

## **The digital divide at the nexus of social justice, media justice and ethics: introduction to the special issue**

The digital divide is a dynamic and evolving concept representing disparities in information and communication technology access and use that can be viewed at global, regional, local or even household levels and be measured by penetration rates (e.g., fixed and mobile broadband), affordability, quality of connection (e.g. speed and reliability) or education and skills. These divides are conceptually complex and often closely parallel gaps in income, social class, language, education (e.g. digital skills or literacies), race and gender. As digital information technologies become increasingly intertwined with nearly every aspect of modern life, new areas of digital divide scholarship have focused on the growing array of ethical issues arising owing to widespread data accumulation and analytics made possible by artificial intelligence and big data. Zuboff (2015) describes this logic of accumulation as “surveillance capitalism” and warns that it is characterized by growing asymmetries of knowledge and power. In this age of big data, the analytic processing of data to beget new data is as important as the collection and aggregation itself (Mai, 2016). Amidst these technical and social changes, we see that data analytics has been linked to a range of emerging privacy and civil rights violations owing to its use to make inferences and judgments that may lead to disparate impacts for individuals and groups (Noble, 2018). Scholars are also increasing focus on unequal access to digital content and knowledge and the tools needed to make use of it, as well as how media platforms may enable or constrain efforts to promote equity. A greater understanding of the underlying values, interests and priorities of these systems, and how they might be better harnessed to mitigate disparities, rather than exacerbate them, are central areas of concern.

The Partnership for Progress on the Digital Divide (PPDD) is a not-for-profit organization that brings together a diverse and multidisciplinary array of individuals and organizations connecting academic research to policymaking and practice to forward progress on the digital divide and related challenges. PPDD convenes researchers, practitioners and policymakers at a series of biennial international conferences, yielding high-quality interdisciplinary collaboration and scholarship that highlights new solutions to long-standing problems of great social significance and explores emerging contours of the digital divide. This special issue features eight selected papers from the PPDD conferences in 2015 (Scottsdale, AZ) and 2017 (San Diego, CA) to address the intersection of the digital divide and social justice.

In the opening article (“Digital Footprints: An Emerging Dimension of Digital Inequality”), Marina Micheli, Christoph Lutz and Moritz Büchi address the impacts of big data, artificial intelligence and algorithms on personal privacy. They argue for a new conceptualization of digital inequality focusing on the emerging concept of digital footprints, which are personal digital traces created during both active content creation and more passive online participation. Arguing that the digital footprints of different social groups may lead to systematic biases that unjustly provide advantages or disadvantages, they encourage scholars and policymakers to address individuals and groups situated “at the margins”. This work also positions digital footprints as an aspect of digital literacy reflecting one’s ability to mitigate negative consequences of



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“limited, suboptimal or negative” digital footprints, while maximizing the potential benefits of a more positive profile.

Nicol Turner-Lee (“Detecting Racial Bias in Algorithms and Machine Learning”) describes unjust algorithmic biases that emerge from the predictive modeling of online behavior. At present, she notes, algorithms function as “mirrors of structural discrimination, rather than bridges to opportunity and equality”. Arguing that these biases are learned behaviors inherited and exacerbated by the sociotechnical systems in which algorithms emerge, she details a number of examples where algorithmic bias, whether implicit or explicit, has harmed classes of people protected under civil rights laws. Turner-Lee offers strategies to identify racial bias during the design of algorithmic models and emphasizes the importance for computer scientists and policymakers to come to an agreement about specific principles and values to establish a “bias-free zone” for new system development.

Florence Chee (“An Uber Ethical Dilemma: Examining the Social Issues at Stake”) addresses the social and ethical dimensions of ridesharing services such as Uber and Lyft, critiquing the underlying norms and values that drive these developments. She explains several ways in which these current practices are problematic and may further constrain upward mobility, increase the wealth gap and erode public infrastructures – ultimately damaging the social contract. She emphasizes the novelty and importance of the numerous ethical issues related to these practices, including abuse of user data, gender-based violence and racism against users of these services, systemic sexism and racism alleged within the companies and exploitation of digital labor. Importantly, Chee asks us to reflect on the type of society we wish to foster, opening the door to envision alternative, more equitable, futures.

