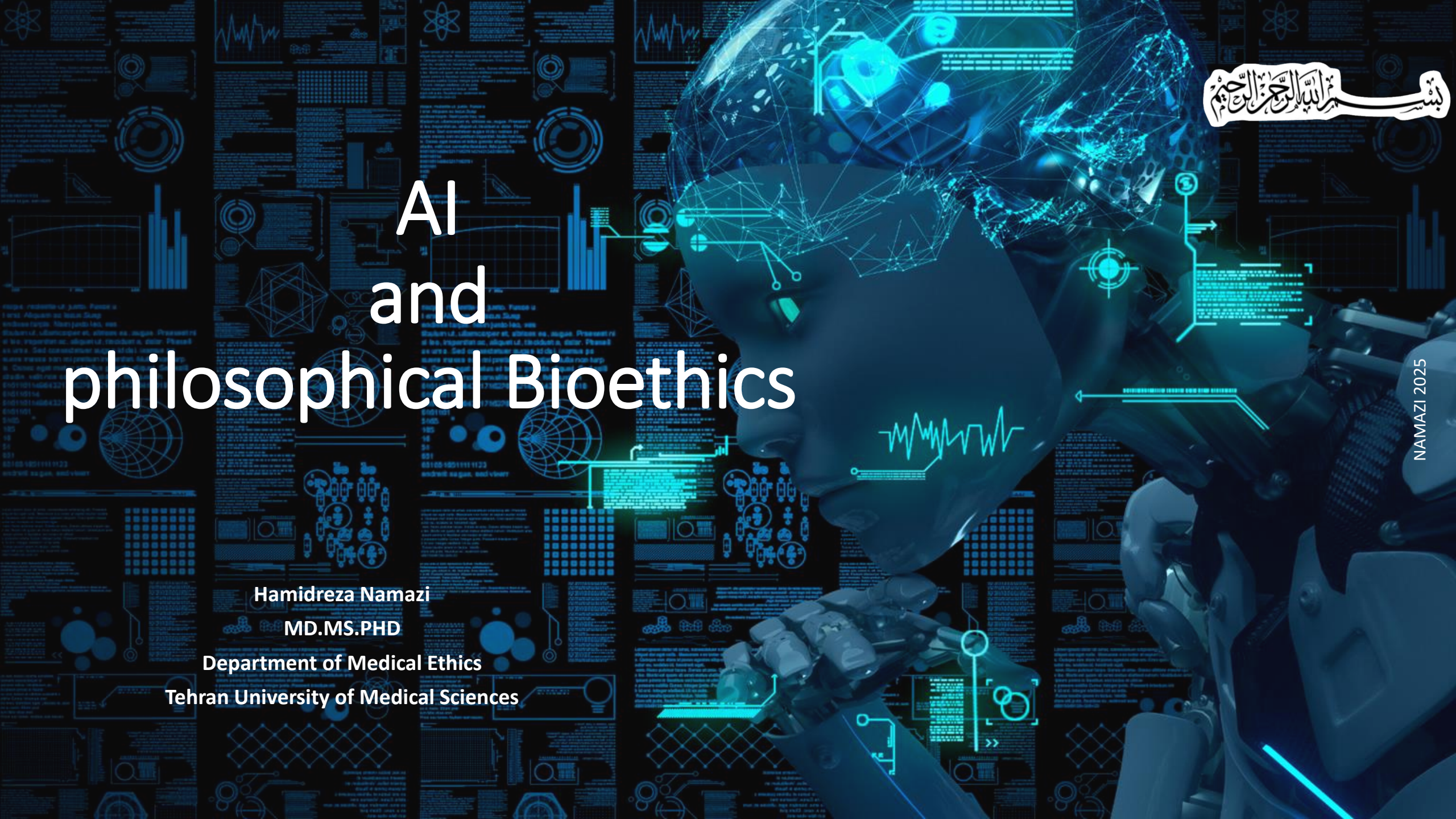

بسم الله الرحمن الرحیم

AI and philosophical Bioethics

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Philosophy of Technology

- Technologic determinism
- Sociologic Determinism

