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Introduction

“[We] need to recognize that all information systems are necessarily suffused with ethical and political values, modulated by local administrative procedures.”
(Bowker and Star 2000, 321)

In the wake of the United Kingdom’s Brexit referendum and the US presidential election in 2016 a new political foe emerged: an influencing machine that was omnipresent yet invisible, remotely controlled but somewhat autonomous, powerful yet trivial. Living and wrecking havoc in digital infrastructures and social networks, the bot became a figure capable of manipulating the masses, of turning our devices against us, of making fakes into facts, of creating counter-publics, of stealing our credit card details, of replacing human labour power, of convincing us that we are being loved, in short, of destroying democracy. But what, exactly, are bots? Where did they come from, why now and what do they want? With this exhibition we want to trace some of the imaginaries and histories that have accompanied the figure of the bot in order to situate its current workings and meanings. At the same time, we want to problematise the effortless arguments that have posited bots as the harbingers of the end of democracy. What does it say about our understanding of politics if it only takes a few lines of code to effectively destroy it? How tenable is our conception of polity when this now includes a host of machinic agents? What types of accountability, agency and redress are needed or even possible when rights, values, and the very conditions of existence are determined by algorithms whose workings remain proprietary secrets? These are some of the central questions that this exhibition seeks to address and grapple with.

Our curatorial approach is essayistic and inevitably partial. We have woven a polyphonic tapestry from our respective positions – as European curators, artists and academics based in Dresden and Berlin – and interests which include science

and technology studies (STS), contemporary art in Turkey, feminist positions, and the history of the avant-garde among others. This is to situate our take on the figure of the bot and its influence and offers a rich spectrum for associations, provocations and reflections. And so while we provide insights into the semiotic and material ecologies of this new influencing machine, our objective is not to reproduce dominant narratives about technology and society but to, as the sociologist Ruha Benjamin calls it, “zoom out”, to expand the interpretations, stories and contexts for thinking about and with bots (2017). This catalogue functions complimentary to the exhibition and expands on many of the themes touched upon in the artworks and the additional materials presented.

Even bots started small

The bot is not a new figure. Indeed, its name already suggests a specific genealogy, originating from Karel Čapek’s 1921 play *R.U.R.* (1996), an abbreviation of *Rossum Universal Robots*, the name of the robot-producing company at the heart of the play. The term ‘robot’ is derived from the Czech word for statute labour, *robota*, which refers to mandatory unpaid work on public projects. The theme of labour, and specifically unpaid labour, became inextricably linked to the figure of the robot in the 20th century. As exemplified in *R.U.R.* and frequently repeated ever since, robots were imagined as replaceable, expendable and uniform. They thus provided a template for the perfect hybrid of soldier and worker, a posthuman cyborg that could overcome the pesky needs of humans and their fallible bodies and serve the machine-driven demands of industrial war and mass production. The influence of Taylorist scientific management on these visions of the mass becoming machine is apparent in the biomechanical poems of Aleksei Gastev (1882-1939), founder of Moscow’s Central Institute of Labour. In his 1921 poem collection of imperatives entitled “A Packet of Orders”, Gastev writes of “Brain-machines / loading, cine-eyes / installation, electro-nerves / labor, arterio-pumps, pumps!” (quoted in Vaingurt 2008, 228). In addition to the worker and soldier, many of the robots imagined and built in literature and engineering have been versions of male fantasies of the ideal woman. It is thus no coincidence that disproportional attention is given to developments of so-called ‘sexbots’ and that

devices such as Amazon Alexa, a voice bot, feature female names and voices (see Chapter 3).

