Editorial

Shaping Our Common Digital Future

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THE GLOBAL SPREAD of a vicious disease in our interconnected world is threatening the health and livelihoods of millions of people. Beyond the immediate effects of the disease on individuals, families, and communities, we can anticipate the long-term impact on whole societies and economies. Our lives are changing not only because of the coronavirus pandemic, but also because of climate change and environmental damage. These are the defining crises of our time, and they are shining a harsh spotlight on the intractable socioeconomic inequalities long plaguing the world's people. We cannot meet these challenges only on a local or national scale. Global crises require a global response.

MULTIMEDIA IN TIMES OF THE PANDEMIC

We have only begun to understand the importance of multimedia communication in the face of a pandemic. Electronic products and services, especially interactive ones, that combine text, sound, video, etc., quickly proved essential socially and economically when global quarantine became necessary. Previous multimedia research and existing tools have contributed a "safety net" of sorts to allow continuation of at least some education, business, and government communication.

Research in multimedia over the past decades has contributed to understanding, interpreting, transporting, delivering, and interactively presenting multimedia experiences across many domains. Software and tools rooted in this field support multimedia networking and streaming, interactive video conferencing, and communication and interaction on social media. Now, physical events and meetings, including those of global leaders, have by necessity become virtual. Multimedia research has thus become mainstream and usable for everyone. Confined by stay-at-home orders, we have found tools to connect, to keep in touch, to work and learn. Even when this disease is brought under control, however, our daily lives will never be what they were. Furthermore, the crisis has starkly exposed long-troubling, deep social and economic inequalities. Consequently, the questions now are how will this pandemic transform our future work life and educational systems, and how can we use this transformation to level the playing field, to address inequalities wasting so much human potential around the world?

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Multimedia technologies are already building blocks for many application domains much needed in these days: Health care, education, additive manufacturing, logistics, crisis management, and many more. So, we could sit back and be satisfied—or we could understand our field from a philanthropic angle and help shape our common digital future, positively and inclusively.

MULTIMEDIA FOR OUR COMMON DIGITAL FUTURE

The challenges of the day have been well framed by the United Nations, when in 2015 they decided on a 2030 Agenda for Sustainable Development. This agenda "is a plan of action for people, planet and prosperity" and forms "universal goals and targets which involve the entire world, developed and developing countries alike."[1] The agenda addresses 17 sustainability goals and describes actionable objectives, from ending poverty to ensuring access to clean water and clean energy, to education and decent work for all. In meeting these Sustainable Development Goals (SDGs), digitization will play an important, even transformative, role.

Recently, the German Advisory Council on Global Change published their Flagship report, "Towards Our Common Digital Future."[2] This excellent, comprehensive report describes the enormous potential digitization holds for our common digital future: "Digital change is epochal and opens the door to a new era of human development." The report frames digitization as an opportunity to shape the digital societies of the future and lays out how to shape the "Great Transformation" to address sustainability goals. The advisory council not only sees digital technologies as important for this transformation but also emphasizes the necessity to link digitization and sustainability.

Technology and science will play an important role in this common digital future, and so can the field of multimedia. However, technological advances alone are not necessarily a sure-fire success. We witnessed several examples in the last decade showing that the narrative of an always positive use of digitization cannot be told anymore—digital technologies can be used not only for the good of humans but also to their detriment. It is on us to actively shape this change for the better, for all of us.

MULTIMEDIA—WHERE TO GO?

Multimedia can be a rich source for addressing many global challenges. Here, we focus on the potential of multimedia to advance progress toward selected SDGs.

The Sustainable Development Goal 3: *Good Health and Well-being* focuses on the severe inequalities worldwide that leave much of the world's population struggling just to survive, much less experience good health and a sense of well-being. It is time to mount a concerted global effort to alleviate this condition. Multimedia can be instrumental to implementing global solutions. Multimedia researchers have already contributed to significant advances in personal health, from multimedia signals to a new generation of future personal digital health technology.[3] Multimedia can act as an accelerator for understanding personal health and supporting the individual in gaining and maintaining good health.[4] Current developments have only begun to unfold the potential to better understand, diagnose and predict courses of disease, and to contribute dramatically to universal health solutions.

The Sustainable Development Goal 4: *Quality Education:* aims to ensure inclusive and equitable, quality education and to promote lifelong learning opportunities for all. While the field of multimedia has been working for some time on interactive digital education and social media for learning,[5] the pandemic has given digital education a boost. It revealed the gap between digital technologies and digital education. The challenge is to integrate these new technologies into our learning contexts and curricula and use them to provide high quality education to *everyone.*

The Sustainable Development Goal 8: *Decent work and economic growth* aims to promote inclusive and sustainable economic growth, full and productive employment, and decent work for all. Digitization, along with multimedia and interactive technologies, will be the driving force of the workplace of the future. Widespread transformation of the workplace will require that

people accept and want to use digital technologies.[6] Participatory design work can result in new technologies conducive to learning, to inclusion, and to access for the transformed job market of the future.

The Sustainable Development Goal 10: *Reduced Inequalities* aims at reducing inequality within and among countries. In our field, social media usage and social media coverage are studied to understand political information and disinformation on social media and how news is perceived on social media around the globe.[7]

For example, existing work has investigated the role of social media in political engagement and the technologies in play dispensing political information and mediating political engagement. We must develop technologies that allow people to "freely express themselves, access trustworthy information, engage in meaningful deliberation, and organize themselves without fear of being commoditized, manipulated, monitored, or harassed by authorities."[8]

Currently these SDGs are mapped to national research agendas. In Germany, for example, you will now find different SDG objectives to be addressed in different calls for grant proposals.

We need to discuss and identify how the field of multimedia can contribute to a positive digital future for all of us. What does this mean for researchers and practitioners in higher education institutions, research institutes, and companies, and what can be our personal contribution to society to shape a digital future for the betterment of all?

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