

(Online) Workshop: Digitalization and Labor in the Bioeconomy, 30.09-01.10.2021

**Thursday 30.9.2021 Labor and the Digitalization of Agriculture, 13h00-18h00 CEST**

13h00-13h30	BioMaterialities Group: Welcome
13h30-14h30	Alistair Fraser: The Opacity of 'the Transparency Case' for Using Blockchain Technologies in the Food and Agriculture sectors
14h30-15h30	Louisa Prause: Digital Agriculture and Changing Labor Relations in Germany
15h30-16h00	<i>Break &amp; get-together in 'gather town'</i>
16h00-17h00	Sarah Rotz: Disciplining Land, Deepening Inequity: The Relationship between Agricultural Technologies, Data Bias and Farmland Assetization
17h00-17h15	Sarah Hackfort: Concluding Remarks
17h15-17h45	Final Discussion & Wrap-Up - Main Takeaways & Open Questions
18h00	<i>Online drinks with the Biomat-Team in 'gather town'</i>

**Friday 01.10.2021 Landscapes, Ecosystems and Digital Technologies in the Bioeconomy, 13h00-18h00 CEST**

13h00-13h15	BioMaterialities Group: Welcome to Day Two
13h15-14h15	Jennifer Gabrys: Carbon Workers and the Smart Forest
14h15-15h15	Camila Moreno: Non-human labor and the bioeconomy
15h15-16h00	<i>Break &amp; get-together in 'gather town'</i>
16h00-17h00	Benjamin Neimark: Green Extraction: Scientific Labor and Metrological Regimes of Biodiversity Offsetting in Madagascar
17h00-17h15	Dennis Eversberg: Concluding remarks
17h15-17h45	Final Discussion & Wrap-up - Main Takeaways - What's next: Conference panel; special issue; other ideas?

## Links and contact

We will hold the sessions in Zoom:

**Zoom link (for both days):**

<https://hu-berlin.zoom.us/j/66537502457>

Meeting-ID: 665 3750 2457

For the breaks and virtual drinks after the workshop we set up a gather town meeting space

**Gather town link (for both days):**

<https://gather.town/invite?token=xLb3dbse0pX35nOB-tp78ZpEwCaX8e!>

If you have any questions or technical difficulties, contact us

Louisa:

[louisa.prause@hu-berlin.de](mailto:louisa.prause@hu-berlin.de)

+49 (0)30 2093 46318

+49 (0)177/8357115

For technical challenges please get in touch with our colleagues Marta or Friederike

[marta.kifleab.1@hu-berlin.de](mailto:marta.kifleab.1@hu-berlin.de)

[engelbof@hu-berlin.de](mailto:engelbof@hu-berlin.de)

