



# GDA

Green Digital Accessibility

3rd edition

# BOOK OF ABSTRACTS



# FOREWORD

This booklet presents the abstracts for the third edition of the GDA (Green Digital Accessibility) conference, a conference focused on bridging the gap between accessibility and environmental sustainability through the expertise of media, accessibility, technology, environmental studies and education professionals and researchers.

Professor Gordana Kranjac-Berisavljevic from the University for Development Studies, Tamale, Ghana, will deliver the keynote address on the first day of the conference. Her presentation, titled “Digital Solutions for a Just Green Economy Transition in Africa: Addressing intersectionality in a gendered space from the Ghanaian perspective,” will explore the critical role of digital technology in Ghana’s transition to a sustainable future. Professor Kranjac-Berisavljevic will argue for a just transition that considers social equity and addresses existing power structures within Ghana’s agriculture and food sectors.

This is followed by our first panel, titled “Accessibility and Ecology”, which will delve into the complex relationship between technology, accessibility, environmental concerns, and social justice. The three papers in this panel will explore various facets of this complex landscape, highlighting the challenges and opportunities in making crucial information accessible to all, particularly vulnerable groups.

The second panel in this conference will showcase the work of the ClearClimate project, which seeks to build a global network of researchers to address key challenges in developing Climate Information Services. In their panel, Clear Climate researchers will present on a range of topics, including climate change adaptation and mitigation strategies, training for climate services, accessible climate information, ethical challenges in flood researching using open data and innovative approaches to accessible heritage interpretation.

Following lunch, the first of our workshops will be facilitated by Catharina Dörr of Climate Media Factory, who will guide us through a practical exploration of the importance of social dimensions and visual communication in sustainable projects. In this workshop, participants will explore how visual communication can be used to address social inequality and make sustainable projects more inclusive. Participants will engage in creative exercises to uncover their own viewpoints and biases, ultimately building the capacity to design more equitable and impactful sustainability initiatives.

# FOREWORD

Day one will conclude with a hackathon, led by Solène Delarue and Rayanne Beayno from Agorize. Teams will compete to create innovative solutions to address both accessibility and sustainability issues. The winning concept will be determined by a public vote during the conference.

Our second day of the conference will open with a keynote from Professor Biljana Basarin of the University of Novi Sad. Her presentation will discuss the issue of sensationalism in science, specifically focusing on media coverage of extreme weather events in Serbia. Through an in-depth analysis of over 3,500 headlines from major Serbian newspapers over two decades, Professor Basarin explores a concerning trend towards apocalyptic warnings rather than credible scientific information. She argues that this tendency towards dramatic reporting can potentially distort public understanding of climate issues. As climate communication plays a crucial role in promoting sustainable behaviour, Professor Basarin's paper underscores the critical need for responsible journalism that accurately balances public engagement with scientific integrity in climate change reporting.

Next, Panel 3 will explore creating a more equitable and inclusive Green Deal through research. Drawing on the European research project ACCTING (AdvanCing behavioural Change Through an INclusive Green Deal), panellists will explore how European Green Deal policies impact socially marginalised and vulnerable groups. Through comparative case studies in disaster management, mobility, and food security, panellists will explore how Green Deal policies influence the behaviour of vulnerable populations. Panellists will discuss both the positive changes and existing barriers encountered.

Finally, our last panel is titled "Sustainable and accessible design" to sustainable and accessible design and will explore the possibilities of design in shaping a more equitable and greener future.

We hope that this year's GDA conference will provide you with valuable insights and spark discussions that propel the conversations on environmental sustainability and accessibility to new heights.

The Organising Committee  
Transmedia Catalonia Research Group, UAB.

2-3 December 2024

**#GreenDigitalAccessibility**

# THE PROGRAMME AT A GLANCE

**DAY 1 – Monday, 2 December 2024**

8.30–9.00 CET	Registration
9.00–9.30	Welcome address by <b>Sarah Anne McDonagh (UAB)</b>
9.30–10.30	<p style="text-align: center;"><b>FIRST KEYNOTE LECTURE</b></p> <p style="text-align: center;"><b>Gordana Kranjac-Berisavljevic</b> <b>(University for Development Studies, Tamale, Ghana)</b></p> <p style="text-align: center;"><i>Digital Solutions for a Just Green Economy Transition in Africa: Addressing intersectionality in a gendered space from the Ghanaian perspective</i></p> <p style="text-align: center;"><b>Chair: Pilar Orero (UAB)</b></p> <p style="text-align: center;">Discussion: 15 minutes</p>
10.30–11.30	<p style="text-align: center;"><b>Panel 1: Accessibility and Ecology</b></p> <p style="text-align: center;"><b>Matt Riemland (DCU)</b> <i>Who owns the land, who owns language? Understanding the links between language accessibility, data governance, and the ecological costs of AI in a just transition</i> (15 mins.)</p> <p style="text-align: center;"><b>Duygu Dalaslan</b> <b>(Adana Alparslan Türkeş Science and Technology University)*</b> <i>Integrated Audio Description as a Sustainable and Accessible Tool for Disaster Preparedness of Vulnerable Groups</i> (15 mins.)</p> <p style="text-align: center;"><b>Marina Pujadas Farreras (UAB)</b> <i>How can we make easy videos about climate change? Insights from users and professionals</i> (15 mins.)</p> <p style="text-align: center;"><b>Chair: Maria Eugenia Larreina (UAB)</b></p> <p style="text-align: center;">Discussion: 15 minutes</p>
11.30–12.00	<b>Coffee break</b>

12.00–13.30	<p style="text-align: center;"><b>Panel 2: Clear Climate</b></p> <p style="text-align: center;"><b>Iga Szwoch (SWPS University)</b> <i>Joint Attention in Climate Change Adaptation and Mitigation</i> (15 mins.)</p> <p style="text-align: center;"><b>Maria del Pozo (Wageningen University)</b> <i>Enhancing the design of climate service training programs: Identifying targeted audiences for user learning services for the Copernicus program</i> (15 mins.)</p> <p style="text-align: center;"><b>Estel·la Oncins (UAB)</b> <i>Accessible climate information services from a human-centred perspective</i> (15 mins.)</p> <p style="text-align: center;"><b>Josh Thompson (University of Loughborough)</b> <i>Ethical Challenges in Open Data: A Case Study of Flood Impact Research</i> (15 mins.)</p> <p style="text-align: center;"><b>Đorđije Vasiljević, Biljana Basarin, Miroslav Vujičić, Uglješa Stankov (University of Novi Sad)</b> <i>Nature for All: Eco-Friendly Traditional and Digital Solutions Towards More Accessible Heritage Interpretation</i> (15 mins.)</p> <p style="text-align: center;"><b>Chair: Miroslav Vujcic (University of Novi Sad)</b> Discussion: 15 minutes</p>
13.30–14.30	<b>Lunch Break</b>
14.30–15.30	<p style="text-align: center;"><b>Workshop:</b> <i>How to design a sustainable project for all? Learning by doing and using the I-Change project as an example</i></p> <p style="text-align: center;"><b>Led by: Catharina Dörr (Climate Media Factory)</b></p>
15.30–17.00	<p style="text-align: center;"><b>Hackathon:</b> <i>Green Accessibility Lab</i></p> <p style="text-align: center;"><b>Facilitators: Solène Delarue &amp; Rayanne Beayno (Agorize)</b></p>
17.00	<b>Close of Day One</b>
18.00–21.00	<p style="text-align: center;"><b>Book Launch: <i>European Green Deal in Education</i></b></p> <p style="text-align: center;"><b>TBC</b></p>