Katherine Sarikakis, Izabela Korbiel and Wagner Piassaroli Mantovaneli (“Social Control and the Institutionalization of Human Rights as an Ethical Framework for Media and ICT Corporations”) argue for the institutionalization of human rights in the process of communication technology innovation and production, focusing on incorporating human rights as an ethical framework to guide media corporations. This is becoming increasingly important owing to the global media economy and technical developments that support it, such as artificial intelligence and always-on networks and devices. They argue that as ICTs and media corporations process information and communication – which are protected under human rights convention – human rights should be embedded in their processes of technical development. They propose that a social control perspective be adopted for corporate ethics initiatives, as this will aid returning control over social change to those actors affected, strengthening democracy and protecting human dignity.

Esther Charlotte Moon (“Teaching Students Out of Harm’s Way: Mitigating Digital Knowledge Gaps and Digital Risk Created by 1:1 Device Programs in K-12 Education in the US”) shifts our discussion toward education, examining how the growth of mandatory personal media devices in K-12 programs in the USA may adversely impact students. She argues that the race toward increased integration with new technologies has produced new gaps in student knowledge and understanding of the digital environment, as well as exposed students to risks such as cyberbullying. This work highlights the urgency for policymakers and practitioners in education to understand these potential problems and to design policies and strategies to mitigate related risks.

Zoe Corwin and Tattiya Maruco (“Navigating the Tension between Scale and School Context in Digital College Guidance”) address substantial issues of digital equity related to online college guidance systems used to support students’ preparation for

higher education. Corwin and Maruco draw on extensive empirical data to assess impacts of a large-scale digital intervention program, describing the challenges of implementation and highlighting effective approaches. They argue that students from historically under-represented backgrounds are confronted with glaring equity issues related to college access, and that as schools continue to invest in digital college guidance technology, practitioners must also ensure that students have access to “consistent and high-quality digital resources, including to educational opportunities that cultivate digital literacy”.

Andrew Iliadis and Isabel Pederson (“The Fabric of Digital Life: Uncovering Sociotechnical Tradeoffs in Embodied Computing through Metadata”) compare the contextual metadata of two databases that store information about embodied computing technologies. They argue that innovation-driven discourses related to embodied computing often mask complex tradeoffs (e.g. efficiency vs privacy) that must be countered by critical alternative discourses. This critical analysis examines how metadata curation in each database produces different narratives and framing, revealing the motives for collecting content and identifying underlying norms and values.

Damian Carroll (“Palestine2Ferguson: A Community Created through Words”) conducts a rhetorical analysis of the Twitter hashtag #Palestine2Ferguson to enhance understanding of how members of minority groups choose their method and modes of self-expression to build community around the issue of racial and ethnic oppression. He analyzes the rhetoric of Twitter users through the lens of Deluca and Peeples’ concept of “public screens”, highlighting how Palestinians and Ferguson protestors can understand each other’s oppression and create a self-selected online community.

The final paper in this issue, “Building Common Ground in a Wildly Webbed World: A Pattern Language Approach”, provides a practitioner’s perspective addressing important foundational communication skills for teamwork and collaboration. John Charles Thomas introduces the pattern language approach and presents detailed examples of three patterns that may be of particular interest to those wishing to collaborate to address issues of the digital divide and social justice.

This special issue on *The Digital Divide at the Nexus of Social Justice, Media Justice and Ethics* features a collection of scholars and practitioners from diverse disciplines and perspectives with a shared goal of mitigating the digital divide and resulting disparities. As key aspects of social, political and economic life are increasingly digitized, how can digital divide scholars best identify and address the unjust discriminatory impacts of algorithms and artificial intelligence, particularly given their opacity? What role do computer scientists, corporations, governments and citizens play in addressing these concerns? And where might fruitful partnerships emerge between these groups? What alternative sociotechnical systems and practices might be realized to better reflect all stakeholder values? Continued vigilance and commitment is required to address these shifting and ever more complex aspects of the digital divide. The scholarship featured in this special issue exemplifies how rigorous academic research can impact and address substantial sociotechnical problems and contribute to policy solutions that help mitigate digital divides and foster social and media justice.

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