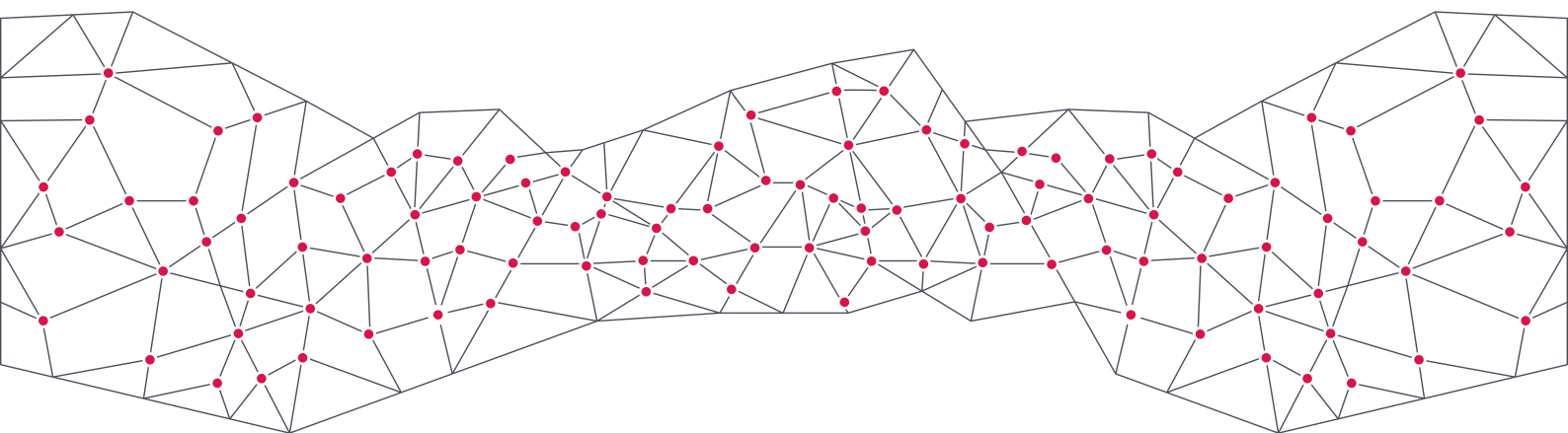


INTERNATIONAL SCIENTIFIC CONFERENCE

EMERGE 2022

DIGITAL SOCIETY NOW

BOOK OF ABSTRACTS



INSTITUT
ZA FILOZOFIJU
I DRUŠTVENU
TEORIJU

DIGITAL SOCIETY NOW

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CONTENTS

Scientific and Organizing Committees	6
Introduction.....	7
AI and Society.....	9
Online Political Communication.....	19
Digital Democracy.....	29
Techno-Narratives.....	39
Cyber Order.....	49
Postdigital Art and Culture.....	59
AI in Practice.....	69
New Realities.....	79

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Introduction

Emerging technologies have brought about ground-breaking changes to societies across the globe. Leading global regulators are struggling to keep up with technological development and impose new rules and regulations. Our choices and habits, personal freedoms, human rights, and power relations are fundamentally transformed through constant interaction with and reliance on technology.

The shift to the virtual realm has been significantly accelerated by the COVID-19 pandemic, climate change, and military conflicts around the world. Major corporations are investing billions to create a new market that will transport our daily activities, such as shopping, work, leisure, entertainment, and socialization, into the virtual realm.

Against this backdrop, the *EMERGE 2022 Digital Society Now* conference was organized to bring together academic researchers, tech industry actors, and policy-makers to discuss the social, political, and economic impact of emerging technologies. The selected 33 presentations raise thought-provoking questions about applications and social implications of AI, digital democracy, online political communication, cybersecurity, art and creativity in the digital age, and life in a postdigital society.

Some examples of these questions include: *Can we make AI more ethical and trustworthy? What are the implications of our increasing reliance on AI? What is the future of free speech and public information online? How can technology be used to improve rather than undermine democracy? What are the key cybersecurity trends and challenges? What can arts and networked cultures tell us about human-nonhuman relationships? How are digital media and computational art changing creativity, authorship, and subjectivity? What experiences describe the postdigital condition?*

The first edition of the *Digital Society Now* conference will provide a forum to ignite a discussion on these complex issues. The presenters come from diverse disciplinary backgrounds, including computer science, digital humanities, literary studies, philosophy, psychology, sociology, etc. We see great potential in this kind of multidisciplinary environment to contribute to the ongoing debates about the risks, potentials, and implications of emerging technologies. We hope that the ideas shared at the EMERGE 2022 will inspire not only other academics but also practitioners and decision-makers.

AI AND SOCIETY

Misalignment of Fairness in Machine Learning

Miloš Jovanović, Sandro Radovanović, Boris Delibašić

Machine learning (ML) models using historical data are employed in aiding or even automating repetitive and significant decision-making. Since learned models are asked to provide predictions, they are traditionally evaluated using various accuracy measures. Recent years of advancing AI technology brought additional societal concerns, and more criteria are added in judging the acceptability of ML models, including measuring their biases and fairness, especially towards sensitive subpopulations.

The first generation of solutions for building fair models incorporates mathematical notions of fairness, which are adopted by engineers because of their ease of use and mathematical properties, and frequently introduce approximations to the notion of fairness discussed in the related social science literature.

This study surveys the existing metrics of fairness in ML and highlights the need for improving metrics beyond mathematically convenient choices—aligning them to the notions of fairness from social theories of justice. We will also propose several technical ways to accomplish that goal, such as using methods from reinforcement learning and formalizations of envy-free fairness inspired by the field of mechanism design and algorithmic allocation of resources. Finally, we want to challenge social scientists to improve formal definitions by increasing precision in notions of fairness and helping reduce the misalignment in goals ML models optimize.

Keywords: machine learning, fairness, metrics, misalignment, theory of justice

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Sandro Radovanović is an assistant professor in the Center for Business Decision-Making at the University of Belgrade, Faculty of Organizational Sciences. His research builds on designing and developing machine learning models and decision support systems, as well as employing concepts from decision theory in real-world applications. He is particularly interested in enforcing fairness and equality in algorithmic decision-making. So far, he has published over 80 scientific papers in the area of machine learning, data mining, and mathematical modeling with applications in algorithmic fairness, healthcare, medicine, dentistry, and other areas.

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Boris Delibašić is a full professor at the University of Belgrade, Faculty of Organizational Sciences, Republic of Serbia. His research interests lie in data science, machine learning, business intelligence, multi-criteria decision analysis, and decision support systems. He is one of the EWG-DSS coordinators. He was a guest lecturer at the Friedrich Schiller University of Jena, Germany in the period 2006–2011. He was awarded the Fulbright Visiting Scholar Grant in 2011. He has been the principal investigator on projects from several research agencies (Swiss National Science Foundation, German Academic Exchange Service, Office for Naval Research, and Serbian Ministry of Science).

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Fill In, Accept, Submit, and Prove That You Are Not a Robot: Ubiquity as the Power of the Algorithmic Bureaucracy

Mikhail Bukhtoyarov, Anna Bukhtoyarova

Internet users deal with interactive online forms that require their agreement when using every service, platform, or application. They fill in multiple fields, check/uncheck checkboxes, select options, and agree to submit. People give their consent without having a chance to get acquainted with those who require it. The dominance of the machine producing human consent is ubiquitous. Humanless bureaucratic procedures become embedded into the usage of various digital products and services. They turn into a routine that automates human behavior. This kind of bureaucracy does not make individuals wait in conveyor-like lines (which in some circumstances can be turned into a collective action), it patiently waits or suddenly pops up in an annoying message that requires immediate action. It is always ready to consume human time and provide more information for the most legally aware. It follows pre-installed procedures so it cannot be distracted or appealed to. It lacks what Sofia Ranchordás calls “administrative empathy.” If a human believes that an error has occurred, he/she can only hope to reach through additional bureaucratic procedures in order to communicate the problem to another human.

An individual routinely involved in these microtransactions contributes to increasing the number of bureaucratic procedures. The power of the algorithmic bureaucracy resides in the limited ability of human beings to make conscious and informed decisions when dealing with high levels of complexity. The ubiquity of such actions makes it virtually impossible for an individual to track and verify the status and the binding power of all performed microtransactions.

The authors apply critical analysis to explore social implications, threats, and possible alternatives for corporate and governmental algorithmic bureaucracy in the emerging digital society.

Keywords: algorithmic bureaucracy, ubiquity, decision-making, consent

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The Deconstruction of the Masculine Bias in Gendered AI Discourse

Nazam Laila, Adeeba Asri

Artificial Intelligence (AI) plays one of the most important roles in the Fourth Industrial Revolution and has a massive impact on political, cultural, and socio-economic arenas. Thus, AI has become an essential element of the technological revolution in the last decade and, consequently, it influences our daily lives. Due to masculine biases in algorithmic design, machine learning, and the use of AI, the technology often shows various gendered discrepancies. Namely, the omnipresence of AI is so far-reaching that it influences our actions and perceptions regarding how we want to be viewed by others and vice versa. Consequently, through a snowball effect, it goes on to affect our choices and social norms. As such, it draws the question of equality and fairness for AI to capture a better representation of people and groups who have been so far neglected or adversely impacted due to their gender, race, and class.

This paper aims to deconstruct the masculine biases that exist in the architecture of different AI technologies as well as the way they are used, by drawing references to the feminist theories of Judith Butler, Simone de Beauvoir, and Teresa de Lauretis. By determining the feminist self and others in the AI discourse, this paper analyzes how gender performativity and representation function through technology. The underlying goal of this examination is to reveal the existing tech-based gender inequalities and contribute to rewriting the rules and rebuilding the structure for gender neutrality in AI.

