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Responsibility, Autonomy, and Habit: Digital Humanism and the Ethics of Intelligent Autonomous Systems

AI Generating New Habits. Critical Reflections

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Introduction – New Habits in the Age of Autonomous AI

As AI systems increasingly operate with autonomy and adaptability, the traditional boundaries of moral responsibility in techno-social systems are being challenged. New habits emerge around how we assign agency, accountability, and trust.

AI systems are not just automating tasks— with increasing autonomy and intelligence they are reshaping how we think about responsibility in techno-social systems.

Synthesizing recent developments in AI ethics, including concepts of distributed responsibility and ethical AI by design, the paper proposes a functionalist perspective as a framework. It explores emerging habits and offers a framework for ethical integration.

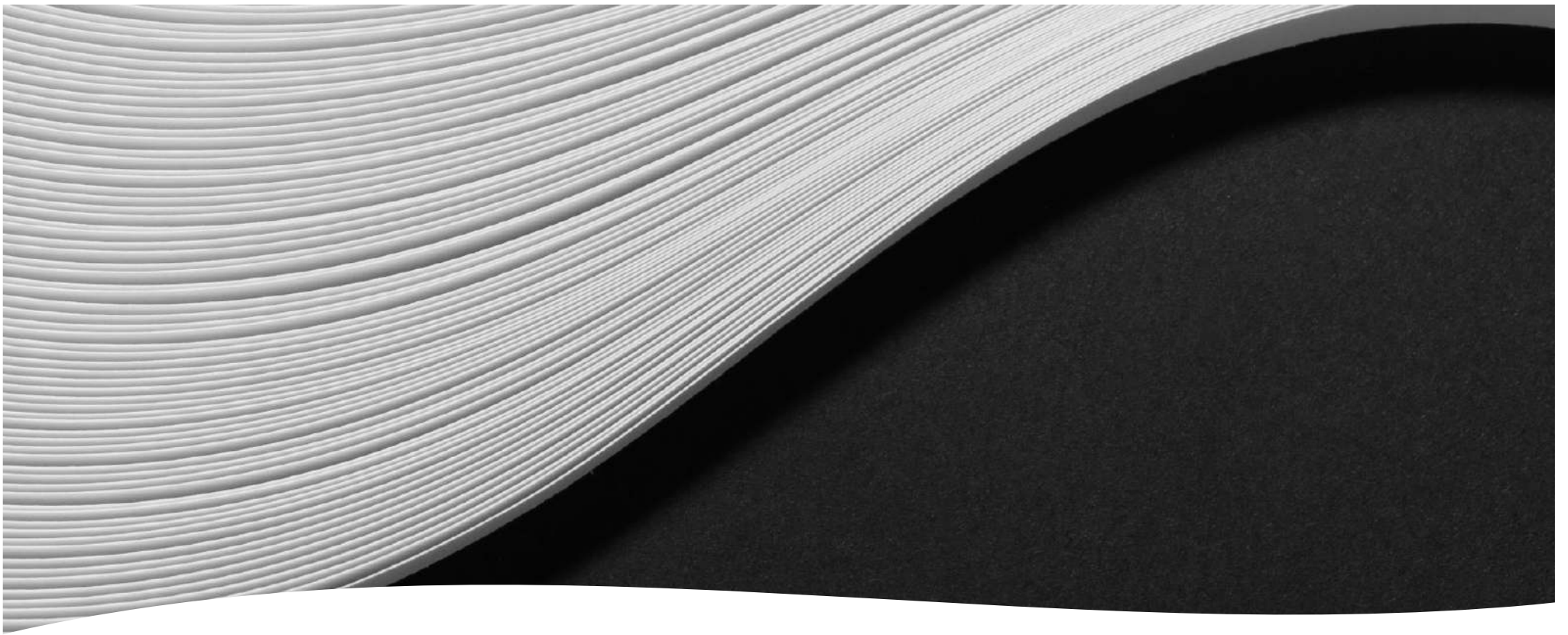
AI Creating New Habits

New moral and organizational habits:

- Assigning agency
- Defining accountability
- Embedding values
- Human-AI collaboration

We propose Basti and Vitiello's approach. They suggest that AI can act as artificial moral agents in two steps

1. first learning ethical guidelines and
2. using Deontic Higher-Order Logic to assess decisions ethically.



