Collective Control of Artificial Intelligence: A Social Choice Approach to Democratic AI Governance

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Publication

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Paul Anton Bachmann, Niklas Böhmer, Lukas Daniel Klausner, and Martin Lackner. In Proceedings of the *ACM Conference on Fairness, Accountability, and Transparency 2026*.

Preprint: `https://arxiv.org/abs/2605.16291`

Artificial Intelligence

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Many substantial reasons:

- Very fast expansion into almost all aspects of life.
- Serious risks: surveillance, job displacement, loss of human autonomy, etc.
- Society — and individuals — have very little control.
- Instead: a small number of technical (often corporate) decision-makers.

Democratic control of AI

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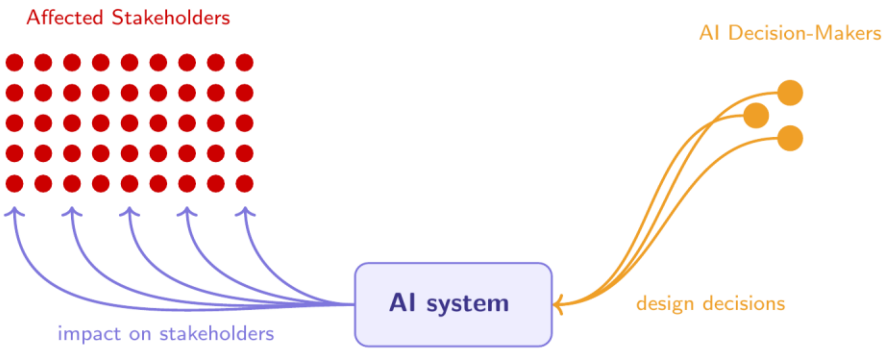
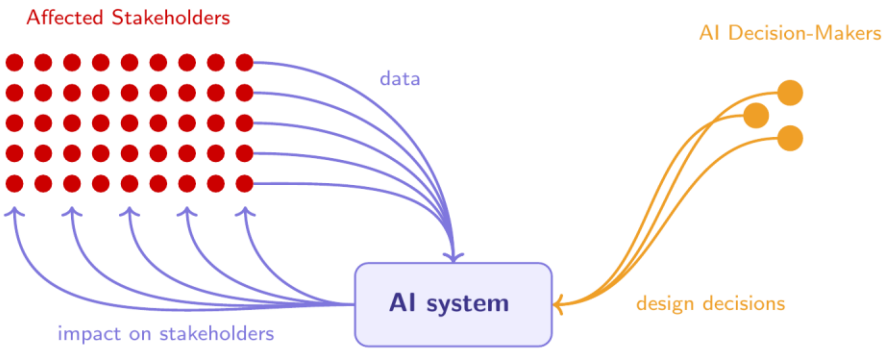
Our framework: collective control of AI
incorporating collective decision-making mechanisms directly into the AI *development and deployment* process.

- the concrete technical and socio-technical **counterpart** to regulatory control of AI

Status Quo


Affected Stakeholders
AI Decision-Makers
AI system
impact on stakeholders
design decisions

Status Quo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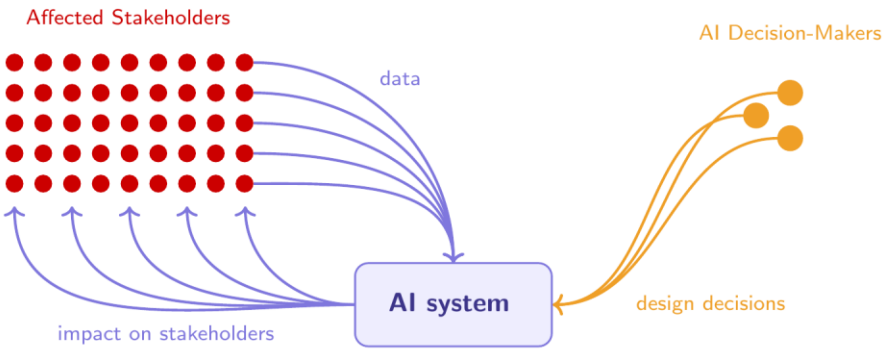
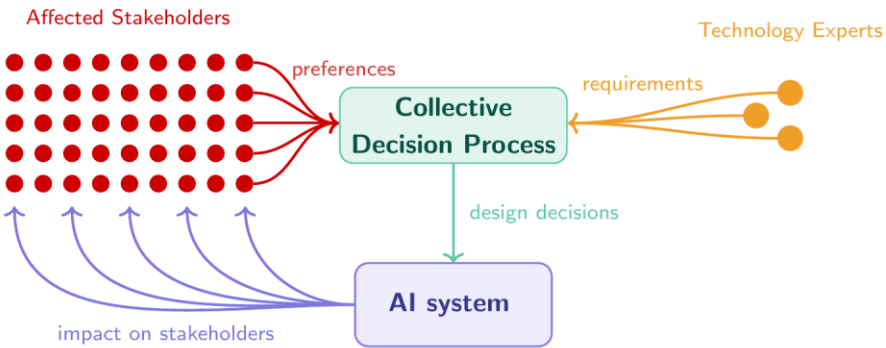