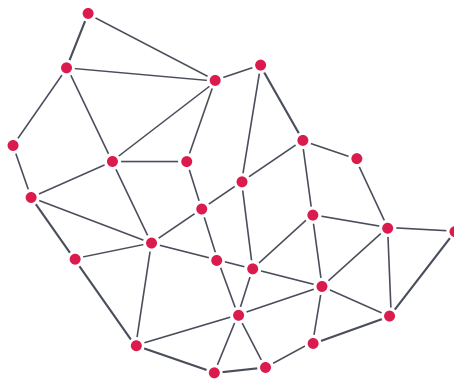
Keywords: artificial intelligence, gendered technology, performativity, feminist representation

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Networking *For You*: The Algorithmically Mediated Network and Networked Subject of TikTok

Dunja Nešović

This paper investigates how the algorithmically curated content feeds of social media platforms influence the formation of social networks and their corresponding networked subjects. The inquiry focuses on TikTok's *For You* content feed and the modes of networked subjectivity and collectivity produced by it.

Apart from providing its users with a range of creative possibilities for video creation and performance, TikTok has created an important paradigm shift in terms of affording connections and forging networks. Namely, its main content feed, called *For You*, represents an infinite scroll of content uniquely curated by the platform's recommendation algorithm, which operates on the basis of data the user has provided it. In this manner, the users who have not been previously following one another can be and are connected via algorithmically mediated operations of the platform. Assuming that no two users can provide the exact same data to the platform, the *For You* feed represents a unique network formation, custom-tailored for each and every user. Moreover, the connections between the users are formed on a presumed basis of similarity, meaning that anything that comes up on one's *For You* feed is—in one way or another—a reflection of themselves. If the recommendation algorithm facilitates the formation of specific one-to-one connections, the *For You* feed provides a visual form of the individual and fragmented network the end user is part of, constituted through its infinite scroll of content.

By reflecting on the form of the network (Caroline Levine, Bruno Latour), its constitutive affordances such as algorithms (Tarleton Gillespie, Taina Bucher), the architecture of connectivity (Jose van Dijck), algorithmic subject formation (John Cheney Lippold), as well as the rhizomatic (Deleuze and Guattari) and fluid (Bauman) aesthetic these networks assume, I am interested in exploring the tension between the individual user and their network, as well as the novel meanings of collectivity and subjectivity that arise from it. The overlap of the network and the subject as constructed through the *For You* feed, points to the formation of the highly individualized, yet fluid form of network, out of the user's control, in which the subject is ultimately being connected to their (algorithmic) self. Moreover, the fluidity, instability, algorithmic mediation, and underlying profit-making logic that give shape to this particular type of network, somewhat diminish the collectivity potential social media platforms promise to provide.

Keywords: TikTok, network, algorithms, networked subject

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ONLINE POLITICAL COMMUNICATION

Potentials of Web 3.0 for News Media: Lessons From Civil, DNN, and Steemit

Walid Al-Saqaf

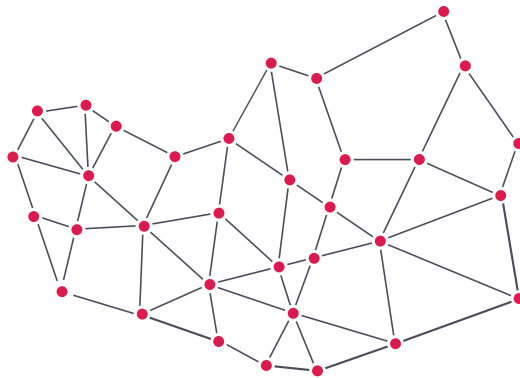
The World Wide Web has so far gone through two extensive “iterations” starting with Web 1.0, which permitted users to access audiovisual content directly but exclusively in a read-only mode. The first iteration allowed news media to easily adapt their ways to broadcast and publish content widely and globally, giving them greater reach and flexibility than ever before. In the early 2000s, Web 2.0 emerged with the launch of Facebook in 2003, followed by a plethora of social media and content-sharing platforms, which allowed user-generated content to thrive online. However, this also led to the spread of disinformation as well as the concentration of control in the hands of a few major Big Tech oligopolistic entities. News media found themselves forced to create accounts and channels on major social media platforms to reach audiences. It also led to strong competition with user-generated content and citizen journalism. The third iteration, Web 3.0, is currently being developed as a framework that sees users, not platforms, as the ultimate arbiters and agents of value. This is made possible by the utilization of blockchain technology through permissionless blockchains such as Bitcoin and Ethereum. The Web 3.0 arguably brings users closer to the original vision of the internet as a fully decentralized network where unfettered and ubiquitous peer-to-peer communication is critical. This disruptive restructuring of the internet is shifting responsibilities and control from intermediaries to users with news media potentially losing significantly if they do not properly prepare for what is coming.

The aim of this paper is to consider the potentials of Web 3.0 for news media in areas like intellectual property, data storage, access, data privacy, incentivizing content creators through cryptocurrency, using non-fungible tokens (NFTs), metaverse applications, as well as content generation and distribution. The study examines through content analysis and interviews the work carried out by journalism-related start-ups Civil (now obsolete), the Decentralized News Network (DNN), and Steemit in leveraging blockchain technology to utilize some aspects of Web 3.0 in their operations and thereby assessing how news media could address some of the challenges that were exacerbated by Web 2.0 such as disinformation, intellectual property protection, provenance verification, financial viability, and archiving.

Keywords: Web 3.0, blockchain, journalism, DNN, Steemit

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Google News Initiative: The Stimulus of Emerging Technological Innovations in Media Companies

Mathias-Felipe de-Lima-Santos

The advent of communication technologies led to the rise of big media platforms in the media ecosystem. While these digital intermediaries (Kleis Nielsen & Ganter, 2018) have given opportunities to media outlets to reach wider audiences and engage in better ways with them (Karls-son, 2011), they also brought new dynamics, revealing the weaknesses in media companies' business models (Evens et al., 2017). Policy-makers worldwide are closing in on the digital giants, pressuring for regulation of the sector (Bell, 2019). In Australia, the competition authority demanded that Facebook and Google pay Australian media for using its content (Burrell, 2020). Similarly, Google announced a new project to pay select publishers in selected countries for high-quality journalism (Bossio et al., 2022). In this scenario, big tech companies have invested millions of euros in journalism projects, overcoming the amount of money philanthropic institutions have invested in journalism in the last decade (Newman, 2019; Rashidian et al., 2019). Since November 2018, Google has promoted the Google News Initiative (GNI) Innovation Challenge, a project aiming to fund projects that inject new ideas into the media industry. This new form of philanthrocapitalism—that is, social programs to pursue specific philanthropic goals that would yield a return on investment over the long term—is responsible for bringing emerging technologies to newsrooms (de-Lima-Santos & Mesquita, 2021). Much of the scholarly discussion surrounds the global spread and the increasing threat Big Tech companies impose.

To fill this gap, this study relies on the concept of philanthropic capitalism and responsible innovation to analyze the proposal of selected projects between 2018 and 2022, which includes five regions: Africa, Middle East & Turkey, Asia Pacific, Latin America, North America, and more recently Europe. Findings show that emerging technologies are being deployed at distinct levels across these regions. Similarly, these technologies are integrated into different media value chain aspects. Consequently, few characteristics of Responsible Innovation can be found in these projects, such as anticipation, reflexivity, and responsiveness. To conclude, this study highlights that big tech companies amassed their fortunes through predatory business practices, which enhanced the very social problems their philanthropy intended to alleviate. To work, philanthrocapitalism needs to be more transparent and accountable, creating a sustainable partnering model of financial and technological resources for media companies.

Keywords: Google News Initiative, philanthropic capitalism, responsible innovation

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The Impact of Media Technology on Journalism in a “Post-Enlightenment” Era

Hajrudin Hromadžić, Helena Popović

The presentation will tackle the fundamental changes within the journalist field, particularly in relation to the “post-truth” and “post-factual” world, including both the enabling and disabling role of media technology within it. Availability of information, increasing and rapid media content production and distribution through a large number of multimedia technological platforms, changes journalism practices and the role of media in shaping the public sphere(s) in general. The wider context of this presentation is set within the historical heritage of the enlightenment paradigm and its core values of reason, use of logic, argument-based social debates, and scientific rigor that also shaped the way journalism as a profession developed its codes of conduct. Thus, it poses the question whether we have stepped into a “post-enlightenment” era, indicated by the hypermediated, post-truth, and post-factual world, and whether this has transformed journalism and journalist practices today.

Phenomena that only recently seemed as an innocent play of the postmodern condition of endless alternatives and diversities are now, in times of highly digitalized technologies such as sophisticated software, algorithms, and bots, indicating a potentially disruptive political, economic, and social practice, at least in the context of media practices (legacy and social media) and their role in shaping the public sphere(s). As in previous historical periods marked by the emergence of “new” media, we are again witnessing the disappearance of techno-optimism that characterizes every early phase of the inventions and spread of new media technologies. Instead of the realization of affirmative potentials, user creativity, and socially emancipating practices, mediatized representations are circulating, while their authenticity and trustworthiness are hard to confirm as they are encompassed by a profit-oriented logic of conduct. This changes both journalist professional practices (copy-paste journalism, attention economy, abandonment of professional codes of conduct) and audience consumption practices (distrust, information overload), resulting in a journalistic crisis. Technologies are embedded in socioeconomic, historical, and socio-political contexts that shape the modes of its usage. Thus, in order to identify and discuss the issues at hand, a critical take on contemporary capitalism is needed in order to understand the way media and journalism operate in contemporary society driven by technology: profit accumulation within media industries, ownership concentration of the big five media corporations, commercialization of the journalist field, advertising strategies that are primarily shaping the media and journalist field, etc.

Keywords: journalism, post-enlightenment, media technology, capitalist media markets

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The Grammar of Self-Deregulation: Speech Outside the Platform(s)

Mario Hibert, Bojana Kostić

In the platformized, intermediated, and networked environment where the algorithmic positivism, statistical commensurability, and agony of predictability are default processes and ideological premises, the “opinion-shaping power” (Helberger, 2019), a power to determine and control collective opinion formation and “regimes of truth” (Cobbe, 2021), is increasingly hermetically enclosing for regulatory, ethical or societal interventions.

