Studien zum Datenschutz 80

Indra Spiecker gen. Döhmann | Christoph Burchard (Eds.)

Algorithmic Transformation and Diffusion of Power: Trust, Conflict, Uncertainty and Control

Nomos

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Preface

In our rapidly evolving digital landscape, algorithms – or rather: algorithmic systems – have become an integral and pervasive element of our daily lives, exerting a profound and often unconscious influence on our behaviour and actions. The reliance on tools, services and support through digital means is increasing accordingly, and ubiquitous computing is synonymous with this development. Artificial intelligence (AI), algorithms and technologies for processing and analysing and analysis of large volumes of data (big data) are at the heart of the digital revolution. In today's global world, they affect not only production and the working environment, but almost all areas of social life. Examples range from social networks and search engines to Industry 4.0, predictive policing, medical research and the insurance and financial market sector (FinTech). Shared structures, the common good, social cohesion and the foundations for understanding are changing, as are business models. Closely interwoven with this and similar impacts are questions of the (re)distribution of power because the increasing emphasis on decisions based on correlations and statistical probabilities not only harbours risks of distortion and discrimination but also fosters a concentration of social and economic power.

Algorithms – and the actors behind them – are measuring and influencing more and more dimensions of our modern lives and are increasingly taking over decisions. They recommend which movies to watch, they calculate risk-appropriate credit scores, and they play a role in imposing "just" punishments, to name just a few areas. At the same time, they claim to correct imperfect human decisions and add new dimensions of information to previously impossible decisions. Algorithmic systems are thus a major driving force behind the transformation of well-established normative orders in a new predictive society. This challenges at least two core concepts of legal governance, i.e. trust and control. Especially as the inherent often unrecognized algorithmic normativity, which is referred to as "black box" in artificial intelligence, is (not) produced in forums of justification and legitimation, it is unclear where trust can develop and through which social conflicts. This also affects the standards for judgments: It is unclear what trust we can place in algorithmic systems, but it is also unclear how much – if any – trust algorithms can and should place in

citizens. Conversely, it is just as much a challenge to determine how much control human decision-makers can and should retain over algorithmic decision-making and information gathering as it is to determine the extent to which algorithms can and should exercise control over humans. Answering the long-standing question of machine-human-interaction is becoming urgent in a new guise in order to secure autonomy, freedom of choice and individuality.

This also reaches out into specific areas of the social: Algorithms are becoming increasingly political. In our democracies in particular, they are changing the shape of political power and order. For better or worse, they are able to influence, stabilize, transform and even disrupt our political systems. For this reason alone, their use requires democratic (co-)shaping. Hopes for more democratization, flexibility and cross-border sociality are thus countered by fears of economic surveillance, discriminatory classification, digital disenfranchisement and data illiteracy.

This book brings together authors from various disciplinary backgrounds. All are experts in the interdisciplinary analysis of digitization who are concerned with the potential changes algorithmic systems bring to trust and control, how they affect democracy and increase uncertainty and diffusion of power. Almost all of them have been part of a lecture and discussion series at Goethe University Frankfurt a. M. that began in the fall of 2020 and continued until 2023. Starting with lectures on "Power Shifts through Algorithms" (2020/2021), lectures on "Algorithms between Trust and Control" (2021) were the next focus. The series "Algorithms and the Transformation of Democracy" (2021/2022) concentrated on one specific area of digital effects, while the lectures on "Algorithms, Uncertainty and Risk" (2022) looked at developments through a particular analytical lens. Also, the workshop "Autonomy in times of diffusion of responsibility through algorithms" (2022) provided highly valued additional input. The final lecture series (2022/2023) looked at future developments: "Algorithms: a brave new world?"

The lectures in the series were held, for the most part, virtually under the umbrella of the ConTrust research network, the Normative Orders research network and in cooperation with the Frankfurt Talks on Information Law at Goethe University Frankfurt a. M. as well as the Institute of Information Security and Dependability (KASTEL) at Karlsruhe Institute of Technology (KIT). The Center for Responsible Digitalization in Hesse (zevedi) also provided partial funding, in particular for the workshop and – in part – to this publication. We are very grateful to all the institutions involved

for giving us the opportunity to conduct this conference series and to subsequently publish the results.