**DAY 2 – Tuesday, 3 December 2024**

9.00–9.30	<b>Welcome Coffee</b>
9.30–10.30	<b>SECOND KEYNOTE LECTURE</b> <b>Biljana Basarin (University of Novi Sad)</b> <i>Sensationalism over Science: Analysing Media Coverage of Extreme Weather Events in Serbia</i> <b>Chair: Anna Matamala (UAB)</b> Discussion: 15 minutes
10.30–11.30	<b>Panel 3: Towards a fair and inclusive Green Deal: Insights from European research</b> <b>Esin Düzel &amp; Burcu Borhan Türeli (Sabancı University, Turkey)*</b> <i>Planes and Goats: Imagining a Multispecies Response to Disasters in the Age of Techno-fixes</i> (15 mins.) <b>Francesca Pugliese &amp; Marina Cacace (Knowledge &amp; Innovation)*</b> <i>Right to clean air or freedom of private transport? The dilemma of European car-free policies from diverse perspectives of vulnerable social groups</i> (15 mins.) <b>Carolin Zorell (Örebro University, Sweden)*</b> <i>Access and inaccessibility to healthy and environmentally sustainable food in marginalised communities</i> (15 mins.) <b>Chairs: Carolin Zorell (Örebro University, Sweden) &amp; Sofia Strid (University of Gothenburg)*</b> Discussion: 15 minutes
11.30–12.00	<b>Coffee Break</b>
12.00–13.00	<b>Panel 4: Sustainable and accessible design</b> <b>Gian Andrea Giacobone &amp; Alessandro Pollini (Uninettuno)</b> <i>Interaction Design of Educational Socio-Technical Systems: Scalability and Value for Low Resources Scenarios</i> (15 mins.)

	<p><b>Valeria Belén Cerpa Salas (Univerisad Católica de Santa María)*</b>  <i>Green Bytes: The Importance of crafting eco-friendly and barrier free experiences</i>  (15 mins.)</p> <p><b>Nilmani Kumar (Thoughtworks)*</b>  <i>Empowering every users-semantics in design</i>  (15 mins.)</p> <p><b>Chair: Estel·la Oncins (UAB)</b></p> <p>Discussion: 15 minutes</p>
13.00–13.15	<p><b>Closing words</b>  <b>Announcement of winners by Agorize</b></p>
13.15	<p><b>Close of conference</b></p>

**Note:** Presentations marked with an asterisk \* will be delivered online.

**Conference venue**

The conference will take place at Barcelona's Residència d'Investigadors, close to La Rambla.

Address: c/ Hospital, 64, 08001, Barcelona.

**Conference social event** will be held on the 2nd of December.

**Lunch:** A light lunch will be provided to conference participants on the first day.



**SPEAKERS &  
ABSTRACTS**



# FIRST KEYNOTE LECTURE

## *Digital Solutions for a Just Green Economy Transition in Africa: Addressing intersectionality in a gendered space from the Ghanaian perspective*

**Gordana Kranjac-Berisavljevic**

**University for Development Studies, Tamale, Ghana**

Ghana is at the forefront of a dynamic digital transformation, integrating technologies across sectors such as finance, renewable energy, and agriculture to transform the food systems. With the introduction of digital technologies for the Green economy, a just transition approach is needed to transform agriculture and the food system towards sustainable pathways. Although digital solutions are increasingly used in various sectors of Ghana's economy, limited knowledge addresses social justice, integrating intersectional issues in gendered space in the Green economy transition. The just transition principles stipulate that a healthy economy and a clean environment can and should co-exist through fair processes and not exacerbate inequalities. Thus, innovative digital solutions in the Green economy transition should not cost workers or community residents their health, environment, jobs, or economic assets. The transition should be done in a way that works for all, i.e. farmers, processors and marginalised in the communities (ex. differently abled, old or very poor) and provide them with the support, safety nets, and social protection required to make necessary adjustments. The paper is premised on the notion that providing digital technologies for agricultural production, particularly among farmers, requires more than mere changes in socio-technological approach. We proposed the need to engage with the root causes of inequalities. We take a social justice lens to identify the current social and political structures that lead to unsustainable transformative systems and discuss alternative ideas.

**Gordana Kranjac-Berisavljevic** (PhD) is Professor of Agricultural Engineering in the Department of Agricultural Mechanisation and Irrigation Technology (AMI), where she is working since its establishment. She has served as the Head of Department, Vice-Dean of the Faculty of Agriculture, Dean of Students and Director of International Relationships and Advancement (DIRA) and as Deputy Director of WACWISA Center of Excellence in Irrigation, Drainage and Sustainable Agriculture, funded by the World Bank in 2019. She is serving University for Development Studies, Tamale, Ghana in these various capacities since 1995. She is currently teaching about seven (7) different undergraduate and postgraduate courses across three different Schools and Faculties (FOAFCS, Natural Resources and Engineering) and supervises numerous MPhil and PhD thesis. Her research work covers different areas related to wastewater use in agriculture, feasibility and other technical studies for irrigation projects, weather information provision to small-scale farmers using mobile devices, integration of local and technical knowledge, etc. Prof Gordana has been collaborating with many local and international partners, including World Bank, GEF, GiZ, UNU, EU, USAID, DANIDA, NORHED, JICA and universities and research institutions across the African continent, as well as world-wide. She has published articles in referred journals, books, chapters in books, etc.

# PANEL 1

## *Accessibility and Ecology*

In an era of rapid technological advancement and pressing environmental concerns, the intersection of accessibility, sustainability, and information dissemination has become increasingly critical. This panel explores the various facets of this complex landscape, highlighting the challenges and opportunities in making crucial information accessible to all, particularly vulnerable populations. From the ecological costs of AI and the potential of integrated audio description for disaster preparedness to the creation of Easy Language videos about climate change, these papers underscore a common theme: the need for innovative, sustainable approaches to communication that prioritise inclusivity. They collectively emphasise how technological solutions, when thoughtfully implemented, can bridge information gaps and empower diverse groups of people to engage with vital topics, such as climate change and disaster readiness. However, this panel also raises important ethical questions about data governance, resource allocation, and the responsibilities of both public and private entities in ensuring equitable access to information. By examining these interconnected issues, we can gain valuable insights into the multifaceted nature of accessibility in our digital age and the imperative to develop solutions that are both environmentally sustainable and socially just.

### **Panel chair**

**Maria Eugenia Larreina** is a researcher and translator specialised in media accessibility. She holds a PhD in Translation, Interpreting, and Intercultural Studies from the Universitat Autònoma de Barcelona funded by the Catalan Government (2021FI\_B1 00049) and linked to the Researching Audio Description: Translation, Delivery and New Scenarios project (PGC2018-096566-B-100) [MCIU/AEI/FEDER,UE]. Her research interests include interactive and immersive media, particularly video games, and user-centred studies.

*Who owns the land, who owns language?  
Understanding the links between language accessibility, data governance,  
and the ecological costs of AI in a just transition*

**Matt Riemland  
Dublin City University**

The recent boom in AI technology is anticipated to generate a windfall of profits for transnational technology companies (“Big Tech”), such as Google, Microsoft, and Meta. At the same time, the ecological costs of the sprawling digital infrastructures that enable AI technology are becoming impossible to ignore. While there has been alarm over the substantial carbon emissions stemming from the massive energy consumption of various phases of the AI pipeline, researchers and activists are becoming increasingly attuned to data centers’ unsustainable water consumption. Others are raising concern over dependence of tech hardware on raw materials whose extraction causes serious pollution in local communities in the Global South. Clearly, the totality of AI’s ecological harms extends far beyond carbon emissions, meaning that, regardless of any “green transition”, the unhindered expansion of digital infrastructures and AI applications will perpetuate substantial harms to the environment.