The upcoming EU regulation like the Digital Service Act, Media Freedom Act, and the EU AI Act are all points in the case as many provisions, their underpinning values, and goals further limit maneuver space for states and societies to insert the mechanisms of scrutiny and tackle multiple prisms of platforms’ powers, platformization of the public space, and datafication. A brief example clarifies this point: to tackle “systematic risks” mentioned in the Digital Service Act and briefly described as tactics to silence the speech, coordinated large scale manipulation, and smear campaigns, platforms will be responsible to tackle these risks—that impose multiple harms on individuals and social anxieties—merely by adjusting their content moderation algorithms or reviewing their internal mechanisms of control (Article 26; Efroni, 2021). These regulatory initiatives will have enormous impact on the digital public networked spaces and could eventually amplify the effects of the media limbic system (Cohen, 2019), turning the public sphere into machinery of “doom scrolling, subliminal liking habits, and selfie culture” (Lovink, 2022) while shifting the power from state representatives and citizens to private and unelected actors (Kostic, 2022; Kalluri, 2020).

Against this background, this research asks if and how resistance and creation of spaces and communities of self-affordance, care, and solidarity in various forms, within and outside the platform spaces, can help us re-imagine the ways to reclaim the “abducted” digital networked spaces? Thus, the goal of this research is twofold. Firstly, through the lens of conceptual and critical analysis of the algorithmic and regulatory points of control, the research lays out a taxonomy of the emerging models of algorithmic antagonisms (Pereira, 2021) and media resistance. Secondly, in this way, this research articulates a grammar of meta-tech values and visions of self-deregulation that will not only serve to counter the interplay of power duopoly of states and Big Tech companies, supported with the EU regulatory “storm,” but also represent “a geographical spaces of reason” (Couldry & Mejises, 2019), debarking towards postdigital goods (Hibert, 2019) in their own (regulatory) right, self-organizational capacity, and common-based peer logic of care and solidarity.

Keywords: platforms, platformization, regulation, algorithmic antagonisms, resistance

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DIGITAL DEMOCRACY

“Return to Censorship”: Portuguese Perceptions of Digital Disinformation Regulation

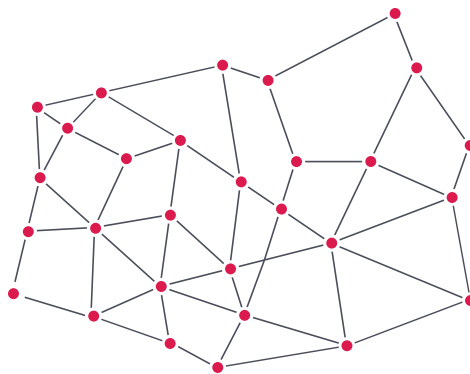
Bruno Frutuoso Costa

This study addresses the phenomenon of disinformation and seeks to analyze the current public policies to combat it in Portugal. In this sense, a study was conducted on the enactment of the Portuguese Charter of Human Rights in the Digital Age, which enshrines rights, freedoms, and guarantees of citizens on the internet. The lack of consensus on Article 6, concerning protection against disinformation, has promoted indignation from public opinion, parties, and political figures. To understand Portuguese perceptions of disinformation regulation, we carried out an inductive content analysis of comments ($N = 314$) in comment boxes of journalistic texts from five reference media in Portugal, which reported legislation on Facebook. The data reveal that 56% of users have a negative perception of the law. This research also concluded that the reference to censorship represents one of the four most used argumentation patterns among Portuguese when expressing dissatisfaction ($N = 101, 51.3\%$).

Keywords: disinformation, vulnerability factors, public policies, perceptions, Portugal

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Online Deliberation and Personal Identity

Miloš Kovačević

Both offline and online deliberation require certain structural features and dispositions from all participants involved in order to qualify as a rational discourse of importance—in regard to the legitimacy of the political decision-making process. Some of them are: 1) inclusiveness—all those affected both directly or indirectly ought to be included in deliberation; 2) reflexivity—participants must be willing to change their opinion after encountering a better argument; 3) ideal role taking—participants must be able to understand the perspective of others; 4) sincerity—there ought to be an awareness regarding the dangers of self-deception or manipulation. Unlike a typical offline setting, an online setting for deliberation is able to offer anonymity to participants, which is reflecting interestingly on the aforementioned features of deliberation. An opportunity to stay anonymous is both praised and criticized due to its ambivalent influence on people's behavior—making them simultaneously more and less attuned to the ideal of deliberation. For example, anonymity makes people more willing to participate, but reportedly lowers the quality of deliberation itself by reducing the respectfulness of participants. It seems that the decision about disclosure of one's personal identity has consequences, such as favoring some features of deliberation at the expense of others. I will assess the potential of digital anonymity as a tool for neutralizing power dynamics that are incompatible with rational discourse.

Keywords: online deliberation, personal identity, anonymity, political legitimacy, manipulation

Miloš Kovačević (1992) completed his bachelor's studies (2015) and master's studies (2016) in Philosophy at the Faculty of Philosophy, University of Belgrade. Since 2018, he has been a PhD candidate at the Department of Philosophy at the same Faculty. From 2018 to 2022, he was a scholarship recipient of the Ministry of Education, Science and Technological Development of the Republic of Serbia, working on the project titled "Dynamic Systems in Nature and Society: Philosophical and Empirical Aspects" of the Institute of Philosophy at the Faculty of Philosophy in Belgrade. Since 2018, he has also been working as a teaching assistant on courses Introduction to Political Problems and Contemporary Theories of Justice (2018/2019) at the same Faculty. He is currently working as a junior researcher on his PhD thesis entitled "Personal Autonomy and Political Decision Making" under the mentorship of Prof. Dr. Ivan Mladenović. His papers were published in *Theoria*, *Genero*, and *Philosophical Studies* journals and he has participated in several international conferences.

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The Combination of Psychometric Techniques and Big Data Analytics: Rigging the Political Election's Theater

Bianca Ferrazza

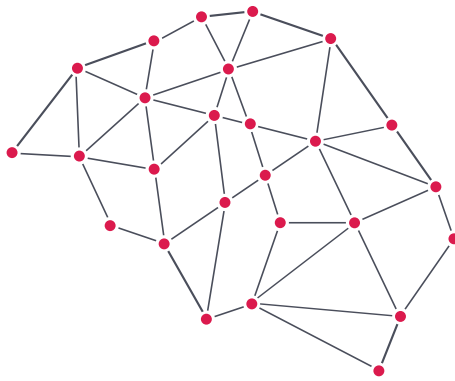
In the 1980s, two teams of psychologists developed a basic model later called the Big Five aimed at understanding and accessing people's personalities through five indicators commonly known as OCEAN: Openness, Conscientiousness, Extroversion, Agreeableness, and Neuroticism. These personality traits can be measured on a scale within an axis between two extremes. When particular statistical analysis techniques are applied to personality data, election messages can influence the voters' choice. Psychometrics is in fact a discipline that focuses on the measurement of psychological traits, such as personality. The Big Five soon became the standard technique in psychometry. For a while, the problem with conducting this test was the amount of work it demanded, the data collection process, and the administration of the test to a sufficient number of voters. Up until recently, the consulting firms that provide data for election campaigns mainly performed a demographic segmentation of the electorate. In 2016, however, Cambridge Analytica, a British-dominated company, engaged in political consultancy duties and segmented the electorate ahead of the American election, on a psychographic basis. This means that the demographic characteristics of the electorate (age, gender, origin, residence, work) were put in the second place, leaving space for an analysis drawn up based on the values detected in the dimensions of the personality, therefore of the OCEAN. To this day, scholars have been focusing on how to create a predictive model of a person's, or rather a user's, psychometric profile without the need to administrate a proper Big Five test. Due to the various systems of data collection and data analysis and a significant role played by social media, the administration of the test is not mandatory.

This paper will begin by giving an introduction on the diverse theories of political behavior, in order to frame the possible voter's choices, as well as a short focus on the concept of microtargeting and a brief explanation of how big data analytics fits into the process. The purpose of the study is to investigate how the use of microtargeting techniques adapted to personality traits might influence a voter's decision, to inquire into the challenges the combination of psychometrical techniques and big data analytics pose, and to subsequently reach a conclusion about their outcomes on the quality of the rule of law and of democracy.

Keywords: psychometrics, big data analytics, elections

Bianca Ferrazza is a first year master's student at the Université Libre de Bruxelles, currently enrolled in an International Relations program. She holds a double bachelor's degree from the University of Padova and the Sorbonne University in Political Science. She has graduated with a thesis on the topic of big data analysis, psychometrics, and their impacts on contemporary politics. She has been a junior analyst for two years within a research center at the University of Padova researching the quality of democracy.

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Digital Technologies, Individualization, and Democracy

Dominic Spada

According to Alexis de Tocqueville, one of the greatest threats to democratic society is a society of individuals. By losing connections to each other, we lose our sense of community and thus our obligations to one another as a united species. Democracy, by nature of being an equalizer of condition, inherently breaks communal ties in favor of individual efforts. The threat of an individualized society to democratic structures is the destruction of individual thought, provoked in part by the need to win over public opinion to win elected positions. The further isolated one becomes, the more they will defer their own opinion to that of the general public.