As always, however, it is the people behind who form and are decisive for the success of this endeavour: We are very grateful to all our speakers but in particular those who were willing to contribute and expand their analyses – also for their patience during the publication process. Our audiences during the lecture series and workshops were extremely attentive, responsive and encouragingly interested despite the partly new virtual/hybrid format in which we started and then continued our lecture series. We thank the student researchers and research assistants at our chairs for their wonderful assistance, our colleague Roland Broemel for hosting the first lecture series with us, and in particular Anke Harms and Rebecca Schmidt at the Normative Orders/ConTrust research network for their never-ending enthusiasm and practical help. Christina Gräfin von Wintzingerode and Paul Dieler were indispensable in the publication process.

In the more than twenty contributions of this anthology the international group of authors of multidisciplinary research fields such as, but not limited to, law, computer science, sociology, ethics, IT-security and political science provide their individual analysis and their particular approach to using of their respective backgrounds to discuss the notions of uncertainty, risk, trust, control, power and more. All provide an innovative compass through the new digital world by exploring the complex interplay between trust, control, and uncertainty in the face of diffusion of power in a democratic environment. This includes the perspective of both private and state actors. All links referenced in the individual articles were last updated in October 2024.

Opening the first part of the book on the tension "between trust and control", *Burkhard Schäfer* deals with the topic of apologies by algorithmic systems and whether these are suitable for restoring trust after a previous violation of justified expectations of human interactors. Using different methods, he proposes distinct requirements for automatically generated apologies as a specific human action turned into a digital service to be meaningful and possibly fitting for an AI.

Jonathan Simon portrays the situation of using algorithms for criminal prosecution in the US by outlining the current state of crime risk scoring and other algorithmic systems used by law enforcement entities. He sheds light on their history and the discriminatory threats that came with them. He shows in particular how a deep-rooted racism from the late 19th century

and beyond continues to influence the justice system and, by extension, the algorithms developed and used in that environment.

Turning to the use of algorithms in credit scoring, *Katja Langenbucher* examines the different methods used, in the light of the new EU directive on discriminatory credit underwriting. The paper covers the relationship between anti-discrimination laws in Europe and the US and the challenges that algorithms pose accordingly in the credit scoring process.

Stephan Brink and *Clarissa Henning* explore the different angles of the – potentially outdated – idea of trust and control we have adopted as a consequence of the analogue era and why we as a society are still attached to it in the age of digitalization. This is most evident in the conflict between the citizens' often blind trust in digitality due to and at the same time despite of the complexity of data processing and the little control possible – be it the control over citizens by the processor or instead the control of the individual or of authorities over the algorithm.

Lucia Zedner considers the trust in algorithmic systems on predictive policing that may allow officials to intervene before crimes have been committed. Her paper approaches the topic from an ethical viewpoint focusing on the multiple issues of risk prediction through algorithmic systems beyond discrimination, transparency or accountability. It looks more closely at how historical factors or group membership affect individuals as defendants and analyses the ability of criminal justice officials to address flaws in algorithmic decision-making.

Frank Pasquale and *Mathieu Kiriakos* focus on applications of algorithmic systems in the private area when they examine the pros and cons of a narrative-based credit scoring as a "second chance" for credit applicants who were first rejected. They propose a possibility for customers to present their narrative and their perspective as an alternative to being a passive partitioner in an anonymous algorithmic procedure.

Hadar Dancig-Rosenberg introduces the desired goal and the effect of algorithms used in the criminal legal system and rounds off the first part hereby. She discusses a desirable change towards a more objective law enforcement on the one hand and on the other hand the problem of perpetuated bias of judges, prosecutors, and police officers therein, in addition to the concepts of legitimacy and accountability.

In the second part on "The Transformation of Democracy and Diffusion of Power", the scope broadens and looks more towards societal factors and state theory. *Sabine Müller-Mall* and *Johannes Haaf* make a first impact by pointing out the parallels between the internal structure of algorithms and

the constitutional order of our society. The authors argue that algorithms could possibly become a competitor of the political-legal order embodied in the democratic constitution. They detect a shift from the legality of the law to a "legality of the normal", that could also detach the constitution from law and politics and public considerations.

Expanding the societal focus to different kinds of algorithm use, *Sofia Ranchordas* addresses the role and significance of gender, especially regarding the expression "human-centric" in automation of administrative decision-making. She argues that the differences between gender do matter, when the often-experienced invisibility of certain gender-specific patterns lead to casual or incident discrimination, that could be perpetuated by AI.