This presentation details how these ecological harms are directly traceable to the mass-scale collection and monetization of user data that drives the endless expansion of digital infrastructures. It illustrates the ways in which the AI landscape is currently structured to prioritize Big Tech’s primary sources of revenue – digital advertising and cloud services. Language data in particular constitutes a key component to this expansion of digital infrastructures, as language facilitates users’ interface with search engines and thus Big Data’s capacity to track user behavior and sell targeted advertisements alongside search results. Not coincidentally, language accessibility is one of the primary areas in which Big Tech asserts its benevolent nature: for instance, the range of languages offered in Youtube’s auto-generated captioning and Google Translate are constantly growing. This presentation emphasizes the need to ensure effective uses of AI for language accessibility without incentivizing the ongoing exploitation of user data and reckless expansion of digital infrastructures that is wreaking havoc on the environment. To this end, I argue that a fundamental shift in data governance – namely, users’ collective power over how their data is used – will constitute a key element of any “just transition” that utilizes digital technologies in a genuinely sustainable manner.

Finally, this presentation concludes that, despite the professed technical complexity of AI, the most pressing ethical questions in this field coincide with fundamental concerns over accessibility and equality that long predate these impressive technologies: Who decides which people and aims are prioritized in the distribution of resources? How are public and private responsibilities for vulnerable populations' well-being constructed? How can society ensure that everyone's needs are met, even when it is not profitable? A more equitable vision of AI and technology requires a more democratic framework for governing resources – digital or otherwise – and the ends to which they are applied. This presentation proposes some concrete actions for reconfiguring the AI landscape to prioritize the well-being of all, emphasizing data and data centers as key sites of contention for academics and activists.

**Matt Riemland** holds a PhD from Dublin City University's School of Applied Language and Intercultural Studies. His research broadly focuses on the intersection between translation and power, specifically the manner in which language, land, and labor are interconnected. He is particularly interested in the social and ecological consequences of AI technologies such as neural machine translation and large languages models.

*Integrated Audio Description as a Sustainable and Accessible Tool for Disaster Preparedness of Vulnerable Groups\**

**Duygu Dalaslan**

**Adana Alparslan Türkeş Science and Technology University**

The aim of this study is to discuss the possible advantages of using integrated audio description as a sustainable and accessible tool for preparing vulnerable groups for disasters. The United Nations Office for Disaster Risk Reduction (UNDRR) defines disaster as “a serious disruption of the functioning of a community or a society at any scale due to hazardous events” (Disaster, 2007). As a result of these events, there are human and environmental losses. Disasters can strike anywhere in the world at any time and they disproportionately affect vulnerable groups, especially disabled people. Therefore, training content should be prepared for people with disabilities on personal precautions to be taken before disasters, on making reasonable decisions during disasters and on what to do after disasters. This is what it means to be prepared for disaster. While preparing for emergencies, we must also develop climate-smart solutions, i.e. solutions that are the most sustainable with the least energy consumption. One of these sustainable and accessible information tools could be integrated audio description. Integrated audio description, also known as Integrated Described Video (IDV), inspired by the Universal Design, is the method of creating video contents for the blind and/or partially sighted people. However, this study argues that integrated audio description can be targeted at people with all types of disabilities. Contrary to standard audio description, integrated audio description is an accessibility tool that does not require external intervention in an existing media. Indeed, the person creating the description takes an active role directly in that media. The best practices of integrated audio description are listed by Microsoft as "giving context to sounds, showing and telling and the exclusion of over-descriptions". (Integrated Audio Description: At a glance, 2021) Combining all these features with ensuring the use of plain language in videos, integrated audio description can be a sustainable tool that appeals to individuals with different types of disabilities, such as the blind and/or partially sighted people and those with learning disabilities. It can also be suitable for the deaf and hard-of-hearing by adding subtitles to the content. Therefore, in contrast to standardized audio description, integrated audio description can be considered a sustainable instrument that consumes less energy.

Disaster. UNDRR. (2007, August 30). <https://www.undrr.org/terminology/disaster>  
YouTube. (2021, September 28). *Integrated Audio Description: At a glance*. YouTube. <https://www.youtube.com/watch?v=SgflCec18Gw>.

**Duygu Dalaslan** graduated from Bilkent University, Department of Translation and Interpreting in 2011. She completed her PhD at Dokuz Eylül University in 2021 with the topic "Audio Description Studies in Turkey". She currently works as a faculty member at Adana Alparslan Türkeş Science and Technology University, where she has been teaching audio description, interpreting and legal translation courses.

*How can we make easy videos about climate change?  
Insights from users and professionals*

**Marina Pujadas Farreras**  
**Universitat Autònoma de Barcelona**

Ensuring accessibility to climate crisis and environmental information is essential for fostering inclusivity and equitable participation in discussions and actions related to environmental issues. This is especially significant considering the emphasis by the United Nations Convention on the Rights of Persons with Disabilities on the inclusion of people with disabilities in all societal aspects, particularly in environmental policies and actions (United Nations, 2006). However, persons with disabilities often encounter substantial obstacles when attempting to access information and engage in climate discourse (Padke et al., 2015), even though they experience disproportionate impacts on their lives and well-being due to climate change effects (Jodoin et al., 2022).

Easy Language is a simplified language variety designed to enhance comprehensibility for those with reading and language comprehension difficulties. There is a wide spectrum of users who can benefit from Easy Language: individuals with cognitive and linguistic difficulties, elderly individuals, language learners, etc. (ISO, 2023). Until recently, research on Easy Language has primarily focused on written texts. However, projects such as WEL, EASIT, and SELSI have started to bring Easy Language in audiovisual contents into the spotlight.

This presentation will incorporate insights from interviews with professional creators of audiovisual content in Easy Language, as well as findings from two experiments involving users with intellectual disabilities who engaged with Easy Language audio content about climate change. From these sources, a series of recommendations will be provided on creating Easy Language videos that enhance accessibility to climate change information. These recommendations will cover prosodic elements, including speed rate and pauses, linguistic considerations, and paratextual elements, such as images and videos.



ISO (International Organization for Standardization). (2023). *ISO/IEC 23859:2023. Information technology – User interfaces – Requirements and recommendations on making written text easy to read and understand.*

Jodoin, S., Lofts, K., Bowie-Edwards, A., Leblanc, L., Rourke, C. (2022). *Disability Rights in National Climate Policies: Status Report.*

<https://www.disabilityinclusiveclimate.org/researcheng/project-one-ephnc-76974-dsc4y>

Phadke, R., Manning, C., & Burlager, S. (2015). "Making it personal: Diversity and deliberation in climate adaptation planning". *Climate Risk Management*, 9, 62-76.

<https://doi.org/10.1016/j.crm.2015.06.005>

United Nations. (2006). *Convention on the Rights of Persons with Disabilities.* United Nations.

**Marina Pujadas Farreras** is a PhD student at Universitat Autònoma de Barcelona, where she studies oral Easy Language and Media Accessibility. She is a member of the research group TransMedia Catalonia (2021SGR00077) and her research is linked to the R&D project WEL (PID2022-137058NB-I00). She is also an FI grant holder from the Catalan Government (2022FI\_B 00097) and has collaborated with the H2020 project GreenSCENT (Grant Agreement no. 101036480). She has participated in various national and international conferences, workshops and schools.

# PANEL 2

## *ClearClimate Panel*

ClearClimate aims to build a global network of researchers with diverse expertise to address critical challenges in Climate Information Services. Focusing on different aspects of climate change communication, education, service design and delivery, the papers in this panel highlight common themes such as enhancing understanding, promoting inclusivity, and improving the effectiveness of climate-related interventions. Together, these papers illustrate ClearClimate's commitment to developing comprehensive, interdisciplinary strategies that address the multifaceted challenges of climate communication and education. By fostering collaboration among researcher from diverse fields, ClearClimate aims to create a robust framework for delivering climate information that is accurate, accessible and actionable, ultimately contributing to more informed decision-making and effective climate action worldwide.

### **Panel chair**

**Miroslav Vujičić** is an associate professor at the University of Novi Sad, Faculty of Sciences and Managing Director of Minds Europe (NGO Serbia).