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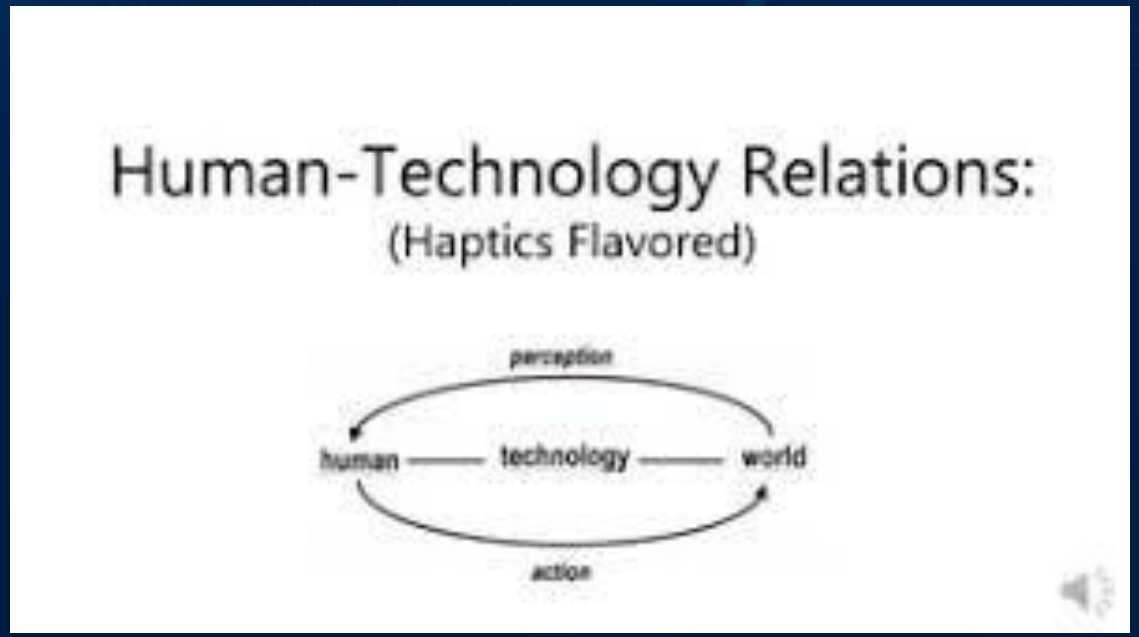
Postphenomenology

- Don Ihde (1934)
- Technoscience



Human-Technology Relation

- Embodiment relation
- Background relation
- Hermeneutic relation
- Alterity relation