This paper argues that a general democratic backsliding has taken place over the last 12 years and proposes that increased uses of digital technologies by all generations of voters may be a contributing cause for such democratic backsliding. Democratic backsliding is identified by the factors such as younger generations' tendency to vote at a lower percentage than older and a decrease in the presence of independent media. Through an analysis of voting patterns and presence of independent media in Hungary and Poland, I identify a correlation between the use of technology and these democratic backsliding factors. This threat is more prevalent than ever in today's societies, in a world interconnected by digital technologies. In this society, our connections are not with each other's physical beings, but with digital reconstructions of each individual highlighting the growing relevance of digital connections over physical ones. While for some these connections may be meaningful, it has also been suggested that digital connections increase isolation. Algorithmic processing may play a key role in this phenomenon, as corporations seek to keep users on their platforms for their own profit. It is not the use of these technologies that is the issue per se, but it is the constant drive to collect more data that individualizes each person and creates a power of individual prediction for governments to exploit. I discuss how the threat of digital technologies to democratic institutions may rest in their capacity to individualize populations seemingly effortlessly, not only through content bubbles, but also by fragmenting attention spans and increased self-promotion within the attention economy. Technologies, whether digital or not, have been seen to progressively isolate societies by increasing productivity and raising the value of status above that of social relationships. As technology increasingly replaces large parts of every human's life, pulling harder at many of the physical ties necessary for social connection, societies will continue to become individualized. In a society already individualized by neoliberalism, one with a heavy emphasis on private property and individual rights, modern democratic institutions exist in an environment precariously close to that which Tocqueville was concerned about. The further breakdown of community encouraged by the use of technologies only promises to promote seclusion and individuality, threatening the foundations of democratic life.

Keywords: individualization, democratic backsliding, digital technologies

Dominic Spada is a master's candidate in Human Rights and Data Science at The American University of Paris (AUP), having received his BA in Comparative Politics from AUP as well. For both his academic and personal research, his interests revolve principally around the interactions of digital technologies with political structures and human rights law. At the moment, he is particularly interested in the relationships between digital technology and democratic institutions and developing sustainable procedures for democratic governance in the digital age. He is also pursuing research on the legitimacy of governance structures that utilize digital technologies. Beyond these topics, he has also worked on projects relating to small business development, research valorization, and university-business collaboration at the Institut Mines-Télécom Business School and on trends in international political science with the *International Political Science Abstracts* journal.

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TECHNO-NARRATIVES

Cultural Posthumanism and AI Takeover: Examining Human–Non-Human Relationships and Body Without Organs (BWO) in Spike Jonze’s Sci-Fi Film *Her*

Payel Dutta Chowdhury

Cultural posthumanism is a branch of cultural theory which examines and questions stereotypical notions regarding humans and human nature. While often challenging these notions, it strives to move beyond generally accepted concepts about “human nature” to accommodate contemporary technoscientific knowledge. The belief that artificial intelligence will take over humanity appears frequently in this field. With the fast development of artificial intelligence (AI) and virtual reality (VR) and their presence in our day-to-day life, questions related to the creation of human beings and the human body are widely debated in various forums. Thought-provoking questions based on “what makes a human ‘human’” form the basis of a number of science fiction animations and films. Spike Jonze’s sci-fi film *Her* explores the issue of the seemingly thin divide between humans and machines where human beings are more machine-like whereas machines are developing human-like emotions.

Set against this backdrop, the present study will delve into the cultural context of a near-future world taken over by AI in order to explore the changing notions of human nature, behavior, and emotions. The study will look into two relationship patterns—human with human and human with machines, to examine the changing dynamics of a posthuman world. The study will also investigate the idea of the “body” as the primary feature of the human being vis-à-vis the body-less machine and the notion of Body Without Organs (BWO). Drawing upon cultural studies, particularly, discourses on posthumanism, this study will argue that films such as *Her* challenge anthropocentrism and open up possibilities of transcending the differences between the human and the non-human while highlighting an essential connection between all matters in the universe.

Keywords: anthropocentrism, artificial intelligence, BWO, posthumanism, *Her*

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Desktop Films: Posthuman Gaze and Technogenesis in Contemporary Cinema

Jelena Mišeljić

The subject of this paper is computer screen films or the so-called *desktop films*. The sources of recordings in these films are web cameras of personal computers, but also the computers themselves that can continuously record content—user's activities, through various hardware and software operations. Desktop films are a contemporary film tendency in which the cinematic space is limited to a computer screen and the narrative is based on the user's activity. Examples that will be analyzed in the paper are *Searching* (Aneesh Chaganty, 2018), *Unfriended* (Levan Gabriadze, 2014), *Profile* (Timur Bekmambetov, 2018), *Host* (Rob Savage, 2020), etc.

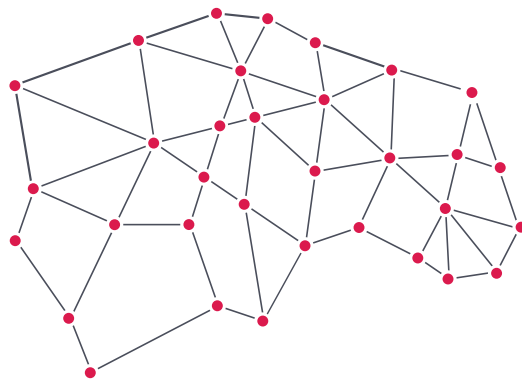
This relatively new film genre has been actualized during the COVID-19 pandemic as both the production and the distribution of films faced challenges that radically changed the industry, as well as the aesthetic paradigms. The paper will present a brief history of the genre and its presence in a certain niche of cinema practices since the beginning of video-call technologies. Therefore, desktop films will be analyzed as a curiosity in exploring the paradigms of film language and questioning the theoretical concept of the gaze.

A human is no longer behind the camera, but a machine, which is why it is necessary to re-examine the way we watch and interpret cinematic language. In this study, desktop films are analyzed as a reflection of *technogenesis*, i.e., the co-evolutionary processes of humans and technology. Desktop films demonstrate how we can better understand the expanding horizons not only of cinematic language but also of perceptual, bodily media. By analyzing desktop films in the broader context of contemporary networked culture, we can question not only the permeability between technologically and biologically mediated worlds but also the mediation between them via various and multiple screens, which drastically complicates the relationship between the virtual and material worlds. The contemporary cinema of computer screens is questioning the boundaries between bodies, things and their images, matter and representation, the themes immanent to posthuman studies and the world we live in.

Keywords: desktop films, screens, technogenesis, gaze, posthumanism

Jelena Mišeljić (1987) born in Dubrovnik, Croatia, is a teaching assistant at the University of Montenegro, Faculty of Dramatic Arts Cetinje (Film Production and History of Cinema courses). She received her PhD degree in Transdisciplinary Arts and Media Studies at the Faculty of Media and Communications in Belgrade (University Singidunum, Serbia) in 2021 with the dissertation "The Posthuman Gaze: The Automated Images in Contemporary Cinema." She is a producer of several internationally awarded short films. She is also the author of several works in the field of film and visual media studies.

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Unpacking Datafication and Beyond in Yudhanjaya Wijeratne's *Numbercaste* (2017): A Critical Algorithm Studies Approach Using Blended Reading

Manoj Singh Rana

The increasing presence of digital data has led to a rise in *datafication* of human activities. The paper attempts to unpack the concept of datafication through a study of *Numbercaste* (2017), a near-future science fiction novel by Yudhanjaya Wijeratne. The article offers a technological framework for the critical literary study of the novel dealing with the representation of computer-based technology. The framework offers two interesting ways of engaging with a text: first, using the lens of critical algorithm studies, and second, by practicing a blended reading.

The lens of critical algorithm studies has hitherto not been applied in the literary study field. This paper undertakes such critical analysis using critical algorithm studies to tease out the functioning of NumberCorp, a fintech company that claims to determine the worth of an individual by assigning a Number, through a conceptual understanding of terms such as data and algorithm. Second, the article offers a renewed way of engaging with a literary text through what can be referred to as a blended reading, which includes both the close and "distant reading" (Moretti, 2000) of the novel. While close reading is the conventional way of reading the text with punctilious detail and identifying the underlying patterns, distant reading entails computer-assisted reading. In this paper, the author uses an open-source application, Voyant Tools, for performing text analysis.

The trajectory of the article entails analyzing how datafication works in the novel through a conceptual understanding of terms such as data and algorithm. Through a study of the organizational infrastructure at NumberCorp, the article demonstrates how datafication enframes an individual through an algorithmic identity. Finally, the article will anatomize the loopholes of a technologically-driven system through concepts of glitch and update, which might become proxies for the inefficiency of a corporate organization.

Keywords: algorithm, blended reading, data, datafication, near-future science fiction

Manoj Singh Rana is a doctoral student in the Department of Humanities and Social Sciences at the Indian Institute of Technology Gandhinagar, Gujarat, India. His research interests include digital humanities, computational literary studies, and media studies. He is currently researching the representation of computer-based technologies in near-future science fiction published after the 2000s. He has co-authored a book review published in the Sage journal *Information Visualisation*.

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Technology-Facilitated Gender-Based Violence and the Novel: Realizing Women's Rights

Sekai Zhou

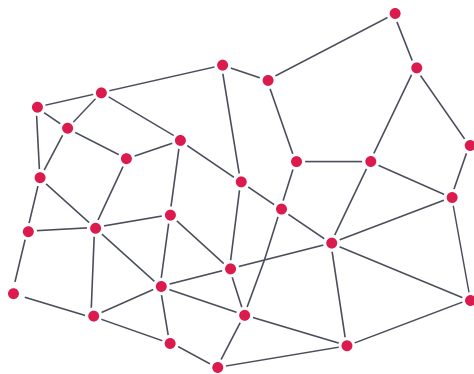
Emerging technologies present risks, benefits, and potential outcomes that affect and shape societies. This paper explores the risks emerging technologies pose to the realization of the rights of women in virtual space. Of particular interest is how emerging technologies, through technology-facilitated gender-based violence (TFGBV), impact women's lives. Through female-authored novels, this paper demonstrates that TFGBV is a social, structural, and systemic problem, which seemingly mirrors the non-technology-facilitated gender-based violence. While there are attempts to regulate virtual space, a pertinent question of why law and human rights seem to fail to address TFGBV remains. Another pertinent question is whether women-authored novels can give insights into why TFGBV persists or how it may be addressed. This paper takes a law and literature approach. It explores how novels may provide insights into women's struggle for justice both in the physical and virtual space, and inform law and human rights efforts to address them.