While commonly associated with mechanical and machine-like entities – think of Bender in *Futurama* or the *Maschinenmensch* in Fritz Lang's *Metropolis* – the robots in Čapek's play are more like what is usually described as androids, artificial human beings that look organic. This elision and, by extension, the question of the 'human' in bots and automated processes serves as a key issue for the exhibition as well as the texts which comprise this catalogue. Before Čapek's robots automatons mimicking human or organic forms and functions had been favourite showpieces. Amongst the most famous examples were Jacques de Vaucanson's Digesting Duck, a mechanical duck unveiled in 1739, and the Mechanical Turk, a (fake) chess-playing machine that toured the courts of Europe in the late 18th century. The Turk nowadays lends its name to Amazon's microwork marketplace discussed in Chapter 4. In both instances the transposition and effective deletion of contributions by human people for the purpose of rendering a specific idea of humanness in and through machines are key to the success of their respective business models: the chess-playing automaton was operated by a human hidden in its contraption while Amazon Mechanical Turk does its best to conceal its human subjectivities through mechanical metaphors ("requesters") and interfaces. At the same time, the slippery boundaries between human and machine, between natural and artificial have been a staple source of anxiety fuelling popular imaginations from Isaac Asimov's 1941 robot ethicsⁱ and Philipp K. Dick's replicants in *Do Androids Dream of Electric Sheep?* (1968) to the re-imagined Cylons of *Battlestar Galactica* (2004) and the *hubots* and hosts in recent TV series *Real Humans* (2012-2014) and *Westworld* (2016-present). The specific fears that have grown from the increasingly permeable and undetectable border between humans and machines have centred on the possible eclipse (and enslavement) of humans by machines as well as on the gradual but irreversible deskilling and ultimate helplessness of humans envisioned already in 1909 by E.M. Forster's *The Machine Stops*.

Yet, because of their disembodied natures, the cultural imaginary of bots cannot be contained by the figure of the robot. In addition, fantasies around general artificial intelligence systems and mind control inform the ways we talk and imagine bots, particularly the bad bots. A notable and topical example for AIs gone wild is Stanislav Lem's 1987 *Peace On Earth* (Lem 2003), where automated weapons systems, moved to the surface of the Moon, have autonomously advanced themselves leaving Earth's warring factions in doubt over who ultimately possessed the most advanced weapon. With reference to influencing powers no work might be more pertinent than Octavia E. Butler's magisterial *Patternist* series (1976-1980), which brings together issues of eugenics, mind control, slavery, gender politics, power, emancipation and social order in a vast, multi-layered narrative that encompasses ancient Egypt and the future (Butler 2007). Because she offers a vision of networked futures (and pasts) devoid of conventional technologies – there are neither bots nor machines – Butler highlights the fact that the human body has always already been thought of and used as a technology and that any inventions, material or discursive, do not supersede (and render obsolete) but necessarily re-construct and re-invent social institutions and practices. Interestingly, some of the most recent fictions around robots, most notable Martha Wells' *The Murderbot Diaries* series (2018a, 2018b, 2017) and Annalee Newitz's *Autonomous* (2017) are emulating the uncomfortable socio-political and bodily ambiguities so characteristic of Butler's work. In their books, the robots are critically self-reflective, aware of their liminal existence between human and machine, conscious of their indentured labour and capable of desires, culminating in one of fiction's most stunning human/machine (gay) sex scenes (*Autonomous*, pp. 187-189).

Bots today

The current figuration of bots bears little resemblance to the classic robots of the 20th century. Bots no longer have bodies but are software applications that run automated tasks. A bot is directed to act or interact by an algorithm, an exact (set of) instructions that are to be carried out once a specific set of conditions have been met. Yet, it is important to recognise that algorithms enact procedures and ultimately, things *materially*. That means that they are always embedded in socio-

material infrastructures, comprising humans and non-humans and so their workings have effects across these infrastructures. To put it with the sociologists Geof Bowker and Leigh Star, bots “are necessarily suffused with ethical and political values, modulated by local administrative procedures.” (2000, 321) Detailing some of their material matterings is a central focus of this catalogue.