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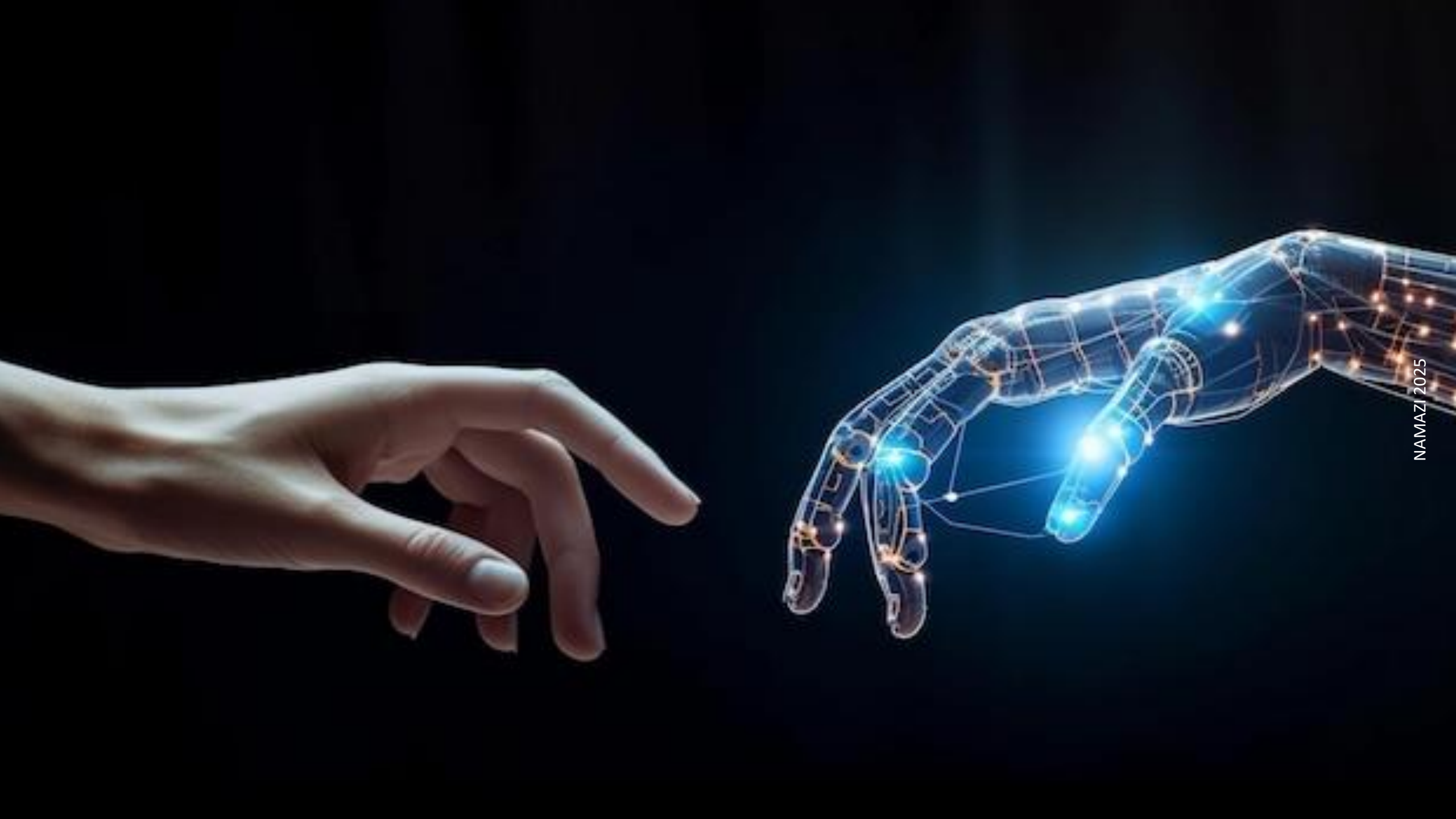
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What is AI?

Thinking humanly	Thinking rationally
• The exiting new effort to make computers think…machines with minds, in the full and literal sense (Haugeland, 1985) • The automation of activities that we associate with human thinking, activities such as decision making, problem solving, learning… (Bellman, 1978)	• The study of mental faculties through the use of computational models (Charniak and McDermott, 1985) • The study of the computations that make it possible to perceive, reason and act (Winston, 1992)
Acting humanly	**Acting rationally**
• The art of creating machines that perform functions that require intelligence when performed by people (Kurzweil, 1990) • The study of how to make computers do things at which, at the moment, people are better (Rich and Knight, 1991)	• Computational Intelligence is the study of the design of intelligent agents (Poole et. al, 1998) • AI … is concerned with intelligent behaviour in artifacts (Nilson, 1998)

- A system is **rational** if it does the right thing given what it knows

- Symbolic AI (Rule-based System, Logical)
- Deep Learning (Data-driven)
- Pseudo-Behaviorism

Aspect	Symbolic AI	Deep Learning	Pseudo-Behaviourism
Approach	Uses explicit rules and symbols	Learns from data using neural networks	Focuses on observable behaviors
Learning Method	Rule-based	Data-driven	Behavior manipulation
Complexity Handling	Limited to predefined logic	Can handle complex tasks and large datasets	Simplistic view of behavior
Real-World Applications	Chess programs, Expert systems	Image recognition, Speech processing	Criticized for lack of scientific rigor
Inspiration	Logic and mathematics	Human brain structure	Observational studies
Adaptability	Less adaptive to new situations	Highly adaptable with more data	Not typically flexible

PLOS BIOLOGY

RESEARCH MATTERS

Meta-research: Why research on research matters

John P. A. Ioannidis[1,2,3]*

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Competing interests: The authors have declared

Abstract

Meta-research is the study of research itself: its methods, reporting, reproducibility, evaluation, and incentives. Given that science is the key driver of human progress, improving the efficiency of scientific investigation and yielding more credible and more useful research results can translate to major benefits. The research enterprise grows very fast. Both new opportunities for knowledge and innovation and new threats to validity and scientific integrity emerge. Old biases abound, and new ones continuously appear as novel disciplines emerge with different standards and challenges. Meta-research uses an interdisciplinary approach to study, promote, and defend robust science. Major disruptions are likely to happen in the way we pursue scientific investigation, and it is important to ensure that these disruptions are evidence based.