The findings reveal that women are as vulnerable in virtual space as in physical space and that law and human rights initiatives are inadequate and fail to address TFGBV. Furthermore, female-authored novels reveal the gender-based discrimination and restrictions are the symptoms of both inequality and structural violence that undermine women's rights. The paper concludes that an empathetic virtual space may provide a realization of women's rights.

Keywords: human rights, women, emerging technologies, law and literature, TFGBV

Sekai Zhou is a 2022 graduate of PhD Law from the University of Pretoria, South Africa. Her thesis titled "Late Modernity, African Women and the Novel: A Jurisprudential Perspective" focused on why human rights and law have seemingly failed to address challenges facing African women. In addition, she also holds a master's degree in Multidisciplinary Human Rights from the University of Pretoria, South Africa. Furthermore, she holds a bachelor's degree in Media Studies from Zimbabwe Open University and of English from Solusi University, Zimbabwe. Sekai's research interests include the diverse connections between law and literature, the sociology of law, the gender perspective of law, human rights, and media studies. Sekai has worked as a teacher in Zimbabwe, as a business training facilitator and human rights researcher in South Africa.

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CYBER ORDER

Drone Is Scrutinizing You: The Utilization of Drone Technology for Performance Control on the Battlefield

Srđan T. Korać

The presentation provides an account of key implications of the military utilization of burgeoning technologies of the Fourth Industrial Revolution applied in designing drones for the control of combat efficiency of soldiers on the battlefield. I posit my analysis in critical theory and critical war studies by revisiting three theoretical stances: 1) War is both an outcome and driver of the reproduction of hierarchical structure through dominance and submission; 2) Existing political and social power dynamics are embedded in modern technology so that it is intrinsically dominating and destructive; 3) A weapon is politically and socially constituted by the fashion in which military leaders and planners utilize its technical features in military strategy, rules and procedures, and combat operations.

The analysis primarily focuses on operationally relevant utilization of technical properties of drones observed through a wealth of video material uploaded on YouTube on the ongoing war in Ukraine. The recruitment crisis as an outcome of fading popular support for general military conscription in the early 21st century marks the transition to the age of post-heroic warfare, in which most citizens relinquished soldiering as a fundamental civic duty. The military profession has not only been commodified, but corporate managerial philosophy focusing on effectiveness, efficiency, and results-oriented performance has also become a key organizational principle. Drawing on the utilitarian logic of late capitalism, military planners have transformed combat operations into an automated industrial process, a sheer part of the “production cycle.” Soldiers are now viewed as vulnerable beings prone to mistakes that may disrupt the desired results. As human aggression is not genetically determined, soldiers rarely act as enduring, finely tuned, and morally insensitive “killing machines”; instead, they largely avoid killing their enemy counterparts in close combat. That is why any sustainable futurist vision of war aspires to decrease or replace the human fighting force on the battlefield with intelligent machines—military drones and, in perspective, robots as fully autonomous systems.

Drones serve a variety of purposes (reconnaissance, patrolling, intelligence gathering, and combat) and have a significant advantage as they fly longer, continuously, at higher altitudes and with no fatigue. While many analyses delve into the combined practices of information gathering, targeting, and killing aimed at the enemy, I argue that a new role of drones is likely to emerge from recent combat practices: permanent surveillance of one’s own soldiers to scrutinize their performance of assigned combat mission tasks.

In contemporary warfare as a highly professionalized practice and industrialized process, I contend that this shift towards more invasive control over “factory lines” reconstitutes the technological character of the drone so that it becomes an apparatus of domination. Additional implication for soldiers’ behavior in combat zones stems from the availability of drone videos on social media.

Keywords: drone warfare, surveillance, apparatus of domination, the ontology of warfare

Srdan T. Korać, PhD, is a political scientist and a senior research fellow at the Institute of Political Studies, Belgrade, Serbia. His main areas of research interest include techno-politics (AI and sociorobotics), contemporary warfare, human security, and public service ethics. In his recent work, Korać combines critical security studies, critical war studies, global ethics, and military ethics in exploring epistemological and ethical controversies of postmodern warfare and changes in the ontology of warfare induced by emerging technologies of the Fourth Industrial Revolution. Korać authored a book on the robotization of warfare as well as articles in journals and edited volumes in which he examines the political, social, moral, and human security implications of the utilization of AI, drones, non-lethal weapons, and human enhancements (cyborg soldier). He worked at the Institute of International Politics and Economics in Belgrade (2006–2021), where he served as head of the Department for International Security (2015–2016) and was editor-in-chief of the *International Problems* scholarly journal (2019–2021).

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Is Paying the Ransom Ethical: The Problem of Ransomware Attacks

Đorđe Krivokapić, Ivona Živković, Andrea Nikolić

The number of ransomware attacks is continuously rising in recent years and has become a prime cybersecurity threat, especially to the private and public sectors. Even though we did not know much about this type of cyberattack until ten years ago, deep down in the free space of the deep and dark web, cybercriminals were preparing more sophisticated and insidious tools to extract money from their victims. The number of ransomware assaults peaked during the COVID-19 outbreak and mass lockdowns when most firms had to digitally transform their operations.

Most of the public attention has been focused on the economic and legal aspects of ransomware. However, there is another part of this dilemma that is tied to ethical concerns about ransom. To be more specific, ethical considerations that companies or private subjects are dealing with when they are under a ransomware attack. One of the main considerations is whether to pay the ransom, negotiate with attackers to reduce the ransom, or refuse the attacker's proposal and potentially lose all crucial data and place your company under even greater risk.

The main research question of this paper will be related to a couple of ethical dilemmas regarding the question of whether or not to pay the ransom. Additional dilemmas arise within this question: how will this decision affect the business continuity, damage mitigations, full compliance, customers' interests, and the reputation of the company?

Mentioned dilemmas that are placed before the company in the situation of ransomware attack are going to be analyzed from two different approaches: the deontological and utilitarian points of view. We will strive to provide insight into different decisions that a company could make, bearing in mind these two different ethical schools of thought. The second research question will be related to the theoretical explanation of the duty to notify competent authorities in a situation of a ransomware attack. More specifically we will refer to the ethics of duty and deontological approach in order to clarify what is the moral obligation of any subject that suffered the ransomware attack.

Keywords: ransomware, ethics, duty, cybersecurity, cybercrime

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Andrea Nikolić started her professional career in the field of business law and international arbitration in two top-ranked law offices in London and Belgrade. She is currently teaching business law at the University of Belgrade, where she is pursuing a PhD in Private International Law. Andrea was engaged as an independent expert in various projects in the fields of international arbitration, legal ethics, and information & communications technology law.
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Societal Security and Trust in Digital Society Across European Regions

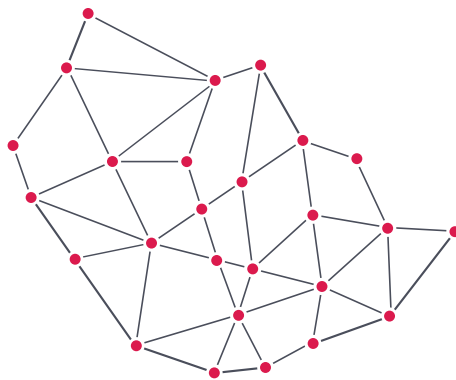
Jonathan Muringani

Regions seem to be missing from the emerging discourse on societal security and trust in digital societies, yet they are affected by these phenomena. But regions are not just a surface or physical container where technological, economic, and social activities happen but a fundamental unit of social life alongside markets, states, and families, shaped by these activities but also shaping them (Bathelt & Glucker, 2003; Muringani, 2021; Pike et al., 2017; Storper, 1997). Also, while technological advancements, including digital transformation, are felt globally; their creation, emergence, and effects are always local (Storper, 2000). These processes are not equal within and across places due to processes of localization and differentiation (Clark, 2020). What happened before, during the creation of these digital technologies and their further development, influences how they are perceived and their consequences across societies (Mansell, 2021). Building on our recent paper on societal security and digital societies (Muringani & Noll, 2021), we make a conceptual and empirical contribution focusing on the operationalization of societal security, trust, and digital societies in the context of sub-national regions. The paper uses data from the European Social Survey and European Values Survey and brings the European Digital Economy and societal index to the regional level. The paper adds to existing studies on trust at the same macro level.

Keywords: digital society, security, trust, region

Jonathan Muringani is a postdoctoral scholar at the Institute of Technological Systems (ITS), University of Oslo. He holds a PhD in Management focusing on institutions and regional development from the University of Stavanger. He also has a master's degree in Innovation Studies (Distinction) from the University of Witwatersrand, Johannesburg, South Africa. He is an interdisciplinary scholar working across innovation studies, economic geography, political science, and digital economy and society. Jonathan's research interests are at the intersection of digital transformation, social development goals (SDGs), regional development, and collaborative research with Africa. His early years and working experience were spent in Africa, working in the telecommunication and energy sectors and innovation consulting in the private and public sectors.

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Cybersecurity Culture from the Perspective of Social Cognitive Theory: A Case Study of the COVID-19 Pandemic

Sladana Ćurčić

The subject of this paper is considering the potential of cybersecurity culture research within the framework of Social Cognitive Theory (SCT) in the wider context of cybersecurity culture research during the COVID-19 pandemic. Due to the accelerated technological development and especially the intensified and widespread application of information technologies in business and everyday life, the question of security in cyberspace is rightfully being considered more and more often. The COVID-19 pandemic has further stimulated interest in the field of cybersecurity, due to the transformation of work, education, and other activities, which have taken root in the online sphere to a significant extent. Therefore, general functioning at this level of technological development necessarily carries the risk of cyberthreats. This also applies to personal entertainment on social networks and the functioning of critical infrastructure, which is impossible without the internet and a complex system of electronic communication connections (e.g., healthcare facilities, energy plants, banks, traffic infrastructure, etc.). In this sense, security culture represents an important prevention strategy, but also a strategy for dealing with cybersecurity threats.