Most bots are devised and utilised in order to execute minute, repetitive, simple but essential commands ensuring that our devices, apps, platforms, infrastructures and networks work (this is further described in Chapter 1). They route emails, save files, add attachments, index web pages, send out notifications, integrate different web services, accept payments, make dinner reservations. Some bots are ‘smarter’ than others in integrating artificial intelligence or machine learning. Bots can be written in many different programming languages (e.g. Perl, PHP, Python, Java, Ruby) and they ‘live’ in different environments including the internet, social media platforms, messaging apps, internal networks and internet relay chats, text-based communication protocols that formed forerunners to today’s communication on social media. The oldest Internet Relay Chat bot still in service is Eggdrop which was created in 1993 to manage and protect the #gayteen IRC channel (discussion board) by performing automated tasks to protect the channel from abuse (authorisations, ban lists, flood controls). Bots are also active on Wikipedia where they undertake routine maintenance operations in editing and maintaining pages. There are currently over 2,000 such bots in operation on the English Wikipedia. Bots can also be found in the many systems and architectures that make up the financial industries, most notoriously perhaps in the realm of high-frequency trading where automated routines governed by highly-guarded trading algorithms can make or break markets within fractions of a second (e.g. Lange 2016; MacKenzie 2017). With the increasing translocation of essential tasks into the digital sphere – from shopping to banking to dating – a range of bots has been designed to exploit and create vulnerabilities in these transactions or to optimise them differently. Many Twitter users, for example, are bots. They are programmed to tweet or re-tweet certain messages and can be bought to boost one’s number of followers (prices range from €10 for 500 followers to €100 for 10,000 followers) or designed for the purpose of art

projects such as thricedotted discontinued but eternally funny [@portmanteau_bot](#) that mashes together random words (e.g. velkorna, emigrating, chutspotted) or the Restroom Genderator [@RestroomGender](#), which randomly generates signage for restrooms and along with these signs creates a wonderful taxonomy of novel genders.ⁱⁱ

Bots that enter into some form of interaction with humans on social media or other platforms such as comments sections are generally referred to as ‘social bots’. A direct predecessor to these social bots is the chatbot, such as the famous ELIZA, a computer programme designed in the 1960s that emulated a therapist and is discussed in Chapter 3. They emulate human users, oftentimes making humans believe that they are in fact conversing with another human. When bots are programmed to carpet messaging boards, comment sections and WhatsApp groups with particular kinds of messages they can make it appear as if a considerable segment of a population endorses said messages and thus supports specific political issues and positions. Referred to as spambots these are programmed to indiscriminately distribute ads and messages containing malware or to harvest email addresses from websites. Through assembling a so-called botfarm which consists of an array of servers clustered in different data centres that emulate or spoof the behaviour (such as clicking ads) of human users, bot masters leverage the collective power of networked bots. Similarly, a botnet refers to a network of computers or other internet-enabled devices that have been hijacked through malware to perform nefarious tasks such as participating in a distributed denial-of-service (DDoS) attack, cyber-warfare or click fraud. Picture 1 shows a click farm where machines and (low-paid) humans work together in faking ratings and rankings for mobile phone apps and social media posts.

Automating influence, influencing automation

The remarkable rise of political bots has been accompanied by a revival of what might appear rather old-fashioned psycho-techniques: influence, propaganda, manipulation or misinformation seem throwbacks to an era of world wars and cold wars. Yet in the wake of AI, neural algorithms, machine deep learning and cognitive computing the human mind has once more become a central target for