## *Joint Attention in Climate Change Adaptation and Mitigation*

**Iga Szwoch**  
**SWPS University**

Public opinions on the topic of climate change are complex and often polarized, influenced by a range of internal and external factors. This research focuses on the critical concept of joint attention, defined as the coordination of social attention with others (Mundy, Newell, 2007). Joint attention can be subtly manipulated through cues, such as pointers and highlights, to induce coordinated social attention (Krzysz, Mistry, 2023). By using synchronized eye-tracking data, we can analyze gaze recurrence between study participants.

This study investigates whether subtle gaze manipulations can encourage pro-ecological attitude shifts in collaborative environments. Specifically, we examine how inducing joint attention might enhance shared understanding and a sense of urgency about climate change. Mixed-belief groups, including both climate change believers and deniers, will collaborate in a virtual task using the En-ROADS simulator (Climate Interactive, 2024).

Participants collaboratively propose subsidies and policies aimed at mitigating climate change. The experimental condition involves directing participants' gaze to specific task elements highlighted on the screen, thereby promoting joint attention. Our primary hypothesis is that gaze recurrence, which fosters a shared reality among teammates, will increase the likelihood of attitude shifts toward a more pro-ecological stance.

Metrics for analysis include gaze-specific indicators of joint attention, questionnaire-based attitude measures, and evaluations of collaboration quality. Additionally, we will examine how demographic factors such as gender, age, and sociopolitical views influence attitude changes.

We propose that collaborative attention in a climate-specific task can lead to a better understanding of the issue and a greater willingness to take action, regardless of initial viewpoints.

The first iteration of the study is currently ongoing at the Eye Tracking Research Center at SWPS University in Warsaw, Poland. The study will be also conducted in Spain and Serbia, with future research extending the framework to cultures with varying levels of collectivism and individualism.

This research project contributes to understanding how joint attention and subtle manipulations in collaborative settings can bridge polarized opinions on climate change, potentially leading to more unified and proactive environmental actions. The broader impacts include advancing educational tools and programs, as well as fostering cultural sensitivity and inclusivity in climate communication strategies. Additionally, by examining demographic factors, the research tailors its findings to address the needs of diverse populations, aiming to reduce polarization and promote inclusive dialogues on environmental issues.

Climate Interactive. (2024). *En-ROADS climate solutions simulator*. Retrieved from <https://en-roads.climateinteractive.org>

Krzys, K. J., Mistry, M., Yan, T. Q., & Castelhana, M. S. (2023, May). Predicting the Allocation of Attention: Using contextual guidance of eye movements to examine the distribution of attention. In *Proceedings of the 2023 Symposium on Eye Tracking Research and Applications* (pp. 1-10).

Mundy, P., & Newell, L. (2007). Attention, joint attention, and social cognition. *Current directions in psychological science*, 16(5), 269-274.

**Iga Szwoch** (ORCID: 0009-0008-6390-9824) is a researcher at the Eye Tracking Research Center and a lecturer at SWPS University in Warsaw, Poland. Assistant in the Friendly City Project (Rzeczy są dla ludzi/0106/2020-00) focused on the accessibility of architectural heritage. Her research interests are climate change denialism and collaborative problem-solving of environmental issues.

*Enhancing the design of climate service training programs: Identifying targeted audiences for user learning services for the Copernicus program*

**Maria del Pozo**

**Wageningen University**

This research tackles the multifaceted challenges inherent in the design of climate service training programs, with a specific focus on the context of C3S User Learning Services. The heterogeneity of actors involved, including producers, providers, intermediaries, and users, often leads to misalignments attributable to overlooked nuances in learning needs. The primary objective is to establish consensus among trainers involved in the C3S User Learning Services regarding the identification of targeted audiences, their associated knowledge and skills, and the interests pivotal for the success of capacity-building initiatives. Utilizing the Delphi method, trainers participate in iterative rounds of questionnaires, wherein statistical measures and qualitative assessments guide the refinement process. The study introduces specific levels of agreement, distinguishing between poor, average, and strong agreement based on percentage evaluations. The structured yet flexible approach incorporates a pre-testing stage involving external experts to ensure survey clarity. With the potential inclusion of a fourth round in cases of low consensus, the research aspires to comprehensively address the diverse learning needs within the climate service domain, ultimately enhancing the efficacy of training programs, exemplified by C3S User Learning Services.

**Maria del Pozo.** Education, capacity building and knowledge transfer are my passions. Engineer by heart, I know the technical sector focuses on understanding the (bio) physical world. This world is full of empirical data and models, nevertheless, not so much action is yet done. Collaboration and education are usually the underestimated key components. I believe this is a consequence of the language barriers from each sector from the scientific world to the policy level to the citizens. Our efforts must concentrate in bringing us together to construct a sustainable world.

## *Accessible climate information services from a human-centred perspective*

**Estel·la Oncins**

**Universitat Autònoma de Barcelona**

Climate Information Services (CIS) are a crucial tool to help society make informed decisions for sustainable development. Thus, improving our understanding of the role of climate services is a critical step in enhancing our ability to manage climate-related risks (Vaughan and Dessai 2014).

At the same time CIS services are mainly provided through digital means, which might not be always accessible for all users. In this regard, research studies related to how CIS are designed and provided to users are scarce (Rigby and Priest 2023), and “interface and communication between users and providers is the least developed aspect of CIS” (Wilby and Lu 2022;). Therefore, questions related to accessibility from a user perspective should also be considered. Even if there is “no one fits all solution” which meets the needs of all CIS users, “no one should be left behind” from accessing these services. The presentation will delve into the relation between CIS and accessibility needs from a human-centred perspective as part of the research being conducted under the ClearClimate project.

ClearClimate. Grant agreement: 101131220. <https://clear-climate.com>

Rigby, J. M. and Priest, C. (2023). Towards User-Centred Climate Services: the Role of Human-Computer Interaction. In *Proceedings of the 2023 CHI Conference on Human Factors in Computing Systems (CHI '23)*, April 23–28, 2023, Hamburg, Germany. ACM, New York, NY, USA 14. <https://doi-org.are.uab.cat/10.1145/3544548.3580663>

Vaughan, C., & Dessai, S. (2014). *Climate services for society: origins, institutional arrangements, and design elements for an evaluation framework*. Wiley interdisciplinary reviews. Climate change, 5(5), 587–603. <https://doi-org.are.uab.cat/10.1002/wcc.290>

Wilby, R.L. and Lu, X. (2022). Tailoring climate information and services for adaptation actors with diverse capabilities. *Climatic Change*, <https://doi.org/10.1007/s10584-022-03452-6>

**Estel·la Oncins** holds a PhD in Accessibility and Ambient Intelligence from the Universitat Autònoma de Barcelona. She has a large experience in providing accessibility for live events as a freelance translator, subtitler, surtitler, respeaker for different Spanish televisions and conferences, and as an audiodescriber for Liceu Opera House. Her research areas are audiovisual translation, media and digital accessibility and creative industry. She is currently involved in the Education and Outreach Working Group (EOWG) from W3C. She is a partner in KA2 LTA and IMPACT. She is also a partner in H2020 projects HELIOS and TRACTION.

## *Ethical Challenges in Open Data: A Case Study of Flood Impact Research*

**Josh Thompson**

**University of Loughborough**

Flooding poses significant economic and social challenges globally. This study focuses on England, where one in six properties are at risk of flooding. We use publicly available data on property transactions and historical flood records to analyse over 27 million residential property transactions over a 28-year period to examine how flood zoning, nearby flooding or actual inundation impact property values and length of home ownership. We find that properties lose on average 7% of their value post-flood, and homeowners living in flood-affected areas remain in their home for up to 10 years more on average, compared with non-flooded areas.