This paper adopts an approach to cybersecurity culture based on the model of reciprocal determinism (derived from SCT), which implies the interdependence of three key elements: organizational, psychological, and behavioral. The aim is to use the case of the COVID-19 pandemic to examine the relevance of this approach in cybersecurity culture research. In other words, the increased vulnerability to cyberthreats during the COVID-19 pandemic, as well as the subsequent expansion of research on cybersecurity and information security, provided the foundation for the pandemic to serve as a case study to test the hypothesis of the possibility of grouping various indicators of cybersecurity culture under the three key elements offered by the reciprocal determinism model.

In a methodological sense, the paper will be based on academic literature review, i.e. the content analysis of relevant research on cybersecurity culture in the context of the COVID-19 pandemic, in order to identify key indicators used in the assessment of cybersecurity culture. Then, the identified indicators will be classified according to three key elements of the reciprocal determinism model. This will provide an overview of the studies that did not explicitly use this model but could be classified, based on their general approach, as those that take a social-cognitive approach in the cybersecurity culture research. The expected contribution of this paper would be reflected in the enrichment of the already existing corpus of cybersecurity culture indicators (according to the triad—organizational, psychological, behavioral), as well as in the argumentation of the potential of social cognitive theory in the cybersecurity culture research, but also security culture in general.

Keywords: cybersecurity, cybersecurity culture, social cognitive theory, reciprocal determinism, COVID-19

Slađana Ćurčić is a research assistant at the Institute of European Studies in Belgrade and a PhD student at the Faculty of Security Studies, University of Belgrade, where she also completed undergraduate and master academic studies. The main areas of her academic interest are security culture and security of youth, EU strategic culture, human security, health security, as well as democratic governance of the security sector. During her studies, she was engaged as a researcher in centers at the Faculty of Security Studies (Human Security Research Center, Center for Applied Security) and as an intern at the Belgrade Center for Security Policy. Also, she worked as a teaching assistant at the Faculty of Security Studies, Department of Security Studies. Currently, as an external associate, she participates in the project "Gender, climate and security: Why is it important to include climate change in the new NAP 1325 in Serbia?" that is being implemented by the Public Policy Research Center and supported by the OSCE Mission to Serbia. She published several scientific articles in top scientific journals of national importance, in prominent national journals, in a thematic proceeding book of national importance as well as in an international conference proceedings publication.
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POSTDIGITAL ART AND CULTURE

(Re)Coding the Human in the Machine: Aesthetic Interventions in the Biopolitics of Algorithmic Cultures

Michael Lithgow

Our encounters with digital technologies are near ubiquitous in an ever-deepening integration of self, understanding, and practice with computational capacities. Digital technologies historically emerged from and continue to extend instrumentalities of a social order rooted in proprietary algorithmic analysis and production, one which seeks to datify, commodify, and regulate the totality of human experience (Zuboff, 2019). The question of how such a totalizing discourse of digital subjectivity can be encountered and modulated remains of central interest to those who see a continuing relevance for individuals and communities in the formation of their own subjectivities. The research question being addressed in this study broadly stated is: How are we to understand political agency in a discursive context where subjectivities are increasingly interpellated through computational protocols? To answer this question, I turn to the practices of computational artists: artists who program and reconfigure computational technologies in service of articulating their own subjectivities through aesthetic experience. Computational art practices (in both their earliest iterations and in more contemporary forms) offer innovative and agentially maximalist approaches to (re)creating the human subject within the centralization, command, and control codes of computational functionality. Aesthetic approaches to computational potential—from *Musicolour* (1952) and *CYSP 1* (1956), to *Google-will-eat-itself* (2005) and *60s Scoop Mapping* (2021), and other contemporary forms of code-works—demonstrate early and ongoing practices of articulating subjectivities into coded discourses in excess of instrumental conventions.

According to Gilles Deleuze, subject formation in societies of control has become a matter of code. The individual has become a “dividual” through the fragmentation of the subject into disaggregated bits of information that are called upon periodically through coding (i.e., passwords and the like) in a fluid manifestation of subjectivity within the functional flow of network protocols and system regulation (Deleuze, 1992). The instrumental conventions of algorithmic cultures reflect a range of problematic subject conditions well documented as dimensions of digital capitalism. These include labor exploitation, individualism at the expense of collectivity, exclusions rooted in forms of bigotry, and neocolonial denigration of cultures and the natural world (Fuchs, 2021). Political agency in relation to citizenship and subject formation increasingly encompasses meaningful engagement in the programming languages and data protocols that regulate functionalities within digital capitalism. In the face of this growing density of algorithmic influence over subjectivity and social formation, computational art practices offer innovative approaches to (re)creating the human subject. These art practices demonstrate ongoing efforts to articulate subjectivities in excess of instrumental conventions and reveal methods for expanding the ability of individuals and communities to engage with the material foundations of algorithmic cultures. In this way they suggest methods for (re)negotiating and (re)territorializing the digital biopolitics of power. The purpose of this study is to explore the potential of these practices as models and pathways for an expanded approach to literacy training for digital citizens, one that emphasizes capacities for navigating, negotiating, and challenging conditions of legitimacy in algorithmic cultures.

Keywords: digital subjectivity, computational art, digital capitalism, algorithmic cultures

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Re-Capturing Creative and Contractual Digital Identity

Aleksandra Marković, Drago Inđić

The latest generation of social network apps reached billions of regular users across the globe by facilitating the royalty-free, viral distribution of peer generated content comprising shared individual and collective experiences. The creative producers, often including vulnerable, self-employed, performing art creatives deploy expensive and sophisticated digital production tools. Surprisingly, these creator tools are lacking even a rudimentary creative contract drafting and contract management functionality, removing legal protection in digital broadcasting and distribution regarding the end-to-end, copyright, and other rights. The platform economics favors the institutional, corporate actors, making the current market, platform-centric creative art contractual ownership and distribution model ripe for digital disruption in Fintech style.

We illustrate the disruption challenges with two real examples of experimental digital creative art apps and platforms attempting to escape the gravitational force of Big Tech and digital media distribution platforms. Two examples comprise the drama and dance domains, leveraging modern 5G native multi-modal devices services offering opportunities for deep emotional, artistic and cultural immersion, as well as being scalable from just two participants to the large flash urban mobs, massive random crowds, offering substantial societal, cultural, and economic benefits.

Contemporary theory and practice of legal and economic contracting mechanisms are reviewed, attempting to protect and preserve the creative agency, authenticity, and economic bargaining power. We have reviewed the off-the-shelf, market-ready business and software components satisfying regulatory compliance and commercial practice expected to enhance the creator-centric production and peer distribution apps.

Today, digital legal identity as well as creative identity can be verified by the user-centric, self-sovereign FinTech and LegalTech mobile app building blocks, simultaneously protecting the privacy and data lineage up to the fundamental limit imposed by the web infrastructure mobile digital device operating systems. Decentralized content production and distribution attempt to “unlock” decentralized art, mirroring decentralized finance movements and breaking away from the platform economic rent capture involving traditional media platforms and the corporate intangible asset owners, usually profit-driven alternative investment funds.

Keywords: digital media, creative and performing arts, legaltech, fintech

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Artificial Intelligence and Authorship Through a Literary Lens

Çağdaş Duman, Imke van Heerden, Anil Bas

The past year has been momentous for natural language generation (NLG), a subfield of artificial intelligence (AI) interested in the automation of writing. Among the ranks of large language models, OpenAI's *GPT-3* is now joined by powerful contenders such as Google's *LaMDA* and PaLM, Meta's *OPT*, and Hugging Face's *BLOOM*. Within the publishing industry, the ethics of AI moves intellectual property to the forefront whilst academic disciplines such as law, media studies, and digital humanities grapple with (re)conceptualizations of authorship. Although, as some have indicated, the discussion stands to benefit from literary-theoretical approaches, literary scholars have been relatively slow to engage in the field. We seek to address this gap by providing an expressly literary perspective on the notion of AI authorship.

Touching on key concepts such as *authorial intent*, *the death of the author*, *the author function*, *intertextuality*, *deconstruction*, and *postcritical reading*, the paper revisits various literary and theoretical paradigms to explore possible connections between literature and NLG research. Critical questions include: Is it viable to read a computer-generated text through a literary lens? Could we, in good conscience, apply the revered terms of *author* and *literature* to a machine and its output? Should we strive to develop novel ways of reviewing and interpreting AI-written text beyond mere comparison to human writing? What are the implications of creative AI in regards to the posthuman condition as well as human–non-human relations? Instead of expounding on the putative differences between human versus machine authorship, we believe it is far more interesting to consider how these authorial activities might be mutually productive.

Keywords: authorship, artificial intelligence, literary theory, machine creativity, posthumanism

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The Mechanical Turkness: Tactical Media Art and the Critique of Corporate AI

Dejan Grba

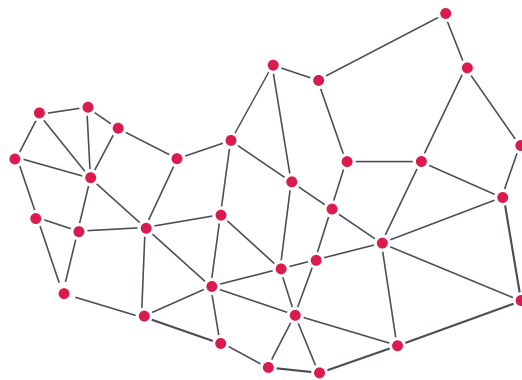
An increasing number of artists have been addressing the epistemological, existential, and sociopolitical issues of artificial intelligence (AI). Their production continues the heterogeneous flux of tactical media practices that have energized art and culture since the late 20th century with hybrid forms of academic criticism of, or critical interventions into, the technological, political, economic, ecological, and cultural layers of the neoliberal condition. One of the notable topics in tactical AI art is the info-capitalist paradigm of labor transparency, which allows the corporate AI sector to maintain a long lineage of the abuse of human beings as micro-components in large computational architectures. Similar to Wolfgang von Kempelen's chess-playing animatronic hoax *The Turk* (1770, widely known as the *Mechanical Turk*), many enterprise AI applications have in fact been simulacra substantiated by a transnational corpus of underpaid online workers, software developers, and everyday users. Most emblematic of this simulated operationalisms are crowdsourcing labor platforms such as Amazon's *MTurk*, which have been extensively used as powerful, largely unregulated instruments for amassing repetitive data-intensive tasks in building, training, and testing machine learning models. AI community euphemistically calls these human labor aggregators "artificial Artificial Intelligence" or "pseudo-AI"; at the same time, the corporate sector systematically tries to conceal their actual functions and diminish the values, extent, and existential implications of its foundational "artificiality" by excluding or concealing it in professional discourse and by immobilizing its workforce through manipulative interfaces, complacency, lack of protection, and precarity.

