and the transition to a sustainable society. ICT offers us a rich set of tools to collect and analyze diverse sources of data that help us develop and share new solutions, and increasingly, ICT provides new low-energy alternatives to physically moving people and goods around the planet. At the same time, ICT can erode democratic governance, reinforce inequality and exploitation, increase energy consumption, and seduce us into patterns of over-consumption and waste as we buy and discard an ever-growing set of gadgets. While ICT can help reduce energy consumption through effects such as dematerialization, at the same it generates new demands for energy consumption, for example for bitcoin mining and artificial intelligence. The complexities of these interactions between ICT, society and the economy must be disentangled in order to support the growing commitment to address negative impacts on the environment and society.

Since its inception in 2013, the ICT for Sustainability (ICT4S) research community has coalesced around a common set of research challenges that address this dilemma, focusing both on how to make ICT greener, and how to leverage the power of ICT to develop sustainable solutions in diverse areas such as urban futures, transport, buildings, food, electricity, clean water, and the achievement of the sustainable development goals (SDGs). The ICT4S Summer School 2021 aimed to build a bridge between related communities, kickstart new scientific collaborations and nurture the next generation of community members through a series of presentations by leading academics, and collaborative paper writing working groups.

Organization

The first edition of the school in **2017** had been overwhelmingly successful and its participants had urged the organizers to repeat it on an annual cycle.

Given the impediments presented by the COVID-19 pandemic, we have decided to hold the **2021** school fully online. To this end, and given that both lecturers and participants were attending from different continents, we decided to: (i) shorten the program (to cope with online fatigue) and schedule it in a time-slot that would work for most time-zones around the globe; (ii) flip the classroom by pre-recording the lectures and focus on activating the participants to discuss with the lecturers; (iii) and dedicate most of the time to the working sessions.

We gathered informal **feedback** during the closing session. Overall, it was unanimously positive; some participants mentioned (i) the high quality of lectures, (ii) the depth of the discussions; (iii) the diversity in the people attending as well as their backgrounds, and (iv) the excellent (virtual) support provided by the Lorentz Center workshop coordinator. Also, mentioned **points for improvement** that we plan address in a future edition, are: (i) adding slides to videos (a simple yet useful complement to the video-lectures); and (ii) a slack channel for postmortem discussions (we did not implement this for the whole school even if the working groups have independently created either google groups or slack workspaces to continue the collaboration beyond the duration of the school).

Outcomes and Research Outlook

The school kick-started seven working groups on the following topics: Rebound Effects; Digitalization and Sustainable Business; ICT, sustainability and Art; ICT to question Lifestyle; Ethics, Values, Agency; Green AI; and ICT and Degrowth. In addition, the interested participants started a “reading club”. Many of the working groups are now working on joining research to be submitted to a.o. the ICT4S 2022 conference.

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