Digital Social Ecology

We study the impact of digital platforms on human-environment interactions, with a focus on sustainability, resilience, and justice. We apply our research to areas such as urban planning, biodiversity conservation, and environmental management.

Summary

In the Anthropocene, the pursuit of sustainability, resilience and justice is deeply intertwined with the social, institutional, and cultural constructs that shape social-environmental interactions. Digitalization is increasingly permeating human life and reshaping these interactions, blurring the lines between physical and virtual spaces. Consequently, it has become a pivotal factor to address urgent social-environmental challenges, including global climate change and biodiversity loss, in the real-world and digital world alike.

The Digital Social Ecology research line seeks to deepen our understanding of how digital platforms and technologies are reshaping human-environment interactions. Building on complex social-ecological systems theory, the group will explore complex interconnections between digital, natural, and human systems. The objective is to provide foundational knowledge as well as actionable insights to understand complexity and to tackle wicked problems across the societal goals of sustainability, resilience, and justice in a digitalizing global society. We aim to train a new generation of researchers able to bridge and broker between high-performance computational, social, and environmental research.

We aim to offer novel perspectives and solutions to contemporary social-environmental challenges. With practical applications in fields like urban planning (e.g. climate change adaptation), biodiversity conservation, environmental management and stewardship, the research group will develop integrated transdisciplinary and computational approaches, and open data sets to support the investigation of human-

environment relations and interactions. Building on different research traditions, including environmental justice, ecological economics, and environmental psychology, the group will employ and integrate different social science concepts and methodologies with digital tools, including high performance computation, digital social networks analysis, machine learning and large language models.

We are currently working on the project **BIG-5 | Fostering Internet-based Values of the Environment**

In BIG-5 we analyze how human-nature experiences are represented on social media and manifest in Digital Relational Values (DRVs) with nature. This project explores how virtual communities across different platforms, landscapes, and languages influence environmental stewardship, offering alternative ways to connect with nature as direct experiences diminish. By examining the spread of DRVs, we aim to assess social media's potential in fostering collective responsibility for environmental sustainability and the protection of ecosystems.

For further information, visit https://big-5.eu/

Objectives

- Deepen understanding of digital platforms' impact on human-environment interactions.
- Explore connections between digital, natural, and human systems.
- Provide knowledge and insights to tackle sustainability, resilience, and justice challenges.
- Train researchers to bridge computational, social, and environmental research.
- Develop transdisciplinary and computational approaches for urban planning, biodiversity, and environmental management.
- Integrate social science concepts with digital tools for addressing contemporary social-environmental challenges.

Barcelona Supercomputing Center - Centro Nacional de Supercomputación

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