Examining this issue through an ethical lens reveals several challenges associated with the use and dissemination of our findings. Major UK banks regulate loan amounts to areas deemed to have intolerable levels of flood risk. Therefore, the sensitivity of data related to the impact of flooding on property values and home ownership duration underscores the potential financial repercussions for homeowners, which can affect mortgage availability and insurance coverage. This research highlights the balance required between transparency and the ethical requirement to protect homeowner privacy and financial well-being, advocating for responsible open data practices in flood impact research.

**Joshua Thompson** is a doctoral researcher based in the Department of Geography and Environment, Loughborough University, Loughborough LE11 3TU, UK. E-mail: J.Thompson@lboro.ac.uk. His research interests include understanding physical climate hazard impacts, geospatial and remote sensing analysis, and exploring potential data proxies to complement conventional records of environmental hazards.

*Nature For All: Eco-Friendly Traditional and Digital Solutions Towards More  
Accessible Heritage Interpretation*

**Dordije Vasiljević, Biljana Basarin, Miroslav Vujičić, Uglješa Stankov**  
**University of Novi Sad**

The significance of natural heritage interpretation lies in its ability to enlighten the public, cultivate a sense of admiration and responsibility, advocate for conservation efforts, bolster sustainable tourism, deepen cultural comprehension, and inspire active involvement in safeguarding natural ecosystems. In light of the global issues of climate change and environmental degradation, it is crucial to guarantee that heritage interpretation serves the purpose of educating and inspiring while also adhering to eco-friendly techniques and inclusive design principles. Digital technologies provide a wide range of solutions that can enhance the accessibility of heritage sites for various audiences, including those with impairments. By harnessing the progress in augmented reality (AR), virtual reality (VR), and mobile applications, we may develop captivating and interactive experiences that accommodate different accessibility requirements while reducing environmental harm. These technologies have the potential to revolutionise our interactions with natural and cultural heritage, providing fresh avenues for interpretation that are environmentally friendly and accessible to all. This paper presents multiple case studies that demonstrate the successful integration of environmentally-friendly digital solutions in the interpretation of natural-cultural heritage. These examples demonstrate the advantages of such methods, such as improved accessibility, decreased environmental impact, and heightened tourist involvement. In addition, the article explores the difficulties and restrictions associated with incorporating digital technologies into historic interpretation, providing practical suggestions for overcoming these barriers.

**Dordije Vasiljević** is an associate professor in the University of Novi Sad, Faculty of Sciences, Serbia.

**Biljana Basarin** is full professor at Chair of Physical Geography within the Department of Geography, Tourism, and Hotel Management, Faculty of Sciences, University of Novi Sad.

**Miroslav Vujičić** is associate professor at the University of Novi Sad, Faculty of Sciences and Managing Director of Minds Europe (NGO Serbia).

**Uglješa Stankov** is full professor in the University of Novi Sad, Faculty of Sciences, Serbia.



# WORKSHOP

## *How to design a sustainable project for all? Learning by doing and using the I-Change project as an example*

**Catharina Dörr**  
**Climate Media Factory**

In this workshop, we will look together at the social dimension and its visual integration in the communication of sustainable projects. Climate justice cannot be achieved without considering people and their social positioning. This is because many people are often made invisible in our societies due to gender, race, class, disabilities or age and are therefore overlooked and ignored as target groups. However, vulnerable groups must be considered in projects that deal with climate change and sustainability, as they can be particularly affected by a shift in the socio-economic order. The highest access to information requires their integration and representation in the planning and the design of sustainable projects and therefore plays an important role for an inclusive future for all. With this awareness, more people can be reached.

During quick drawing exercises, we will learn and reflect on our own view and how it has been shaped by society to understand what and, above all, who we are overlooking in our “green” projects. The I-CHANGE project will then be showcased as an example of diverse climate communication, alongside other examples from creative practices in this field. We will also talk about the medium of communication in general and weigh up the different levels of accessibility of print and digital products in relation to vulnerable groups. Please bring a pencil for drawing and some paper. But don't worry, drawing skills are not necessary. If you cannot draw for whatever reason, you can choose to use your own form of expression.

Program:

- Theory input
- Drawing exercise
- Individual reflection by completing questionnaires
- Visual examples from practices such as I-CHANGE and others
- Input print vs. digital: what are the advantages and disadvantages
- Joint discussion and reflection

**Catharina Dörr** is the Communication Designer of the Climate Media Factory, in Potsdam, Germany. She studied visual communication and product design with a focus on critical design, design theory, graphic design, and gender studies in Berlin. As a designer she creates, but also researches, writes, and teaches about design and their effect on our society.

# HACKATHON

## *Green Accessibility Lab*

**Solène Delarue & Rayanne Beayno**

**Agorize**

Today, the world and our society are up against several unprecedented challenges such as the climate crisis, growing inequalities, discrimination, and increasing social barriers.

This workshop addresses these common sustainability and accessibility challenges faced by communities around the world and focuses on solutions that might alleviate or eliminate them.

This workshop is ideal for any type of researchers, tech-savvy people, policymakers, and all those interested in sustainability and accessibility.

Participants will understand the association between sustainability and accessibility and use brainstorming techniques to create and develop impactful ideas to help design a future that is inclusive, sustainable, and accessible for all.

The participants will first be introduced to the workshop challenge and then be asked to work in teams to solve one of these 4 key topics:

- Designing for Everyone
- Addressing Climate Change Fairly
- Tech for All
- Protecting Climate-Affected Communities

These 4 areas of development ensure that by the end of the workshop, participants will have covered all potential aspects of sustainability and accessibility in order to deliver a complete and holistic solution.

**Solène Delarue** is a project manager at the French start-up Agorize.

**Rayanne Beayno** is Open Innovation project manager at Agorize.

# SECOND KEYNOTE LECTURE

*Sensationalism over Science:  
Analysing Media Coverage of Extreme Weather Events in Serbia*

**Biljana Basarin**  
**University of Novi Sad**

The focus of media coverage on climate change tends to centre around two main themes: extreme weather events, and significant political events like the Conference of the Parties (COPs). These events capture the public's attention due to their immediate impact and visibility. In Serbia, according to the survey done by the portal Klima101 in 2021, there is a rising tendency in reporting about climate change and weather events. However, these reports heavily rely on apocalyptic warnings and doom and gloom scenarios. Not much attention is given to communication around credible and verified data and scientific publications about the extreme events. Additionally, more dramatic effect is added to by tabloid media that exegetes the event, and in most of the cases media content often lacks the connection between weather disasters and climate change. On the other hand, Communications regarding climate change are increasingly used to encourage sustainable behaviour.

The way information is framed can significantly alter the impact that they have on the recipient. With this study we aim to show intentionality of the Serbian media towards climate reporting. With low level of credible and reliable scientific explanations in the media, sensationalism and conspiracy theories have taken precedence. For instance, one of the best examples are reporting on the supercell storms and subsequent floods which had catastrophic consequences from Slovenia, Croatia to Serbia. "The worst storm has passed Serbia!", "METEOROLOGIST ISSUES TERRIBLE WARNING", "CHAOS Storm sweeps through Serbia". These are just some of the many headlines from media portals in Serbia. The sensationalism phenomena of headlines in online digital media are not new and it was noted before that the function of the headline is not to provide readers with an understanding of the news content but to entice them to click on the headline (Ifantidou, 2023). In the case of climate information, the sensationalism effect might cause a false understanding of the climate change issues and the psychological wellbeing of the reader.

To investigate the hypothesis that media sensationalism in reporting weather events is prevalent, authors collected headlines from Blic, one of Serbia's most influential daily newspapers. The focus was on keywords related to weather events (e.g., heat waves, temperatures, floods, precipitation). The dataset comprised over 3,500 headlines spanning from 2006 to 2024. Utilizing Natural Language Processing (NLP) techniques, authors conducted sentiment analysis on these headlines. Furthermore, a pre-trained model was applied to assess the dataset for indicators of sensationalism. The next step in the analysis is the comparison of some of the most dramatic headlines with the actual weather events, particularly in the context of past extreme weather events. This comparison is aimed to determine whether the events, which were sensationalistically reported in the newspapers, were genuinely as severe and rare as portrayed.