Science, like all human endeavors, is prone to biases. Yet science can assess its own methods, reporting, reproducibility, evaluation, and incentives [1]. A relatively new discipline, called meta-research, covers a wide range of theoretical, observational, and experimental investigations designed to study research itself and its practices. The objective is to understand and improve how we perform, communicate, verify, evaluate, and reward research [1].

Before elaborating on a discipline that studies biases, I should disclose some of my own. First, all scientists are meta-researchers to some extent, though most usually work on focused subject matter disciplines. And though the advice of my early lab mentors—"focus, focus, focus"—still rings in my ears, the piles on my desk and the files in my computers can be notoriously unfocused. I don't have attention-deficit disorder, but plain unconstrained curiosity. What attracted me to science was its vastness and diversity. In my early training years, I en-

AI and Research Ethics

- The boundless potential of AI in publishing
- Easier navigation of the literature
- AI-powered academic writing and editing
- Tracking and preserving authenticity
- AI assisted peer review
- AI assisted scientometrics
- Innovation , mapping and forecasting
- Big data

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Research and meaning

- Wasteful research
- Meaningless research
- Futile research

Philosophy ,Ethics , and Safety of AI

- Big data
- AI drift and AI hallucination
- Embodiment
- Moravec's paradox
- Potential risk of bias and errors: Garbage in, Garbage out (GIGO)
- Algocracy
- Nudge and Manipulation
- Environmental cost of training AI model: human 2 and DNA computing
- Ease of rewriting
- Responsibility; Data driven decision making
- Automation bias

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Philosophy ,Ethics , and Safety of AI

- Explainability and Interpretability
- Causation and Correlation
- Privacy
- Deep fake
- Adversarial attack
- Responsibility; Data driven decision making , AI rights
- Occupation
- Regulatory framework/ court backlog
- Singularity, Super intelligence
- Bostrom: intelligence and ethics
- Existential risk

Communications

ARTICLE

https://doi.org/10.1057/s41599-020-00703-8 OPEN

AI-assisted peer review

Alessandro Checco[1✉], Lorenzo Bracciale[2✉], Pierpaolo Loreti[2], Stephen Pinfield[3✉] & Giuseppe Bianchi[2]

The scientific literature peer review workflow is under strain because of the constant growth of submission volume. One response to this is to make initial screening of submissions less time intensive. Reducing screening and review time would save millions of working hours and potentially boost academic productivity. Many platforms have already started to use automated screening tools, to prevent plagiarism and failure to respect format requirements. Some tools even attempt to flag the quality of a study or summarise its content, to reduce reviewers' load. The recent advances in artificial intelligence (AI) create the potential for (semi) automated peer review systems, where potentially low-quality or controversial studies could be flagged, and reviewer-document matching could be performed in an automated manner. However, there are ethical concerns, which arise from such approaches, particularly associated with bias and the extent to which AI systems may replicate bias. Our main goal in this study is to discuss the potential, pitfalls, and uncertainties of the use of AI to approximate or assist human decisions in the quality assurance and peer-review process associated with research outputs. We design an AI tool and train it with 3300 papers from three conferences, together with their reviews evaluations. We then test the ability of the AI in predicting the review score of a new, unobserved manuscript, only using its textual content. We show that such techniques can reveal correlations between the decision process and other quality proxy measures, uncovering potential biases of the review process. Finally, we discuss the opportunities, but also the potential unintended consequences of these techniques in terms of algorithmic bias and ethical concerns.

Table 5 Potential role of AI in the different dimensions of the peer review process.