Basic Idea of the Paper

Given intelligent task delegation to machines, **responsible behaviour is no longer expected only from humans.**

It becomes defined by **a functional role of an agent and distributed across socio-technical system.**

Emerging Habits

Delegating Responsibility: Humans to autonomous systems

Ethical Embedding: Designing ethics into systems

Shared Moral Roles: AI as partners in moral ecosystems

Continuous Adaptation: Co-evolving tech and social values

(Edward A. Lee (2020) *The Coevolution- The Entwined Futures of Humans and Machines*, MIT Press)

Rapidly Increasing AI Capabilities and Autonomy

The new moral and systemic habits are being shaped by AI's
autonomy

Habits that challenge traditional ethics and redefine responsibility
in dynamic sociotechnical ecosystems.

Responsibility in Socio-Technical Systems

- Humans, machines, organizations as a system of actors
- Key concepts: Distributed agency & distributed responsibility
 - Responsibility spreads across system components

Taddeo, M., and L. Floridi (2018) How AI can be a force for good.
Science 361(6404): 751–752.

Functionalist Approach to Responsibility

- Inspired by Daniel Dennett: Responsibility as a social role
- Focus on roles, norms, expectations— not intentions or free will
 - Encourages good behaviour instead of assigning blame
 - Responsibility exists on a spectrum, not a binary

Dennett, D. 1973. Mechanism and responsibility. In *Essays on freedom of action*, edited by T. Honderich, 157–184. Boston, MA, USA: Routledge & Keegan Paul.

Ethics by Design

Embed ethics in system architecture, not added post-hoc

Aiming to keep unpredictable behavior by autonomous systems under control

Align AI decisions with human values

Requires collaboration among developers, ethicists, stakeholders

G. Dodig-Crnkovic, T. Holstein, P. Pelliccione and, Jathoosh Thavarasa (2023) "[Future Intelligent Autonomous Robots, Ethical by Design. Lessons Learned from Autonomous Cars Ethics.](#)" Proceedings ICSIT, International Conference on Society and Information Technologies, Vol. 2023-March s. 92-98. 9781950492701 (ISBN) , 27716368 (ISSN), 27716376 (eISSN)

Dodig-Crnkovic G. and Persson D.*, [Sharing Moral Responsibility with Robots: A Pragmatic Approach.](#) Tenth Scandinavian Conference on Artificial Intelligence SCAI 2008. Volume 173, Frontiers in Artificial Intelligence and Applications. Eds. A. Holst, P. Kreuger and P. Funk, 2008

Basti & Vitiello's Proposal

Machine Ethics approach

Step 1: Ethical constraints in Machine Learning optimization

Step 2: Ethical Reasoner using Deontic Higher-Order Logic

Combines symbolic and probabilistic AI for ethical oversight

Supports the concept of AI as artificial moral agents

Strengths of Machine Ethics

- Scalable, formalizable approach to ethical decision-making
 - Supports fairness, transparency, and risk mitigation
 - Respects human values: autonomy, privacy, dignity
 - Builds trust in autonomous systems

Challenges and Open Questions

- Lack of universal ethical standards
- Conflicting principles and cultural differences
- Opaque decision-making in AI (black-box problem)
- Legal and moral accountability mechanisms still evolving
- Rapid development of technology

The Human Role in Ethical AI

- Machines used as tools in design, oversight, policy
- Humans remain central in design, oversight, policy (expectation of Digital Humanism)
- Shift from decision-makers to ethical supervisors
 - Responsibility is shared and dynamic
- Need for ethics education and interdisciplinary governance



Digital Humanism

Humanism - Dictionary definition

Humanism noun

a rationalist outlook or system of thought attaching prime importance to human rather than divine or supernatural matters.

a Renaissance cultural movement which turned away from medieval scholasticism and revived interest in ancient Greek and Roman thought.

a system of thought criticized as being centred on the notion of the rational, autonomous self and ignoring the conditioned nature of the individual.

Oxford dictionary

Humanism and Nature

Humanism, as a philosophical and ethical stance, has a growing and increasingly important relationship with the environment and nature, particularly in the context of environmental humanism.