Goal: Collective Control of AI Systems

include affected stakeholders in AI development decisions

Collective Decisions about AI



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Social Choice Theory is the formal mathematical study of collective decision problems and preference aggregation rules.

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Central insight: Results of collective decisions heavily depend on the chosen preference aggregation rule.

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Axiomatic Method

Normative evaluation of preference aggregation rules

- formulation of normative axioms (e.g. unanimity)
- study of aggregation rules w.r.t. proposed axioms

Collective Control of AI – Two Perspectives

1

What does it mean for an AI system to be aligned with collective preferences?

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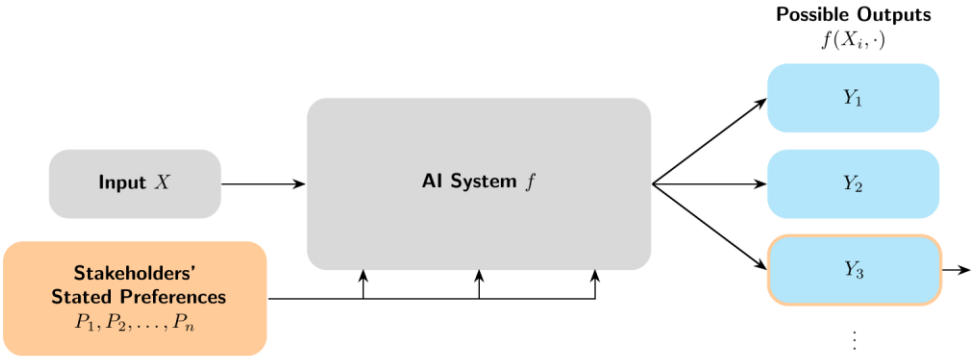
2

How can we enable collective decision-making during AI development?

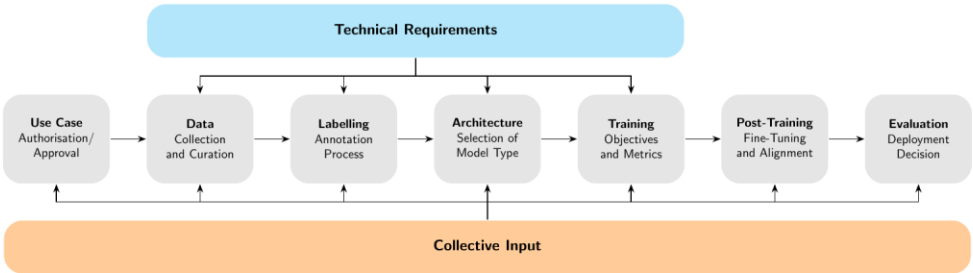
1 – AI Systems as Social Choice Functions



Social choice as lens for collective control of AI

- What *influence* can collective input have *on AI outputs*?
- How can stakeholders' preferences be *elicited* and *formalised*?
- *Which axioms* should AI systems satisfy w.r.t. the preferences?

2 – Collective Control in the ML Development Process



- How can we *enable collective decisions* in each stage?
- How can we *evaluate decisions* about the components?

We connect the decision problems in each stage to **established social choice problems**.

Open Questions and Ongoing Work

Stakeholder Identification

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$\Longrightarrow$ social choice x social sciences
ongoing collaboration with Astrid Mager and Fabian Fischer (ÖAW)