In this paper, we discuss art practices that subvert the notions of digital labor and hijack the malleability of anthropomorphic tropes such as creative agency, originality, authorship, and intellectual property to reveal the deep socio-political embeddedness of AI technologies and to expose the human roles and forms of productive engagement behind the performative power of corporate AI. The focus is on works that manifest poetic maturation and, often simultaneously, exemplify the peculiarities, constraints, or ambiguities indicative of a broader milieu of contemporary AI science, technology, economy, and AI-influenced society. These exemplars are interlinked not only within their immediate topical domains but also, and sometimes more significantly, within the deeper art-historical contexts. We study the methodological, exploratory, expressive, and ethical aspects of the artists' strategies and critique their effectiveness in challenging the AI's phenomenological, epistemic, and political status quo. By identifying various issues that affect the tactical cogency of these practices, we outline some of the potentials for the advancement of the field.

Keywords: artificial intelligence, corporate AI, digital labor, tactical media art

Dejan Grba is an artist, researcher, and scholar. He explores the cognitive, technical, poetic, and relational features of generative systems. He has exhibited, curated, and taught in Europe, Asia, Australia, and North and South America, and authored publications in journals, conference proceedings, and books worldwide. In 2019/2020 Dejan was a visiting associate professor at the School of Art Design and Media, Nanyang Technological University in Singapore. He has served as a co-founding associate professor with the Digital Art Program at the Interdisciplinary Graduate Center, University of the Arts in Belgrade since 2005, and as a founding chair and associate professor at New Media Department, Faculty of Fine Arts in Belgrade from 1998 to 2020.

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AI IN PRACTICE

Artificial Intelligence Models for Prediction of Mental Distress From Social Networking Addiction Indicators

Igor V. Pantić, Marija Mišković, Nikolina Banjanin, Ana Benčina, Nikola Topalović, Lazar M. Davidović

The rapid development and inclusion of artificial intelligence into contemporary research practices in neuroscience have enabled us to better predict and classify various psychological phenomena. The purpose of our study was to create machine learning models capable of prediction and classification of mental distress in physiological conditions, based on indicators related to internet and social networking addiction.

The data were obtained from a cross-sectional study performed on a sample of 500 young people in Belgrade, Serbia, aged 18 to 30. Using a structured questionnaire, a set of quantifications were obtained on internet addiction, craving for social networks, loss of control during social networking, and neglect of social obligations due to networking. The quantifications of time spent on various social networks were also obtained during the study. As a tool for measuring chronic mental distress, we used Depression, Anxiety, and Stress Scales (DASS-21), which provided the output data for machine learning. Based on the data, we were able to create models using decision trees, random forest, support vector machine, and binomial logistic regression algorithms. We also proposed the creation of a neural network algorithm based on a multilayer perception network.

Most of the developed artificial intelligence models had a relatively good performance with a classification accuracy higher than 70% and acceptable areas under the receiver operating characteristic curve. Our findings represent a potentially valuable foundation for the future development of powerful artificial intelligence sensing systems capable of predicting mental distress from social networking indicators.

Keywords: internet, social networking, stress, addiction

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Identifying the Face of Populism With Computer Vision: A Deep-Learning Approach to Emotion Recognition

Sara Major, Aleksandar Tomašević

Online media provides users with an unprecedented amount of political information at their fingertips. With the rise of Web 2.0 technologies, video content has become one of the main channels of communication in virtual space, shaping experiences of online sociality and re-framing the nature of social (inter)action. The prevalence of visual communication is particularly evident in the realm of politics, as online videos depicting political leaders grow increasingly more widespread and accessible to the public. This reliance on video content has been exacerbated in recent years by the shift to online living caused by the COVID-19 epidemic.

Unlike textual communication, video content is difficult to process and analyze, although studies have shown significant improvements in automated voice transcription, hand gesture analysis, and face recognition. The most recent challenge in online video communication analysis is concerned with visual representations of emotions and emotion recognition from facial expressions.

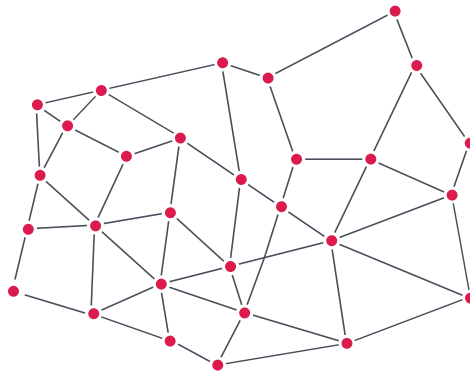
Our contribution presents a novel application of deep-learning-based computer vision algorithms to YouTube videos featured on channels of political parties and their leaders. This approach is based on an existing trained convolutional neural network architecture that uses a series of filters to scan the image and learn relevant features for a prediction task. In the case of our study, the task is predicting the presence of six emotional states (anger, disgust, fear, happiness, sadness, and surprise) and a neutral expression in each frame of the processed YouTube video.

We will show the effectiveness of this approach on a sample of 160 videos showing political leaders from 11 different countries. Videos are chosen with a preference for higher video quality and whether they primarily focus on direct and unmediated representations of political leaders (i.e., videos that were not in any way modified by third parties such as news outlets). When comparing the average weight of each of the seven facial expressions detected in 400 frames of every video, we observe statistically significant differences in the weight of negative emotions expressed by more populist leaders. Our contribution represents a starting point for further computer vision-driven studies of differences in emotional expressions in online video content.

Keywords: emotion recognition, online media, online video, deep learning

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Next-Generation User Interface for Vulnerable Groups of Users

Milan Čabarkapa

Based on data from the previous H2020 NGL_Trust C.A.S.P.E.R. project activities, the author proposes a new research direction to fully investigate and implement the potential of initial obtained results (Jevremovic, Veinovic, Cabarkapa et. al., 2021). The previous project showed that AI has a great potential to detect multiple types of online threats at the same time, but not to be application-agnostic and to work online on the Human-Computer Interaction (HCI) level. Due to that, the author proposes to advance the current state-of-the-art and considerably contribute to the advancement of computer science by implementing full application agnosticism in the online protection of vulnerable groups of users for the first time.

In order to achieve this goal, the first task will be forming a research team consisting of two types of experts: AI expert researchers for different types of information content such as text, speech & audio, images & video, as well as advanced software architecture researchers who could implement coding of advanced solutions on a different level of the computational system from the operating system level, through the system design level, up to the application level. Second, certain features must be implemented at the operating system level in order to respond to not-safe-for-work content in real time. The proposed solution will be adaptable for handheld devices like mobile phones and tablets. The suggested application-agnostic platform is aimed at the online protection of children, youth, and the elderly.

Keywords: advanced software architecture, artificial intelligence, human-computer interaction, image processing, safe user interface

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Collective Knowledge Building in Online Social Networks

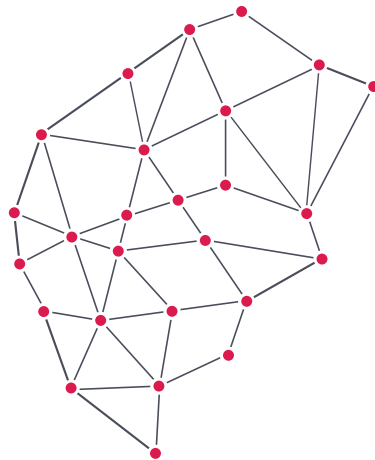
Marija Mitrović Dankulov

Knowledge creation is a collective effort. It requires meaningful, logically coordinated interactions among actors. Statistical physics, in combination with complex network theory and computer science, provides a framework for studying the emergence of collective behavior in social systems, including the emergence of collective knowledge. In this presentation, we will use empirical analysis and agent-based modeling to quantitatively explore the emergence of collective knowledge building in a well-known online Questions & Answers system *Mathematics*.

Mathematics is a Stack Exchange community. We will show that this process occurs as a collective phenomenon in an enlarged network of actors and their artifacts where the cognitive recognition interactions are correctly encoded. Furthermore, we will explore the topology of innovation spaces in the network of tags in *Mathematics*. The results show that the ranking distributions of the suitably scaled topological dimensions of nodes fall into a unique curve for all time intervals and filtering levels, indicating a robust architecture of knowledge networks. Moreover, these networks preserve the logical structure of knowledge within emergent communities of nodes, labeled according to a standard mathematical classification scheme. These findings are critical for comprehending creative processes in a digital society.

Keywords: online social systems, knowledge building, Stack Exchange, Mathematics, creativity

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NEW REALITIES

Exploring the Association Among Different Types of Twitter Activity, Loneliness Level, and Life Satisfaction

Shujun Liu, Luke Sloan, Tarek Al Baghal, Matthew Williams, Paulo Serôdio

A person's activity in virtual space can have a significant impact on his/her cognitive, emotional, and mental development. Nevertheless, previous research revealed mixed results in studying the relationship between Social Networking Service (SNS) use and well-being. This could be because these studies relied heavily on participants' self-reported results, rather than examining their actual activities. To avoid the bias of respondents' subjective evaluation, we use data from the UK Understanding Society Innovation Panel (IP) and link each participant's survey data with their actual Twitter activities (from June 27, 2017 to June 27, 2018), seeking to investigate the extent to which life satisfaction is associated with actual Twitter activity.