GEFÖRDERT VOM



Bundesministerium  
für Bildung  
und Forschung

## Abstracts for Workshop 'Digitalization and Labor in the Bioeconomy'

### Day 1, 30 September 2021: Labor and the digitalization of agriculture

#### **The Opacity of 'the Transparency Case' for using Blockchain Technologies in the Food and Agriculture Sectors**

*Alistair Fraser, Department of Geography, Maynooth University*

Growing use of digital technologies in the food and agricultural sectors – referred to across diverse literatures using terms such as 'precision agriculture,' 'smart farming,' and 'digital agriculture' – poses many new questions for researchers focusing on themes such as rurality, rural development, or agrarian change. A reasonably large literature has taken shape to provide some answers. It is apparent that digital life yields wide-ranging impacts, with further notable twists and turns undoubtedly on the horizon. Yet, one potential focal point for research on the impact of digital life on food and agriculture has not received quite as much attention as it deserves. Specifically, there remain unanswered questions about what the expanding use of digital technologies will mean for the diverse range of people who work on farms and in the wider food sector. Beyond recognizing the obvious point that the expected surge of new technologies will lead to fewer jobs, it is helpful to interrogate the implications for food and agricultural labour of participating in new and (most likely, as-yet-unimagined) arrays of sociotechnical entanglements. In this regard, I use this paper to argue that one crucial factor will be the development and potential proliferation of blockchain technologies; and I approach the issue by trying to unpack the case that tends to be made for adopting and integrating them. I will direct my energies on analysing the explicit and implicit arguments made about the role of human action, including labour, and dwell in particular on what I refer to as the 'transparency case' for using blockchain technologies, which tends to suggest that their adoption will increase transparency across the food chain by virtue of improved traceability of foodstuffs, for example, or enhanced trust (or, at least, confidence) among contractual agents. I raise numerous questions about the transparency case, specifically regarding its opacity. I conclude that, while blockchain technologies may very well amplify the digital transformation of the food and agricultural sectors, it is important to understand that their embrace by businesses across the food chain is bound up with ambitions to re-format the nature of human action, thereby hastening a wider 'brain drain to the chain,' with stark consequences for the types of work conducted on farms and more widely, not to mention that blockchain technologies will hinder the possibilities of food and agricultural workers ever taking back control of the socio-environments in which they work.

#### **Digital Agriculture and Changing Labor Relations in Germany**

*Louisa Prause, Department of Agricultural Economics, Humboldt Universität zu Berlin*

Academic and political debates on the digitalization of agriculture have so far largely neglected the social impacts of this transition and have paid very little attention to the questions of labor. This is problematic since digitalization could fundamentally change farming practices and labor processes on farms, with possibly far-reaching consequences for rural development, rural

communities as well as migrant laborers. Looking at the case study of Germany, this article asks how digital technologies are changing labor processes on horticultural and arable farms. The aim of the paper is to bring labor into the debates around agriculture and digitalization and to offer a detailed picture of the impacts of digital technologies on labor in agriculture. The case-study presented draws on in-depth interviews conducted from June 2020 to March 2021, participant observation, and digital ethnography. The results show how new forms of labor control and an intensification of the work process are linked to methods of digital Taylorism, and draws attention to the risks of working-class fragmentation along age lines. Furthermore, the contribution shows that how farm labor is organized is also linked to changes in the agrarian structures in Germany. Digitalization reinforces the trend towards larger and fewer farms as well as a relocation of agricultural jobs to urban centers. The contribution discusses the impacts of these changes for the development of rural areas.

### **Disciplining Land, Deepening Inequity: The Relationship between Agricultural Technologies, Data Bias and Farmland Assetization**

*Sarah Rotz, Faculty of Environmental and Urban Change, York University*

This presentation will explore how agricultural technologies are deepening inequity, marketization, and concentration, both in the context of data and land itself. I will detail some research I've been doing with Dr. Kelly Bronson, Dr. André Magnan, and Emily Duncan to show how scientific decisions about which data to collect and how to use them are privileging already powerful food system actors—farmers managing large commodity crop operations and the large agribusinesses supplying them. By economic logic, this bias makes sense as these farms have the money to pay for expensive commercial technologies, but the bias presents significant social, environmental, and land management problems which are crucial to understanding the human impacts of agriculture. I will then connect this with the issue of land itself. We know that ag-tech start-ups are growing rapidly. Venture capital investments have contributed over \$2.8 billion in ag-tech start-ups in alone, but researchers and activists haven't been able to get a very clear sense of the role of digital agriculture in land grabbing, farmland land financialization and assetization. Our research aims to better understand how data is being used in farmland transactions, in processes of land valuation, and for land management decisions by farm investors, owners, and renters—and with what consequences.