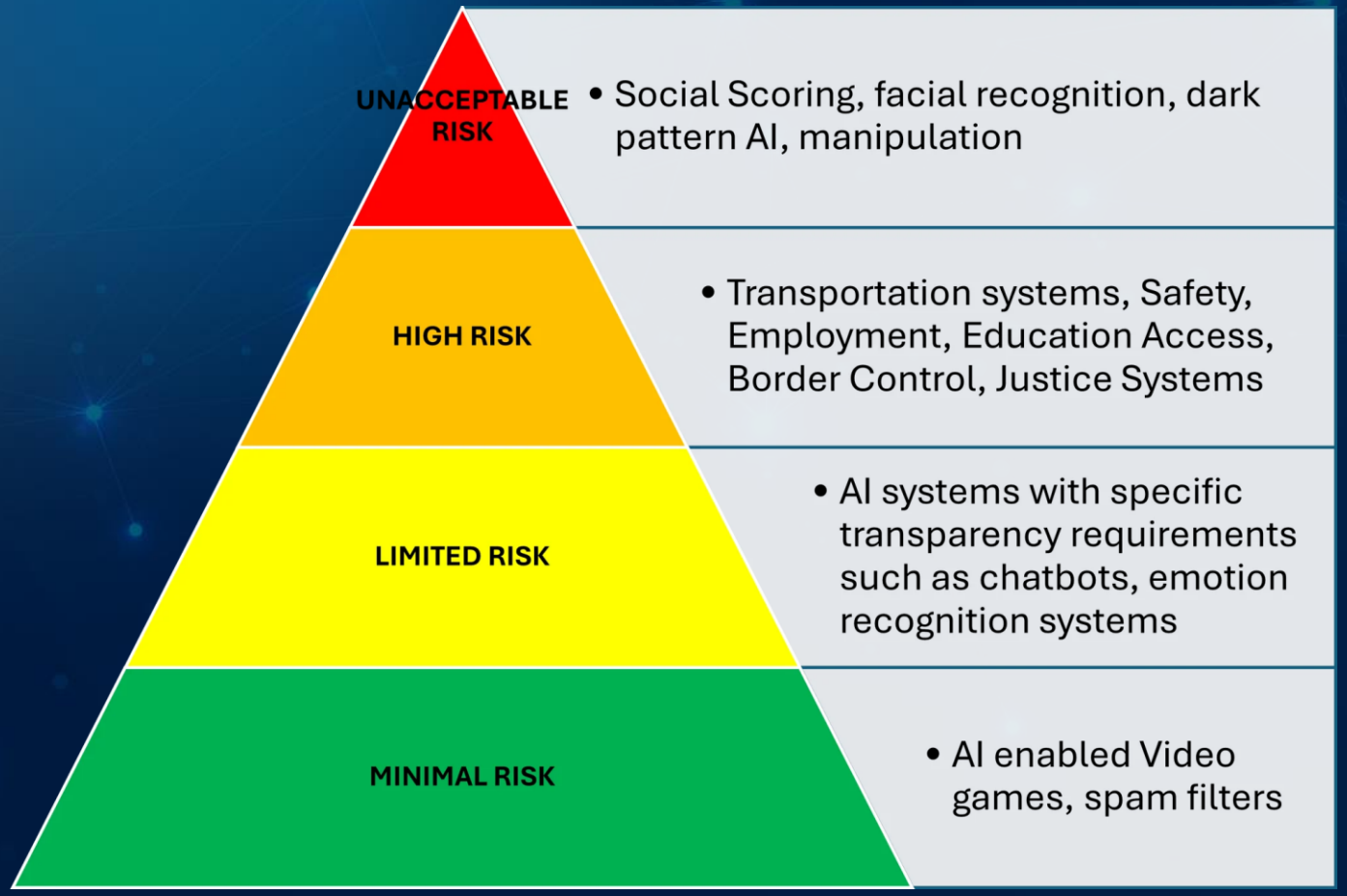
Dimension	AI impact
Formatting	High
Plagiarism	High
Scope	High
Readability/English	Medium
Relevance	Medium
Soundness/rigour	Low
Novelty	Low
Impact	Low