Furthermore, previous studies usually measure activity on SNS in a broad sense (e.g., "how often do you post a message on your Facebook timeline"), without examining the nuanced differences between various activities. Twitter offers several features embedded into messaging that are designed for specific purposes. This study examines participants' various types of activity on Twitter, including: 1) networking expansion (i.e., use of hashtags and mentions); 2) feedback receiving (i.e., receiving "like" and "reply"); and the activity regarding 3) tweeting original contents; and 4) retweeting.

Overall, this study aims to: (a) test the effects of participants' different Twitter activities on their life satisfaction; (b) examine the mediating role of loneliness in the association between participants' Twitter activities and life satisfaction; and (c) examine potential moderating effects of participants' gender, marital status, and employment status on the relationship between Twitter activities and loneliness. Theoretically, this study will provide a more detailed comprehension regarding the influence of social media use on one's well-being. It will also shed a light on methodological innovation by linking Twitter data with survey data.

Keywords: social media use, life satisfaction, loneliness, Twitter

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Perceived Distance Anisotropy in Virtual Reality

Oliver Tošković

Distance perception is anisotropic in the sense that distances in a vertical direction, towards the zenith, are perceived as longer than physically equal distances in a horizontal direction. Anisotropy relies on multisensory integration from visual, proprioceptive, and vestibular systems, and it is explained through the relation between action and perception. The basic idea is that elongation of perceived vertical distances enhances action in that direction since it opposes gravity and therefore requires more effort than horizontal action. If perceived distance anisotropy depends on multisensory integration, it is interesting to investigate whether it would appear in virtual reality displays, too. Also, it would be interesting to see if anisotropy would change with increasing the number of depth cues in both viewing directions, and if such a tendency would differ for appetitive (provoking reaching) and aversive objects (provoking avoidance).

We conducted three experiments on 35 participants using the virtual reality display *Oculus Rift DK2*. Participants were sitting in a chair wearing the VR display on their heads and their task was to equalize distances of two stimuli in the horizontal and vertical directions. The stimuli were set on three standard distances: 1 m, 3 m, and 5 m from the observer. The first experiment display contained only spheres in the dark, while in the second, both spheres were positioned on a brick-wall-like background, providing several additional depth cues. In the third experiment, we used images of cakes (appetitive) and snakes (aversive) as stimuli. Results from all experiments show a significant effect of stimuli distance (further stimuli are perceived as further), direction (physically shorter vertical distances are matched to physically longer horizontal ones), and interaction of the two (in further distances anisotropy is larger).

We can conclude that vertical distances are perceived as larger than horizontal ones in virtual reality displays as well, but the effect sizes were smaller than in physical reality. There were no significant differences between the first two experiments, with or without the background, which means that adding depth cues to the scene and increasing perceived depth acuity did not change the anisotropy of perceived distance. We did not find any effects of stimuli type, meaning that the perceived distance anisotropy remained unchanged for appetitive and aversive stimuli. Based on this result, we might argue that perceived distance anisotropy is not related to reaching effort or that these stimuli types did not provoke reaching or avoiding actions.

Keywords: perceived distance anisotropy, action-perception schemes, depth cues, virtual reality

Oliver Tošković is an associate professor at the Department of Psychology, University of Belgrade, and a part-time lecturer at the Faculty of Philosophy, Kosovska Mitrovica. He received a PhD at the same University, with a dissertation titled "Anisotropy of Perceived Space." He teaches Statistics in Psychology, Statistics in Educational Research, Multivariate Statistics, and Academic Skills and Perception. He participated in various projects regarding basic cognitive processes, and in projects such as "PISA," "TIMSS," "Academic Motivation of Students in Serbia," "Supporting University Students at Risk of Dropping Out," and "Inclusive Preschool Education." He was the principal investigator on the project "Adverse Childhood Experiences and Child Disciplining at Home in Serbia." He got additional training in hierarchical linear modeling, dynamical systems in psychology, structural equation modeling, IRT analysis, and multilevel modeling. He was an action editor in the international journal *Psihologija* (2012–2018), board member of *Proteomics & Bioinformatics: Current Research* journal, and a reviewer for many international journals. So far, he has published three book chapters, five textbooks, 56 journal papers, and 152 conference abstracts, which were cited 704 times ($H = 11$). He also organized ten popular science exhibitions. In 2012, he received the Reward for the Popularization of Contemporary Psychology "Živorad-Žiža Vasić" from the Psychological Society of Serbia. His research interests are in the area of perception, statistics, and research methodology.
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Effects of Individual and Social Factors on Social Media Addiction Among Adolescents in Serbia

Bojana Dinić, Bojana Bodroža, Tamara Jovanović, Darko Hinić

The main objective of this research, supported in part by the COST action CA18115 “Transnational collaboration on bullying, migration and integration at school level,” is to explore the individual and social factors of social media addiction among adolescents by applying the social-ecological model. The sample included 180 Serbian high school students and data was collected from April to June 2021 (when online or combined classes were organized during the COVID-19 pandemic). The results showed that social media addiction is significantly related to having an account on the YouTube, Snapchat, and TikTok platforms, compared to Instagram, Facebook, Twitter, or other social networks.

In comparison to previous results on Serbian adolescents during the COVID-19 pandemic (from September to December 2020), social media addiction was significantly lower, but sample characteristics should be taken into account (i.e., urban-rural areas). To predict social media addiction, a hierarchical regression analysis was performed with four blocks of predictor variables, in line with the social-ecological model and previous research on the importance of peer factors, compared to parental factors: 1) individual factors—gender, age, and self-esteem; 2) peer factors—generalized perception of peers; 3) parental factors—parental mediation and control; and 4) school factors—school climate.

The results show that two individual factors—gender and self-esteem—have a significant contribution, meaning that female gender and lower self-esteem were risk factors for social media addiction. Furthermore, the surprisingly positive contribution of parental mediation and the expected negative perception of peers show marginally significant contributions. The results indicate a need for systematic prevention strategies for social media addiction with an important inclusion of parents in these strategies.

Keywords: social media addiction, self-esteem, gender, parental mediation

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Gendering Electromagnetic Fields

Susan Perry, Claudia Roda, Nicole Santiago, Sienna Colburn

In previous research, we have highlighted the difficulty faced by stakeholders in the regulation of the use of electromagnetic fields in telecommunication and argued that, in the presence of uncertain scientific knowledge, the precautionary principle should be applied to protect vulnerable populations from environmental pollution. In this paper, we focus on women's health as women may be especially vulnerable to biological and reproductive impacts from electromagnetic emissions, presenting a significant human rights concern. According to statistics released by the International Agency for Research on Cancer (IARC) in December 2020, breast cancer has now overtaken lung cancer as the world's most commonly diagnosed cancer. Breast cancer is distinctly gendered, with women making up the vast majority of all patients worldwide. While changes in lifestyle, increased longevity, and better monitoring have undoubtedly influenced these statistics, they may not constitute the only reasons for the rise in cases. Laboratory research has already shown that electromagnetic fields can impact breast cancer cells. This raises a simple question: if scientists have established that electromagnetic fields impact breast cancer in the laboratory, then to what extent has the steady rise in electromagnetic fields emitted by wireless technology, and infrastructure more generally, contributed to the increase in breast cancer cases globally? The short answer is that we cannot know without appropriate data and, for the time being, data is not available. We propose that there are several reasons for this lack of research on the possible link between electromagnetic fields and breast cancer. The structure and normative underpinnings of current scientific research in breast cancer—which has been named the dominant epidemiological paradigm (DEP)—may be understood as why investment in research is biased towards the male body and helps to explain the lack of funding available to analyze the impact of wireless technology on women's bodies. In addition, the Sisyphean task of calling into question the safety of a ubiquitous technology worth trillions to the global economy most likely explains why findings that demonstrate potential harm from electromagnetic fields emissions are often challenged by scientists with ties to industry. We argue that the absence of research and standardized data on the gendered impact of electromagnetic fields emissions is a human rights violation, one that strikes at the heart of the European project and we conclude with policy recommendations for the European Union to rectify the dearth of gender-specific studies and the absence of gender-specific protective legislation.

Keywords: electromagnetic fields, environmental pollution, women's health, breast cancer, human rights

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The Business of Umbilical Cord Biobanking in Serbia: Biocapital(ism) and Symbolic Geographies of Health

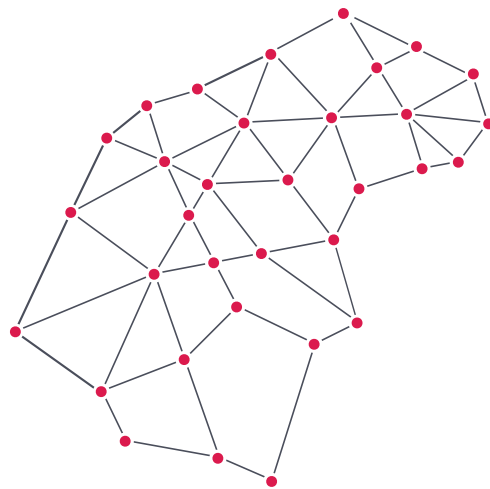
Ljiljana Pantović

Private umbilical cord biobanking entails the storage of stem cells taken from umbilical cord blood (UCB) for personalized medical purposes. We argue that UCB biobanking is an example of global biocapitalism. In this presentation, we will examine how private biobanking, as a form of biocapitalism, is taking shape and shaping notions of health and risk in a post-socialist context. Based on ethnographic and online data from Serbia, this study shows that UCB biobanks draw on existing symbolic geographies of east/west, (post)socialism/(bio)capitalism to market their services. At the same time, potential clients interpret living in Serbia as a health risk that they can safeguard against through biobanking.

Keywords: biobanking, biocapitalism, post-socialism, entanglement, symbolic geographies

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