Respect for Nature and Interdependence

Ethics of Sustainability

Environmental Responsibility as Part of Human Flourishing

Promotion of Science and Evidence-Based Solutions

Intrinsic Value of Nature

Humanism and Climate Change

A Global, Inclusive Perspective

The Digital Humanism

Digital Humanism is a mindset, a philosophy, a political driving force, a scientific approach, and most of all – a promise to society. That we are determined to build, regulate and develop technology for people, for a better future.

<https://informatics.tuwien.ac.at/digital-humanism/>

<https://informatics.tuwien.ac.at/digital-humanism/#latest-news>

<https://dighum.ec.tuwien.ac.at/> Digital Humanism movement web page @ TUW – Technical University in Vienna

<https://www.youtube.com/@DigitalHumanism/featured?app=desktop>
Digital Humanism YouTube channel

The Digital Humanism Initiative

The Digital Humanism Initiative is an international collaboration seeking to build a community of scholars, policy makers, and industrial players who are focused on ensuring that technology development remains centered on human interests.

Digital humanism is a global, international issue. Humankind is at the center.

The approach: scientific, transdisciplinary, interdisciplinary, multidisciplinary, in the tradition of the Enlightenment.

People are the central focus, as individuals and societies. [this is not in conflict with environment and animal rights!]*Human flourishing is fundamentally based on human connections with nature

Technology is for people and not the other way around.

Building a just and democratic society with humans at the center of technological progress.

Perspectives on Digital Humanism – Open Access

Hannes Werthner, Erich Prem,
Edward A. Lee, and Carlo Ghezzi
(eds): Perspectives on Digital
Humanism, Springer, 2022.
[https://link.springer.com/book/10.
1007/978-3-030-86144-5](https://link.springer.com/book/10.1007/978-3-030-86144-5)