Dr. **Biljana Basarin** (F) is Full professor at Chair of Physical Geography within the Department of Geography, Tourism, and Hotel Management, Faculty of Sciences, University of Novi Sad. Main research fields are related to climatology, climate change and natural hazards. She is the coordinator of twinning H2020 project EXtremeClimTwin (GA 952348) and coordinator of ClearClimate project (GA 101131220). She also participates on numerous EU funded research projects focusing on climate change. She is co-author of more than 20 papers in international scientific journals with impact factor, co-author of 1 book, co-author of 1 contribution in book chapter, and more than 60 contributions in other journals, conference abstracts or conference proceedings.

## PANEL 3

### *Towards a fair and inclusive Green Deal: Insights from European research\**

The European Green Deal sets out ambitious goals to achieve a fair and green transition without leaving anyone behind. However, emerging research indicates that existing policies and practices largely fail to incorporate gender and other complex inequalities. The panel presents insights from the European research project ACCTING (Advancing behavioural Change Through an INclusive Green deal), which explores the impact of the European Green Deal policies and related measures on the behaviour of socially marginalised and vulnerable groups from a gendered and intersectional perspective. Hosting presentations focused on the policy areas of disaster management, mobility, and food security, the panel's presenters illustrate – through comparative case studies – what changes in behaviours of individuals in different positions of intersectional vulnerability are underway, and what changes are hindered. In doing so, the presentations highlight various factors that enable and hinder individual behavioural changes and changes in social practices within and across policy areas, such as access to certain kinds of material resources and social bonds, ideology and values, and reliance on technological and political solutions. The insights give further valuable insights on the effects which the politically envisioned green transformation has and will further have on various kinds of marginalised and vulnerable communities. On this backdrop, the panel further discusses to what extent digitalisation can complement and contribute to achieving a just and socially inclusive green transition.

**Keywords:** Green transition; just transition; intersectionality; gender; comparative case studies.

## **Panel chairs**

**Carolin Zorell** is Associate Professor in Political Science at Örebro University, Sweden, and leading the work on the theoretical framework of the EU Horizon 2020 project ACCTING: For a fair and inclusive Green Deal. Her research interests are in political participation, environmental politics, and sustainable consumption, with a particular focus on the study of diffusion processes of attitudes, norms, and behaviours. In several ongoing national and international research projects, she explores how structures, policies, and social dynamics form attitudes and behaviour.

**Sofia Strid** is Associate Professor and Director of Research Studies in the Department of Sociology and Work Science, University of Gothenburg, Sweden. She has worked extensively on developing concepts and methodologies for theorising and measuring inequalities, with a focus on violence, crisis, and sustainability. Sofia is the Scientific Coordinator of the EU projects UniSAFE: Gender-based violence and institutional responses (2021-2024), RESISTIRÉ: Reducing gendered inequalities (2021-2023), and ACCTING: For a fair and inclusive Green Deal (2022-2025), and Sweden PI of ST4TE: Strategies for just and equitable transitions in Europe (2024-2027).

*Planes and Goats: Imagining a Multispecies Response  
to Disasters in the Age of Techno-fixes\**

**Esin Düzel & Burcu Borhan Türeli**  
**Sabancı University, Turkey**

International organisations, such as the Intergovernmental Panel on Climate Change (IPCC) and the UN, have come to recognise the importance of local knowledge and agency in climate change adaptation, and disaster preparedness and response (e.g., van Bavel et al. 2022; UNDRR 2019). However, our research conducted in four countries (Italy, Sweden, Portugal, Turkey) shows that the inclusion of civil society groups and other local communities into the local, regional, and national policies on disaster management is still very limited. Further, the notion that climate-induced disasters can be most effectively encountered with the advancements in technological tools and approaches is increasingly dominant. What scholars call “the technical fix” (Nightingale et al. 2020) leads to further marginalization of the local and indigenous solutions to disaster, reinforcing the dualistic approach to nature and culture, where the latter is presumed to have power over the other.

We illustrate this using the example of Turkey. Based on the narrative interviews with forest engineers, retired officers at the state institutions, forest policy scholars, as well as the members of the fully nomadic goat herders, Sarıkeçililer in Turkey, we reveal the limitations of 'the technical fix' approach during and in the aftermath of the major forest fires in 2021-22. The government's failure to provide immediate and adequate response to fires increased the public fascination with the firefighter planes and helicopters, making them central in disaster response. However, we argue that the dominance of technological means in public and policy approach to disasters hide the role of other actors, most prominently of local multispecies communities, in preventing, mitigating, and recovering from forest fires. Sarıkeçililer nomadic community and the goats that accompany them help us imagine an alternative disaster approach that is inclusive of diverse communities and adaptable to the impending climate crisis. While this biodiverse community is out of the reach of traditional zones of technology and digitalization, co-creative, and ethically designed ways of collaboration can enhance the existing limitations in disaster response.

Dr. **Esin Düzel** is a co-Principal Investigator for the EU Horizon 2020 project ACCTING: For a fair and inclusive Green Deal at Sabancı University's Gender and Women's Studies Excellence Center, and an anthropologist with a PhD from University of California, San Diego. Her work is concerned with gender and political subjectivity, feminist ecology, anthropology of political violence, and future studies (with a focus on utopias, disasters, and biodiversity). She lives in Helsinki, Finland.

**Burcu Borhan Türelİ** is a researcher and project specialist for the EU Horizon 2020 project ACCTING: For a fair and inclusive Green Deal, and works at Sabancı University, Turkey. She has worked at various national and international universities. Her research interests include children's literature, education and pedagogy, rural gender transformation, agri-food relationships, food security and sustainable food systems. She lives in Çanakkale, Turkey.



*Right to clean air or freedom of private transport?  
The dilemma of European car-free policies from diverse perspectives  
of vulnerable social groups\**

**Francesca Pugliese & Marina Cacace**  
**Knowledge & Innovation**

Environmental issues and policies are increasingly polarising societies and European political parties use them to define their orientations and demarcate their stance (see Gemenis, Katsanidou & Vasilopoulou, 2012). Political fault lines can be traced back to measures with a pro- or anti-environmental end goal. However, while the political origins of policies are clearly identifiable, their reception is difficult to predict, both in general and among different vulnerable social groups. It is tempting to assume that reactions to these policies are divided along ideological lines. And yet, this is often not the case.

The purpose of this presentation is to explore this mismatch between ideological positions and actual attitudes towards environmental policies by examining the case of car-free policies. These policies are particularly controversial and seem to pose a dilemma, even for those who claim to support environmental measures, or for those who care deeply about the environment and take various measures to reduce their ecological impact.

The insights are based on the findings of the European project ACCTING, which seeks to highlight precisely this disarticulation of positions by scrutinizing the diverse responses of vulnerable and disadvantaged social groups to policies that discourage car use and promote sustainable transport, looking at both their individual and collective responses (i.e. forms of protest, activism, mobilisation, in person and online). Research has already looked at the factors associated with citizens' (lack of) support for policies inspired by car-free visions (see Huber, 2020). In some cases, the focus has been on disadvantaged groups, particularly in relation to the yellow vest movement (Martin & Islar, 2020; Tathars & Peters, 2023). In our research, we focus on the dissonances between proclaimed values and individual and collective responses, with an emphasis on the unequal impact of policies from an intersectional perspective.

Drawing on a revised version of Hirschman's analytical framework of Exit, Voice, and Loyalty (Hirschman, 1970, 1978), which some authors have integrated with Neglect (Rusbult & Zembrodt, 1982), we classify the different reactions collected through more than 60 interviews in six European countries into three categories. Firstly, VOICE, which refers to active reactions involving some form of protest to/engagement with the authorities with the explicit aim of preventing or modifying the policy; secondly, NEGLECT, which characterises neutral or negative reception at the individual level, where individuals show a marked lack of interest and/or 'suffer in silence'; and lastly, LOYALTY, which encompasses reactions ranging from acceptance to positive reception.