technological invention and intervention. The term “political bots” first appeared in conjunction with news reports on the interference of election campaigns through the strategic, automated and targeted distribution of disinformation. Journalists, scholars and data activist have over the last few years been tracking the deployment of automated social software in Italy (Vogt 2012), Syria and Bahrain (York 2011) and during the Arab Spring (Howard and Hussain 2013) just to name a few. The Computational Propaganda Project was founded in 2012 at the Oxford Internet Institute, directed by Samuel Woolley, and investigates the use of algorithms, automation and the manipulation of public opinion through social networking applications.ⁱⁱⁱ Similarly, the New York-based Data & Society Institute, founded by scholar danah boyd, focuses on the intersection of data-centric and automated technologies with social and cultural issues, including questions concerning the governance of algorithms, discrimination, and media manipulation.^{iv} In Berlin, Tactical Tech Collective, headed by Stephanie Hankey and Marek Tuszynski, works at the intersection of technology, human rights and civil liberties.^v Their work on the Influencing Industry can be seen as part of our exhibition. Taken collectively, the research and advocacy by these different groups make evident that the role of data-driven automated agents in public life, including elections, is significant, under-theorised and urgently in need of governance and regulation. But their research also makes clear that this is not a technical issue but one that must include questions about the role and responsibilities of platforms (e.g. Facebook, Twitter, etc.), about labour, the digital economy and its business models (discussed in Chapter 5), about racisms and highly innovative colonial formations (discussed in Chapter 2), about the cultural imaginaries and narratives attached to automation AI and human/machine relations.

Clearly, the world of bots is vast and does not lend itself to easy or simple categorisations and typologies. Different communities of practice will have different definitions of what a bot is and what it can or should (or, indeed, should not) do. In this exhibition we pick up some of the threads (labour, racism, cultural imaginary, human/machine relations) which have been articulated by scholars, cultural workers and activist in order to present an open-ended and multi-layered reflection on bots and their influencing powers. We attend to bots as a socio-

technical phenomenon that need to be understood relationally with their human and non-human interactions, contexts and histories.

Our catalogue

This catalogue consists of five chapters that bring together scholarly texts, magazine articles, research materials and documentation of artworks featured in the exhibition. Each chapter begins with an introduction to the topic that also situates some of the additional texts included in each chapter. We begin by looking at the birth of the daemon bot at MIT in the late 1960s and discuss how the discourse around bots is exemplary of a specific hierarchisation of labour. The chapter also looks at the human/machine relations enacted by robotic creatures with reference to the work of sociologist Lucy Suchman, whose text *Subject Objects* is included in this volume. Chapter 2 is dedicated to the politics of bots and takes as its starting point Microsoft's disastrous Tay bot and Microsoft's equally disastrous response. Through a brief analysis of the Cambridge Analytica scandal, the chapter argues that we have to expand the notion of the political to include the racialising and discriminatory effects of automated agents. In addition, the chapter comprises media theorist's Wendy Chun's text 'Race and/as Technology' which offers an important introduction to the workings of race and racism through technologies. Following this is the text 'Digital Epidermalization: Race, Identity and Biometrics' by sociologist Simone Browne, one of the most innovative scholars currently working on the intersection of surveillance, critical data and African studies. In Chapter 3 we explore the cultural imaginaries of bots through the world's first chatbot ELIZA. Media scholar Lee Mackinnon contributes a topical reflection on the gendered representations haunting depictions of artificial intelligence (AI) and humanoid robots in films such as *Ex Machina* (2014). The problem of classification is continued in Chapter 4 where starting from a description of IBM's Watson system, the political salience of categories and infrastructures in machine learning and AI are discussed with reference to the work of Geof Bowker and Leigh Star whose text on why classification matters forms part of the chapter. Lastly, Chapter 5 begins with a discussion of Microsoft's Clippy and is dedicated to questions of labour in the age of automation. It includes

a text by the scholar and activist Lilly Irani on the microwork platform Amazon Mechanical Turk.

ⁱ A robot may not injure a human being or through inaction cause a human harm; a robot must obey orders from a human except when these are in contravention of the first law; a robot must protect its own existence as long as this is not in conflict with law one and two.

ⁱⁱ At https://twitter.com/portmanteau_bot and <https://twitter.com/restroomgender>

ⁱⁱⁱ See <http://comprop.oii.ox.ac.uk/about-the-project/>

^{iv} <https://datasociety.net/>

^v <https://tacticaltech.org/pages/about-us/>