
IS4SI 2025 Conference: AI Generating New Habits
Emerging Habits of Sharing Responsibilities with Autonomous AI in Socio-Technical Systems
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2 June 2025

Based on the Paper

Dodig-Crnkovic, G., Basti, G., and Holstein, T. (2025)

"Delegating Responsibilities to Intelligent Autonomous Systems: Challenges and Benefits",

Journal of Bioethical Inquiry

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

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.

Conference Theme Framing: 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.

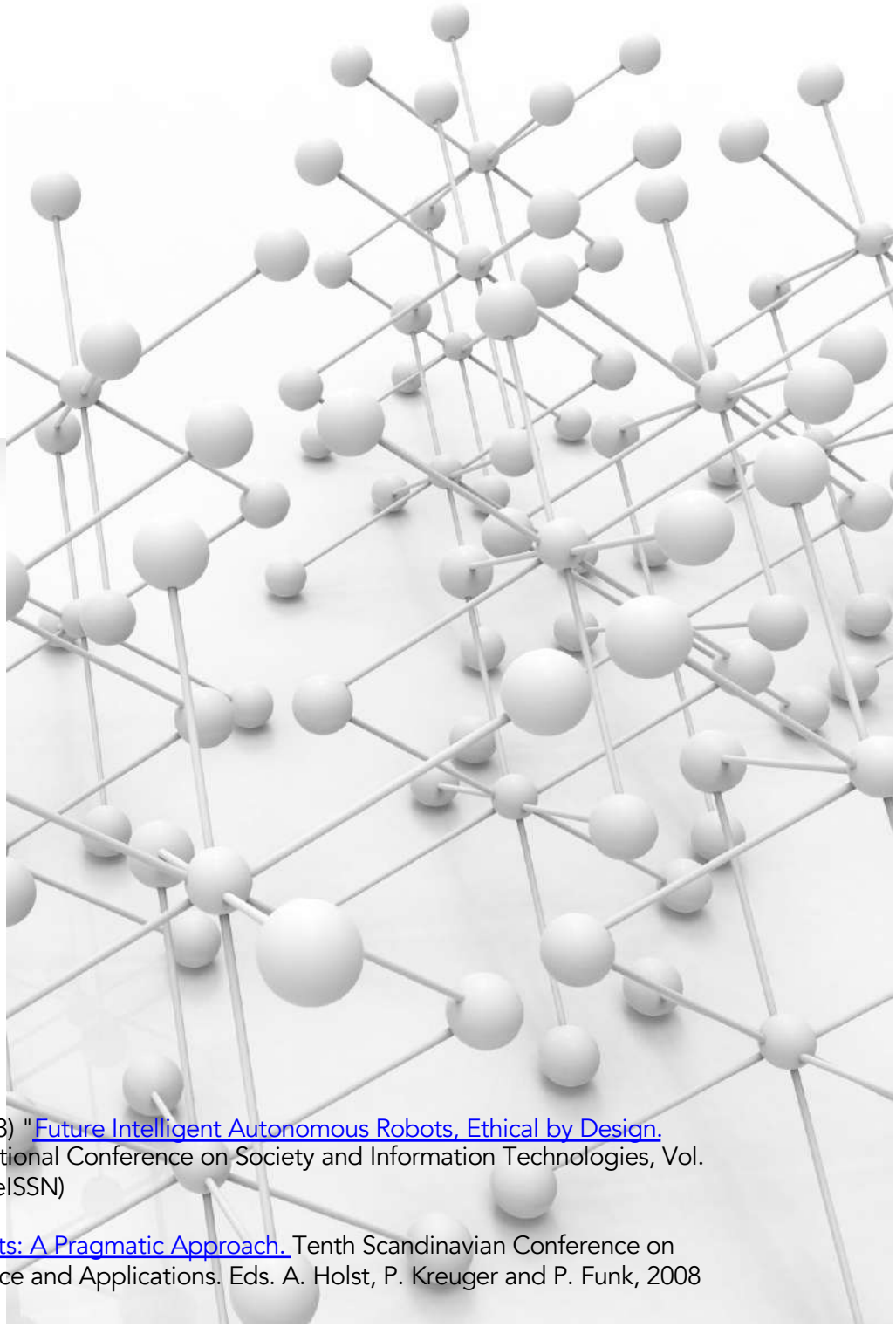
Ethics by Design

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

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
  - But also, applications that change cultural norms and habits
- Humans must ensure AI aligns with societal values, set the boundaries

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Q&A

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