Our analysis disentangles the different positions and reveals the discontinuities that lie behind apparently similar attitudes and commonalities. This highlights the importance of identifying the plurality of factors at play in determining individual responses, allowing us to avoid seeing, behind similar attitudes, a single united front for or, more commonly, against car-free policies. This is an important step in developing more effective recommendations for policymakers.

**Francesca Pugliese** is a researcher in the Horizon 2020 ACCTING project at Knowledge & Innovation, Rome. She has worked on several European projects investigating gender inequalities in the workplace and the challenges women face in achieving a work-life balance. She is an anthropologist by training and is currently completing her joint PhD in Social Sciences at the University of Liège and in History at Leiden University. Her research explores the perspectives of Congolese workers towards new (gendered) labour policies in mining companies.

**Marina Cacace** is a senior social researcher and Principal Investigator at Knowledge & Innovation for the EU Horizon 2020 project ACCTING. Her research has long focused on science-society relations from a gender perspective, while her interests also include poverty, social exclusion and migration and, from a methodological perspective, the application of complexity frameworks to evaluation. Over the last decade, she has led several projects aimed at promoting gender equality in universities and scientific institutions.

*Access and inaccessibility to healthy and environmentally sustainable food  
in marginalised communities\**

**Carolyn Zorell**  
**Örebro University**

The European Green Deal's Farm to Fork strategy envisions improved food security, sustainability, and social justice for all people in Europe. Despite this, large parts of the European population continue eating large amounts of unhealthy and non-environmentally friendly food. Diverse research suggests that especially in marginalised communities, access to healthy and environmentally sustainable food needs to be improved considerably. The presentation outlines insights gained from fifty narrative interviews conducted with individuals living in urban and peri-urban areas of five European countries (Austria, Greece, Portugal, Sweden, Turkey), exploring links between barriers and opportunities faced by individuals to access healthy and environmentally sustainable food while experiencing different forms of economic and social inequalities and disadvantages. The narrative methodology allows for delving into food system realities of individuals and their families from low-income backgrounds, single mothers/parents, working parents with intersectional identities (e.g., LGBTQ, ethnic or religious minorities, migrant communities), disabled, and elderly people. The cross-case findings presented highlight a tight interconnectedness of different levels in the process of change: Across different combinations of demographic, socio-economic, and cultural backgrounds, individuals are aware of global sustainable food movements and have intentions to change their individual food practices. Yet, a set of structural, social, and political conditions at local, national, and global levels exacerbate social and economic injustices, which impede individuals from making the leap from intentions to food access and change. Nonetheless, the analysis also unveils interpersonal dynamics which seem essential for change, such as the presence and support by social networks (family, friends, neighbours, colleagues). Social support emerges as key enabler of changing mindsets and behaviour by fostering trust and providing access to the needed material and immaterial resources for changes which policies and policymakers fail to provide. The challenge is to tie individuals, communities, and self-organised actions to feasible local, regional, and national policies. The study thus illustrates how environmentally sustainable and healthy eating is not just a personal choice, but a collective journey that calls for a multiscale perspective of participation, agency, and governance as analytical tools. The presentation closes with a critical discussion of what role digitalisation can play in this process, potentially facilitating access to social support networks and resources, as well as connecting policymakers with individuals and social movements to ensure policies advance, rather than hinder, an inclusive and fair green transition.

**Carolin Zorell** is Associate Professor in Political Science at Örebro University, Sweden, and leading the work on the theoretical framework of the EU Horizon 2020 project ACCTING: For a fair and inclusive Green Deal. Her research interests are in political participation, environmental politics, and sustainable consumption, with a particular focus on the study of diffusion processes of attitudes, norms, and behaviours. In several ongoing national and international research projects, she explores how structures, policies, and social dynamics form attitudes and behaviour.

# PANEL 4

## *Sustainable and Accessible Design*

The rapid evolution of the digital landscape necessitates a holistic approach that prioritises sustainability, accessibility, and user-centric design. From education to web development, there's a growing demand for technologies that are not only functional and appealing, but also environmentally responsible and inclusive. In this panel, panellists will share insights from their work in Sustainable Interaction Design for educational platforms, eco-friendly web development practices, and semantic accessibility in component design. Together, they will examine how these seemingly disparate areas intersect to form a new paradigm in digital creation -- one that challenges conventional practices and calls for an interdisciplinary approach.

As we navigate the complexities of balancing user experience with environmental concerns and inclusivity, panellists will discuss strategies for minimising ecological footprints while maximising accessibility. They will explore how designers and developers can empower users of all abilities while adhering to principles of sustainability.

This panel aims to spark a dialogue on the future of digital design and development - a future where ethical consideration and social responsibility are as fundamental as functionality and aesthetics. We invite you to join us in reimagining digital technologies that not only serve human needs, but also contribute positively to our global community and the planet we share.

### **Panel chair**

**Estel·la Oncins** holds a PhD in Accessibility and Ambient Intelligence from the Universitat Autònoma de Barcelona. She has a large experience in providing accessibility for live events as a freelance translator, subtitler, surtitler, respeaker for different Spanish televisions and conferences, and as an audiodescriber for Liceu Opera House. Her research areas are audiovisual translation, media and digital accessibility and creative industry. She is currently involved in the Education and Outreach Working Group (EOWG) from W3C. She is a partner in KA2 LTA and IMPACT. She is also a partner in H2020 projects HELIOS and TRACTION.

*Interaction Design of Educational Socio-Technical Systems:  
Scalability and Value for Low Resources Scenarios*

**Gian Andrea Giacobone & Alessandro Pollini**

**Università Telematica Internazionale UNINETTUNO**

This paper contributes to the field of Sustainability Education by focusing on Sustainable Interaction Design (SIXD) to foster collective consciousness, active citizenship, and social integration through the sustainable development of innovative learning technologies capable of providing people, especially, younger generations, with green competencies to tackle climate change.

Recent developments in SIXD have critically discussed the undefendable our predominant enthusiastic technocratic culture that tends to drive our society toward a cornucopian vision of full availability of infinite resources, in which digital infrastructure is limitless and continued progress is possible and preferable.

In this sense, the authors want to explore the development of sustainable technologies by designing technology-enhanced learning solutions contributing to increasing accessibility in Sustainability Education, not only mitigating the effect of exclusion on the characteristics of the human body but also increasing technological compatibility with limited availability of resources or contextual constraints that may negatively affect the usability and inclusiveness of a given digital product or service.

From this perspective, the contribution advocates for intentionally moderating digital interactions and reflecting on the design of accessible learning technology solutions spanning in one ideal continuum from fully digital to hybrid experiences until low resource scenarios, where scarcity prevails over abundance and limits rules over desires.

The complexity of Sustainability Education makes SIXD face a multitude of design challenges, which means focusing on:

- Human diversity, concerning abilities, knowledge, attitudes, competencies, and behaviour change to conceive the human factor as a whole.
- Temporal and spatial constraints or opportunities to adapt the educational context to the necessities of its community in specific educational scenarios.
- Infrastructural limits to amplify or diversify the interaction opportunities for the users.
- The existent availability of technologies, their technical specifications, and how they match with human and contextual resources.

By investigating the reasons behind unsustainable digital interactions, this paper opens a debate on SxD by proposing a case study analysis based on the authors' design research experience in Sustainability Education to foster a resourceful growth of collective awareness, knowledge, and competencies among different educational scenarios that present a variety of limited availability of human socio-cultural, techno-physical, and natural resources and contextual constraints, revealing multiple challenges and opportunities related to the accessibility of the proposed technologies.