### **Day 2, 01.10.2021: Landscapes, Ecosystems and Digital Technologies in the Bioeconomy**

#### **Carbon Workers and the Smart Forest**

*Jennifer Gabrys, Department of Sociology, University of Cambridge*

Proposals to transition to a green economy often outline the advantages of creating new skilled jobs for workforces. These carbon workers are meant to be trained to contribute to sustainable infrastructures and economies. Digital technologies play a key role in moving toward green economies and labor practices that involve monitoring, automating, networking and coordinating systems for greater efficiency. At the same time, digital technologies increasingly feature as devices and systems for monitoring and managing ecosystems, from forests to wetlands and oceans. "Nature" is effectively put to work as a composition of entities, systems and services that

would mitigate and adapt to environmental change. Digital technologies--and digital logics--constitute, transform and operationalize environments and more-than-human entities to capture carbon, absorb floodwater, filter pollutants, contribute to supply chains, and offset environmental harms. This presentation will consider how smart forests, or forests instrumented with and observed through digital technologies, demonstrate these transformations of nature at work. Forests and forest dwellers here become carbon workers, designated as productive entities that would work to address environmental change. Key questions that this discussion considers then include: What form of digital labor is underway in these smart forest projects? And how do these carbon-working practices remake environments, more-than-humans, and labor?

### **Non-human Labor and the Bioeconomy**

*Camila Moreno, Department of Agricultural Economics, Humboldt Universität zu Berlin*

By means of digitally-enabled biotechnologies, the hacking and repurposing of living metabolisms are at the base of many 'bio-based' disruptive innovations that characterize the bioeconomy. Digitally-enabled powers allow new forms of control and coercion to re-direct/repurpose/enhance the organic, vital functions of living beings. Synthetic biology and gene editing make it possible to 'reprogram' a living organism to have its vital forces harnessed into industrial processes. These modified living organisms or life-forms can grow and create valuable commodities, produce chemicals or new materials, as well as serve as means to processes – in other words, they function as living biorefineries or converters (of substances such as protein). Yeasts (fungi), enzymes, microbes, cyanobacteria and algae, among others, can be digitally manipulated to have their genetic 'programming' altered in a way to specialize and maximize/accelerate performance of a specific function. Increasingly, 'work forces' of such organisms are being employed from water treatment and sanitation, across the food and beverages industry, to fashion (dyeing fabric), mining, alternative fuel and energy production, tackling plastic residues in oceans, biofertilization, soil recovery, etc. In my contribution I argue that the idea of non-human labor is a relevant dimension to understand current capitalist dynamics, exploring how these ideas can contribute to characterize value creation in the bioeconomy. While bioeconomy relies upon digital biotechnologies as a means to harness and subsume nature's 'labor' in many forms (from environmental services to fungi and yeast 'workers' at biorefineries), increased automation led by digital technologies is diminishing employment for the human laborers. This presentation will explore how these parallels can produce new insights on broader socio-technical changes. I inquire into how the perception of non-human living beings as economic agents is embedded/interacts with the current de facto submission of natural forces to economic rationality and new markets.

### **Green extraction: Scientific Labour and Metrological Regimes of Biodiversity Offsetting in Madagascar**

*Benjamin Neimark, Lancaster Environment Centre, Lancaster University*

Land and resource grabbing is hard work. From the boardrooms of multinationals to policy halls of development donors, it is clear that significant effort is put into digital mapping, delineating space and categorising biodiversity for commodification and subsequent financialisation. Yet, less understood are the 'metrological regimes' constructed from historically appropriated scientific labour and local knowledge equally vital to the expansion and legitimisation of the global 'grabbing economy'. As I suggest, 'grabbing' is a diverse practice of exclusion and dispossession coming in many forms - from large-scale extractives to green energy and bioprospecting to biodiversity offsetting - albeit a few studies, much less work addresses the role of scientifically-based labour in the global south and its historical contribution to the global phenomenon. My

framework for understanding labour in the grabbing economy differentiates between a managerial class of workers I call *proficians*, with that of the local low-paid *eco-precariat*. I use a case of the Ambatovy nickel and cobalt mine in Madagascar to demonstrate how late-capital production of biodiversity offsets is made possible by a host of scientific labourers – both Malagasy and international – in transforming some of the dirtiest extractive practices into ‘green commodities’ produced under social and economic development imaginaries of participation and sustainable growth and green transitions. Moving forward, we discuss ways that this framework can be applied to a diverse array of cases of the grabbing economy across the global south and beyond.