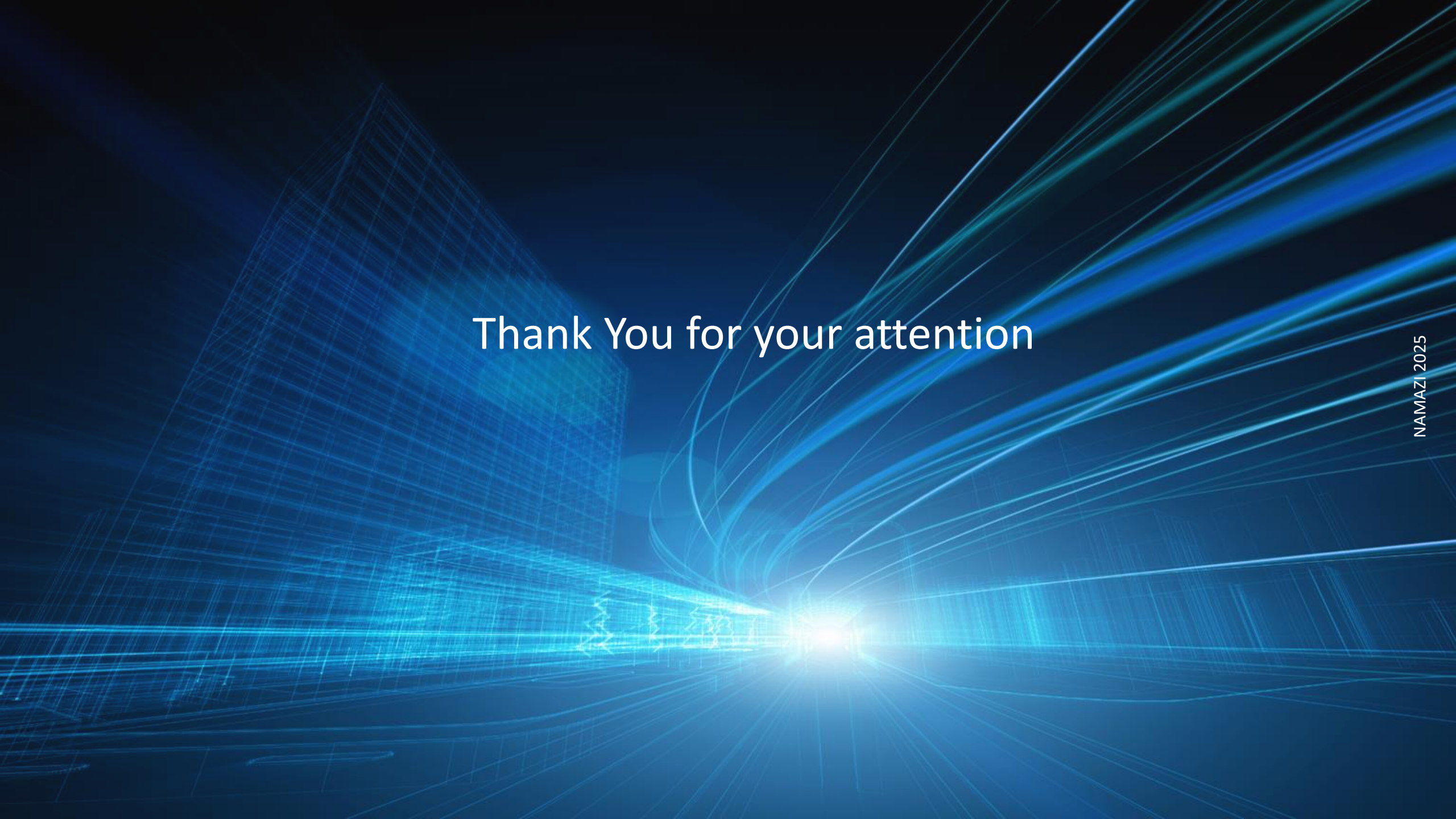

SOCIAL
MEDIA and
MORALITY
Losing Our
Self Control
LISA S. NELSON

Risks

- Potential risk of bias and errors(AI drift and AI hallucination)
- Garbage in, Garbage out (GIGO)
- Environmental cost of training AI models
- Potential “learning losses”
- Ease of rewriting
- Responsibility; Data driven decision making
- Automation bias
- Moravec's paradox

AI Act


UNACCEPTABLE RISK
• Social Scoring, facial recognition, dark pattern AI, manipulation
HIGH RISK
• Transportation systems, Safety, Employment, Education Access, Border Control, Justice Systems
LIMITED RISK
• AI systems with specific transparency requirements such as chatbots, emotion recognition systems
MINIMAL RISK
• AI enabled Video games, spam filters


Thank You for your attention
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