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COLLOQUIUM DIGITALE
„DIGITALISIERUNG, MENSCH UND GESELLSCHAFT“

HOW SUSTAINABLE IS THE FOOTPRINT OF DIGITAL TECHNOLOGIES?

AN ONLINE WORKSHOP ON DIGITAL TECHNOLOGIES,
ENERGY, AND SUSTAINABILITY

A life without digital technologies is almost inconceivable. However, what impact do digital technologies have on our energy infrastructure, and how sustainable is the use of information and communication technologies and thus the transformation(s) they bring about? This workshop provides the space to discuss the complex impact, challenges, and opportunities that the use of digital technologies has on our energy systems, and on sustainable development overall.

PROGRAM

WELCOME & INTRODUCTION

Georg Brasseur | President of the Division of Mathematics and the Natural Sciences, Austrian Academy of Sciences

IMPULSE LECTURES

Vlad C. Coroamă | Senior Research Associate, Computer Science Department of the ETH Zurich
Digitalization and Sustainability – The Good, the Evil, and the Complex

Information and communication technologies (ICT) pervade ever more sectors of our economies and societies, bringing about profound societal, economic, and environmental transformations. These can be either beneficial or detrimental to sustainable development, and can often lead to conflicting goals and trade-offs. In particular, ICT can help reduce societal energy consumption and carbon emissions, by making existing processes more efficient or substituting them altogether. On the other hand, however, ICT itself features an ever-growing energy and carbon footprint and – arguably more important – by the very efficiency gains it induces, it can also cause more economy-wide consumption of diverse goods and resources through various rebound effects. The presentation addresses this complex relationship and possible ways out of its dilemma.

Atakan Aral | Research Fellow, Faculty of Computer Science, University of Vienna
Sustainable Environmental Monitoring

The rapid advancement of Artificial Intelligence (AI) and Internet of Things (IoT) technologies, as well as their convergence, open new doors for environmental monitoring systems. Continuous data collection and the ability to act in near-real-time enables many applications from water or air quality management to disaster early warning systems (e.g., seismic/volcanic activity, avalanches, nuclear radiation). A critical constraint is that such monitoring-based applications must have small ecological footprints so as not to affect the very same environment they are intended to protect. This presentation focuses on the challenges, opportunities, and enabling technologies for sustainable environmental monitoring with a concrete use case of early detection of pollutants in rivers.

Lynn Kaack | Assistant Professor of Computer Science and Public Policy, Hertie School, Berlin
AI and Climate Change

Climate change is one of the most pressing issues of our time, and addressing it will require rapid, systemic approaches involving technology, policy, and society. Artificial intelligence (AI) and machine learning (ML) offer new techniques that are driving innovation across many sectors, and as such have a multi-faceted relationship with climate change. This talk will provide an overview of how different AI technologies can play a role in supporting climate change efforts. We will also cover how AI can affect climate action in negative ways, and discuss the compute-related emissions footprint associated with the technology.

COFFEE BREAK

BREAKOUT SESSIONS

ROUNDTABLE DISCUSSION

Moderated by:

Ivona Brandić | Professor for High Performance Computing Systems, Vienna University of Technology

CLOSING STATEMENT

Ivona Brandić | Professor for High Performance Computing Systems, Vienna University of Technology

Georg Brasseur | President of the Division of Mathematics and the Natural Sciences, Austrian Academy of Sciences

The working languages of the workshop are English and German.

REGISTRATION REQUIRED: Please send an email to kathrin.humphrey@oeaw.ac.at to register for this workshop by March 11, 2022.

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