Blevis, E. and Stolterman, E. 2007. Ensoulment and Sustainable Interaction Design. *Proceedings for IASDR 2007* (Hong Kong, 2007), 1–23.

Moretti, M. 2019. *Socio- Social- Design: Design Practices for New Perspective on Migration*. Corraini Edizioni.

Widdicks, K. et al. 2022. Escaping unsustainable digital interactions: Toward “more meaningful” and “moderate” online experiences. *International Journal of Human-Computer Studies*. 165, (Sep. 2022), 102853.

DOI:<https://doi.org/10.1016/j.ijhcs.2022.102853>.

Hekkert, P. and Schifferstein, H.N.J. 2008. *Introducing Product Experience*. *Product Experience*. H.N.J. Schifferstein and P.B.T.-P.E. Hekkert, eds. Elsevier. 1–8.

Mankoff, J.C. et al. 2007. Environmental sustainability and interaction. CHI '07 *Extended Abstracts on Human Factors in Computing Systems* (New York, NY, USA, Apr. 2007), 2121–2124.

**Gian Andrea Giacobone** is a PhD and product-interaction designer. He works as a postdoctoral researcher and lecturer in Design between the International Telematic University Uninettuno and the University of Ferrara (Italy). During his scientific career has participated in several national and European research projects. He is also the author of several publications and a lecturer at many conferences at the national and international levels. His areas of expertise are Human-Centred Design, Human-Computer Interaction, HMI, IoT and Transportation Design.

**Alessandro Pollini**, PhD, is an associate professor in Industrial Design at Uninettuno Telematic International University with a background in interaction design, human-computer interaction and cognitive ergonomics. During his career he has developed an interdisciplinary practice by structuring the design activity in multiple areas, from user research, ergonomics and cognitive sciences; to the theories and methods of digital product design and software engineering. His focus is on designing interactive and relational products and services and the functional, formal and use implementation of technology, dealing with the holistic, distributed, embodied and situational nature of people's experience.

## *Green Bytes: The Importance of crafting eco-friendly and barrier free experiences\**

**Valeria Belén Cerpa Salas**

**Universidad Católica de Santa María**

As the world becomes increasingly digitized, the web development community faces a dual challenge: creating more accessible websites and applications for users of all abilities, while minimizing the environmental impact of their software development technologies. This conference aims to explore cutting-edge strategies and best practices for crafting eco-friendly and barrier-free web experiences, with a particular focus on the front-end domain and the main principles of sustainable software engineering (Microsoft, 2024).

The paper will delve into the principles of front-end accessibility, ensuring that user interfaces and interactions are inclusive. Participants will gain insights into designing for cognitive, visual, auditory, and motor impairments, as well as addressing the unique needs of users with temporary or situational disabilities (Lazar et al., 2017). Techniques such as proper semantic markup, keyboard navigation, and screen reader compatibility will be highlighted as essential components of an inclusive front-end experience.

In addition, the presentation will examine the intersection of front-end development and energy efficiency according Linux foundation research, addressing the growing concerns over the environmental impact of web technologies. Attendees will explore strategies for optimizing website performance, reducing client-side resource consumption, and minimizing the carbon footprint associated with front-end development. Another examples could include reducing CPU cycles, reducing bandwidth and creating new sustainable practices in alignment with the User Experience Design (UX) (Linux Audit, 2024). Topics such as asset optimization, code splitting, lazy loading, and the use of modern front-end frameworks and libraries that prioritize efficiency will be discussed.

Furthermore, it will showcase some real-world examples of websites and web applications that have successfully balanced front-end accessibility and sustainability, projects that leverage technologies such as progressive web apps and serverless architectures, as well as an approach to a green software development model (Shenoy & Eeratta, 2011).

The presentation will leave with a comprehensive understanding of the synergies between front-end accessibility and energy efficiency, empowering them to create digital experiences that not only cater to diverse user needs but also contribute to a greener, more sustainable future.



Lazar, J., Goldstein, D., & Taylor, A. (2017). *Ensuring digital accessibility through process and policy*. Morgan Kaufmann.

Linux Audit (2024). *Sustainable Web Design*.

Microsoft (2024). *The Principles of Sustainable Software Engineering course*. Microsoft Learn.

Shenoy, S. & Eeratta, R. (2011). *Green software development model: An approach towards sustainable software development*. 1-6. 10.1109/INDCON.2011.6139638.

**Valeria Cerpa** is a front-end developer and architect from Universidad Catolica de Santa Maria, currently being part of TechLeap program, supporting Reciprocal Studio and recently selected as a GHC 24' scholar. In 2021, she founded "Data for Resilient Spaces", the first digital and coded project of the Fellowship Resilience Fund, which allowed her to lead a team and work on the generation of interactive maps on urban safety. She has also worked on scaling up this project with Yours for Road Safety organization.

In addition, Valeria was involved in the development of "Planning 2050", a Peruvian-American web project, which promotes sustainable commitments for cities from public institutions. Previously, she was a fellow at US Green Building Council in Washington DC, Harvard WECODE and participated in the Women Who Code (WWCODE) podcast. She has participated as speaker in the conference JSConf Medellin 2023. Her work experience has allowed her to collaborate with organizations in the United States, the Netherlands, Switzerland, Chile and Peru, and to attend climate conferences like COP28 and SB58.

## *Empowering every users-semantics in design\**

**Nilmani Kumar**  
**Thoughtworks**

When designers and developers embark on creating components for their designs, they usually focus on aesthetics and functionality. However, they might inadvertently overlook the importance of ensuring accessibility for all users, including those with disabilities. This oversight stems from a common assumption that once the components are built, they will naturally be accessible to everyone. Furthermore, when designers rely on pre-existing design frameworks such as material design or carbon components, there's often a misconception that accessibility considerations are already integrated into these frameworks. Consequently, they may neglect to specifically address the needs of users who rely on assistive technologies, assuming that these frameworks inherently cater to such users. This session serves as an opportunity to shed light on the critical aspect of semantic accessibility in component design. By delving into personal experiences with clients, participants will gain insights into the importance of proactively considering accessibility during the design and development process. Moreover, the session will emphasize the significance of documenting accessibility guidelines within design systems, ensuring that accessibility remains a central focus throughout the lifecycle of a project.

[1] *Deque Systems: Web Accessibility Software, Services & Training*. (2024, May 21).

Deque. <https://www.deque.com/>

[2] Initiative, W. W. A. (n.d.). ARIA Authoring Practices Guide. *Web Accessibility Initiative (WAI)*. <https://www.w3.org/WAI/ARIA/apg/>

[3] A11yTalks. (2024, June 1). <https://www.a11ytalks.com/>

[4] Specialists, P. (n.d.). *Mouth-Head Stick Keyboard by Maltron Keyboards: ErgoCanada - Detailed Specification Page*.

[https://www.ergocanada.com/detailed\\_specification\\_pages/maltron\\_keyboards\\_mouth\\_head\\_stick\\_keyboard.html](https://www.ergocanada.com/detailed_specification_pages/maltron_keyboards_mouth_head_stick_keyboard.html)

[5] *A Web for Everyone | Rosenfeld Media*. (n.d.). Rosenfeld Media.

<https://rosenfeldmedia.com/books/a-web-for-everyone/>

[6] *WebAIM: Visual Disabilities - Blindness*. (2021, August 12).

<https://webaim.org/articles/visual/blind>

[7] *E-Commerce Accessibility – Baymard Institute*. (n.d.). Baymard Institute.

<https://baymard.com/research/accessibility>

I am **Nilmani Kumar**, currently holding the role of Senior UX Consultant at ThoughtWorks, bringing over 9 years of industry expertise. My journey has revolved around immersive UX design, where I've passionately crafted meaningful user experiences. With a foundation in design, I am particularly intrigued by the exploration of accessibility within the design landscape. I derive immense satisfaction from delving into literature and educational avenues, continuously enriching my knowledge to ensure inclusivity in design for all users.