Hannes Werthner
Erich Prem
Edward A. Lee
Carlo Ghezzi *Editors*

Perspectives on Digital Humanism

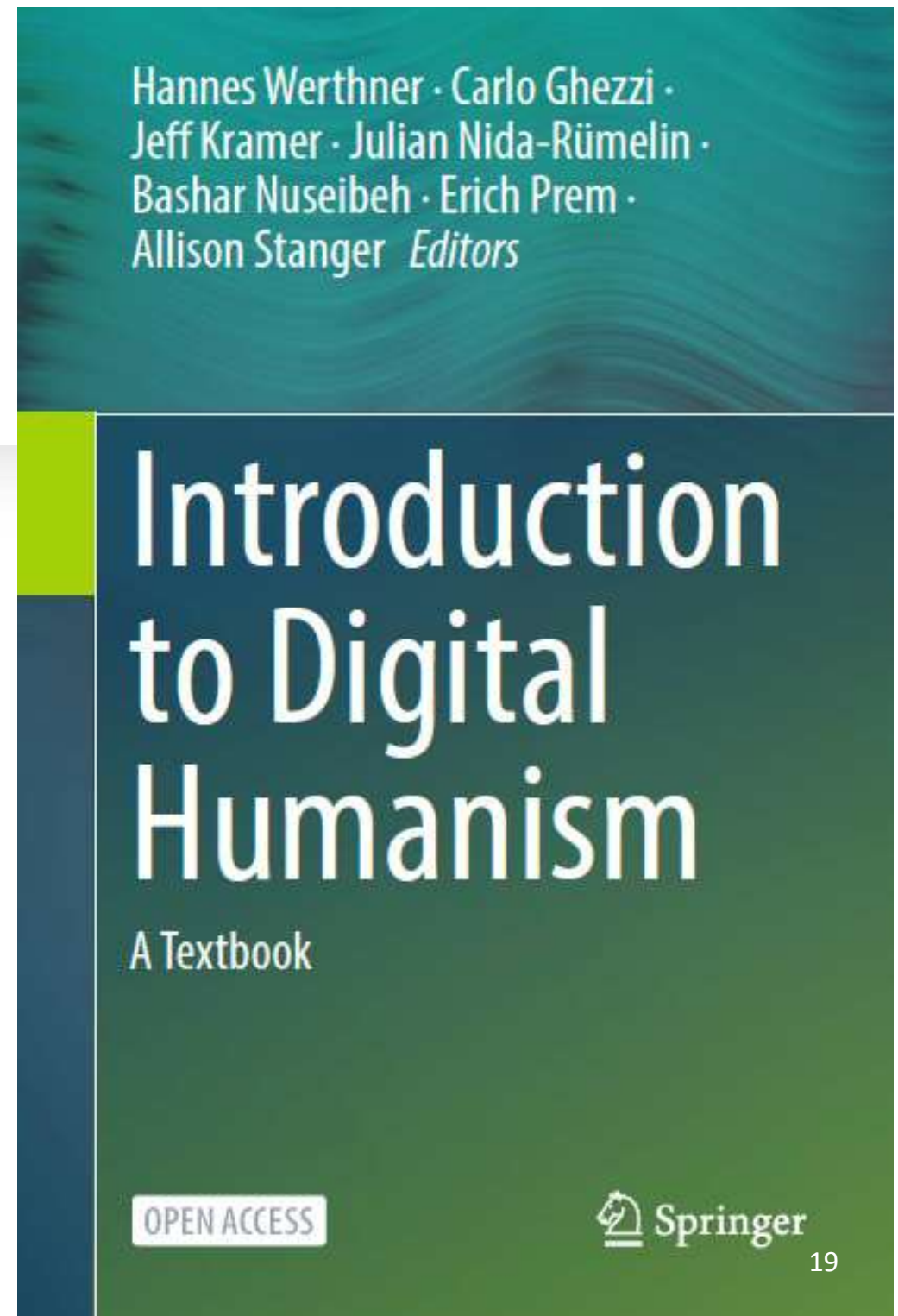
OPEN ACCESS

 Springer

Introduction to Digital Humanism – A Textbook Open Access

Hannes Werthner, Carlo Ghezzi,
Jeff Kramer, Julian Nida-Rümelin,
Bashar Nuseibeh, Erich Prem, and
Allison Stanger (eds): Introduction
to Digital Humanism, Springer,
2024.

<https://link.springer.com/book/10.1007/978-3-030-86144-5>



Digital Humanism Lecture Series

<https://dighum.ec.tuwien.ac.at/news-events/>

<https://www.youtube.com/@DigitalHumanism> Youtube channel (Stuart Russel, Gary Marcus, Edward Lee, Deborah G. Johnson, Julian Nida-Rümelin,...)

Digital Humanism Manifesto

“Today, we experience the co-evolution of technology and humankind.

The flood of data, algorithms, and computational power is disrupting the very fabric of society by changing human interactions, societal institutions, economies, and political structures.

Science and the humanities are not exempt. This disruption simultaneously creates and threatens jobs, produces and destroys wealth, and improves and damages our ecology. It shifts power structures, thereby blurring the human and the machine.”

<https://dighum.ec.tuwien.ac.at/dighum-manifesto/>

Digital Humanism References

<https://www.youtube.com/watch?v=V-XvfMEZgPc> The Challenge of Being Humanely Digital - UCAI '22
Keynote by Erich Prem

<https://informatics.tuwien.ac.at/digital-humanism/>

<https://dighum.ec.tuwien.ac.at>

<https://link.springer.com/book/10.1007/978-3-030-86144-5> Perspectives on Digital Humanism – book
freely available for download

<https://dighum.ec.tuwien.ac.at/dighum-manifesto/> Vienna Manifesto on Digital Humanism

<https://nextconf.eu/2017/11/what-is-digital-humanism/#gref>

<https://www.erichprem.at/publications-press-videos/> Erich Prem videos

Future Outlook

- Ethical AI needs continuous monitoring and updating
- New habits will require new legal and ethical frameworks
- Democratic dialogue and stakeholder inclusion are vital
- AI must serve human well-being and sustainability
- Digital Humanism approach

Conclusions

- Responsibility is a distributed role of agents in AI ecosystems
- Functionalist approach offers practical governance
- Ethics by design is necessary, but not sufficient. Speculative design scenarios studying possible futures
- The whole socio-technological system is affected
- Especially important: safety critical applications: warfare, medicine, health care
- Central: applications that change cultural norms and habits
- Humans must ensure AI aligns with societal values, set the boundaries

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<https://bbycroft.net/llm> Visualisation of LLMs

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(2025) [Cite this article](#)



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<https://www.springermedizin.de/content/pdfId/51003380/10.1007/s11673-025-10428-5>

Q&A

Thank you! I'm happy to take your questions and comments.