Beatrice Brunhöber and *Bernhard Jakl* analyse the legislator's approach, also in the recently adopted AI Act, that trust in normative orders can be fostered through the imposition of bans. In contrast, the authors argue for an institutional-argumentative reassessment of this approach, with recourse to legal philosophy and the comparison between the reception of trust and prohibition in criminal and civil law.

Martin Belov discusses the changes that have occurred in our postmodern society because of the technological advancements of recent years, with particular attention to different forms of government, authority, and constitutional orders. He touches on the impact on democratic systems, populism, truth and technocracy.

Michael Bäuerle warns against the diffusion of responsibility through algorithms, especially when used by police and other security authorities. For this, he uses a constitutional law approach, which he bases, among other things, on an analysis of recent decisions by the German Supreme Court. He shows that its comprehensive case law on the security authorities' informational powers provides a suitable framework for the reallocation of responsibility.

This leads directly to the third part of the volume about "Uncertainty, Risk and Responsibility". *Tobias Singelnstein* takes a closer look on the use of algorithmic systems by the state in the area of predictive policing. This anticipatory concept comes with severe issues regarding uncertainty, exculpation and the variety of crimes to name a few, and above all, regarding the rule of law. By analysing these and other challenges that this new way of dealing with unlawful behaviour can bring about, he establishes a link between how deviance is dealt with, seen, understood and conceptualized particularly in law.

Kiel Brennan-Marquez' contribution to the volume centres around the concept of mercy, its relation to law and justice and how the increasing use of algorithms could change this perception. He argues that caution should be exercised when using algorithms in the field of justice, as they lack a sense of morality in their actions.

The important, but often not acknowledged topic of IT-Security within algorithmic systems is raised by *Jürgen Beyerer* and *Tim Zander*. They discuss the risk of cyber-attacks on the backbone of the digital society from the perspective of computer science. They suggest a graph structure for the illustration of risk to provide a common basis for experts of different disciplines that must work together to ensure safety and security. Further, they discuss the challenges and opportunities associated with implementing this framework.

Anna Beckers and *Gunther Teubner* look at failures and flaws of algorithmic systems. They justify why the legal provisions of the AI Act's risk-based approach, which focuses on the severity of the technology or the overall risk of the algorithmic system, may not be sufficient to adequately allocate responsibility. The authors argue for a regulatory shift towards a responsibility for risks deriving from the integration of algorithms within the respective social context in which it is used. In this way, the essence of the problem posed by the delegation of decisions to algorithms could be better captured.

Will we really enter "A brave new world" through algorithmic systems? The following chapters in the fourth part deal in many ways with what such a world looks like in the present and future and what this could actually mean for coexistence and human-machine interaction. *Jörn Lamla* argues from the perspective of sociology for a new understanding of the interplay between AI and its user. He concentrates on the relation of humans and algorithms as hybrid and analyses their relationship in the light of different sociological and anthropological theories.

Klaus Günther examines the use of algorithms to prevent deviant behaviour. He points out the significance of being able to choose whether to conform or to deviate and explores the effects of self-binding to certain norms within a particular normative order. Light is shed on the impact AI could have on these institutional settings, particularly if the certainty of algorithms gradually abolishes the opportunity to opt out or deviate.

Ingo Sarlet and *Andressa de Bittencourt Siqueira* provide a detailed international overview of the development of information- or digitalization law from a Brazilian perspective. The authors analyse the advantages and

disadvantages of regulatory approaches such as regulated self-regulation or oversight boards of private companies citing their leading examples and examine whether their assumptions are fulfilled.

Approaching the fundamental question whether AI can actually help, *Gerd Doeben-Henisch* characterizes the relationship of humans and algorithms as becoming a new form or even a supplement for human intelligence. He gives an inventory about the state of human and societal advances, develops the concept of a "collective human intelligence" and shows how AI could fit into it.

Bernard Harcourt rounds off the volume with a reflective view on the algorithmic age and how we live in an "expository society". In this, our subjectivity as a core element of being is challenged and algorithms increasingly shape who we are. He draws on several different philosophies to develop a further understanding of the being in algorithmic times.

We wish all our readers similar groundbreaking insights that we have gained during this lecture series, the workshops and the many interactions with our authors and the audience.

Frankfurt am Main / Cologne, July 2025
Prof. Dr. Indra Spiecker gen. Döhmann, LL.M. (Georgetown)
and
Prof. Dr. Christoph Burchard, LL.M. (NYU)

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