

ICT4S Summer School

Aim and Description

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 will 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.

Program 2021

Each day of the school is devoted to one or two cutting-edge topics that will be discussed by a prominent member of the international research community with that topic-specific expertise (see table below). The whole school is online or, if possible, blended. It is organized in three logical parts: the lectures, the independent work, and a concluding retrospective. **The lectures** follow a “flipped classroom” approach: all lectures are video-recorded and distributed upfront so that the participants can watch them beforehand; during the school week, they are all introduced by the lecturers and discussed “live” so that all participants can reflect and debate on what they learned together with the lecturers themselves, the senior participants and the peers. **The independent work** is organized in parallel independent-work sessions: the participants will work together on a research topic aimed at a follow-up scientific publication ideally meant for submission to the ICT4S conference planned in 2022 or ACM Limits 2022. In this way, new collaborations will be started, possibly across different disciplines.

	Mon Aug 16 (ICT4S and SDGs)	Tue Aug 17th (Systemic Perspective)	Wed Aug 18 (Design 4 Sustainability)	Thu Aug 19 (Societal impacts)	Fri Aug 20 (Economics and Politics)
15:00 (CET)	Plenary room: 15:00 <i>Opening</i> Introductions ICT for Sustainability - ICT4S (Hilty)	Debate room: Rebound Effects (Coroama) Critical Systems Thinking & Sustainability Design (Becker)	Debate room: Research Through Design (Eriksson) Software Sustainability Awareness and Assessment (Lago)	Debate room: ICT4S and ICT for Development - ICT4D (Chen) Reaching Underserved Communities (Raza)	Debate room: Economics and Sustainability (Lange)
16:00	<i>Virtual Coffee break</i>				
16:15	Kick-start collaborative projects: 1. Breakout rooms to develop ideas 2. Form groups	Independent work: all groups established Collaborative project (break-out groups)	Independent work: Collaborative project (break-out groups)	Independent work: Collaborative project (break-out groups)	Independent work: Collaborative project (break-out groups)
18:00	Plenary room: Retrospective				

The **debate room** and **plenary room** are virtual rooms joined by the whole class. Once finalized, each group will be assigned a different virtual room for the **independent work** sessions.

The collaborative project sessions will be conducted in groups formed on day one. At the end of each day, a **retrospective session** will be organized where each group presents their work to the other groups to inform them but also to facilitate cross-fertilization of ideas among groups.

We will also open a **channel** on MS Teams where the participants will start interacting before the school starts. This will allow them to meet, exchange ideas and material for the research topics of interest, and join the preferred group for the independent-work sessions.