

ESSAI-2024
Self-Governing Multi-Agent Systems
L10/10: Societal Implications

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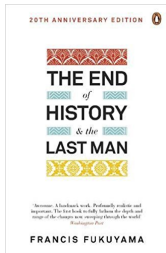
Aims and Objectives

- Aims
 - Discuss the social implications of Artificial Intelligence technologies
- Objectives
 - Understand and contribute to the research programme

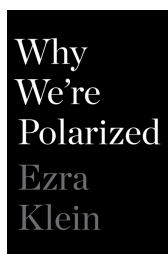
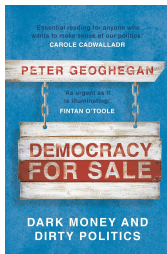
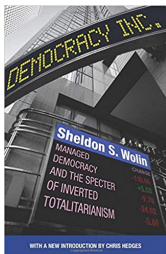
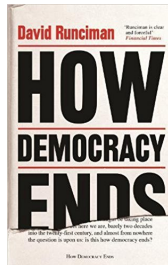
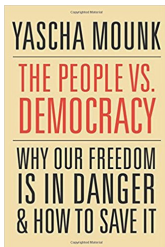
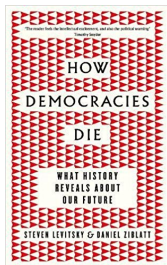
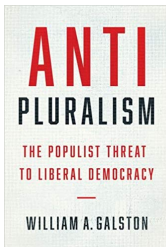
What's The Point?

- IEEE: “Advancing Technology for Humanity”
- What does that even mean?
 - Aristotle: human flourishing (eudaimonia)
 - Weil: the need for roots
 - Ober: how do we live together, better?
- What is the role of “advancing technology” . . .

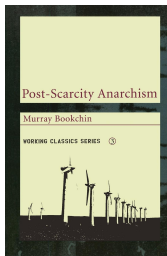
...In Getting From This ...



...to this? – Democratic Backsliding

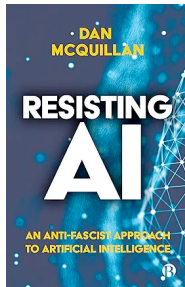
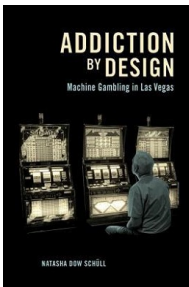
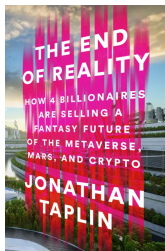
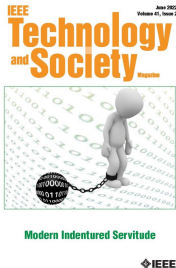
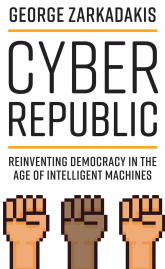
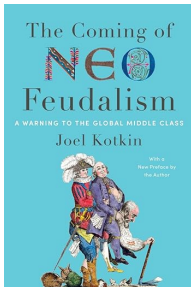


And In Getting From This...



- “Post-scarcity means fundamentally more than a mere abundance of the means of life, it decidedly includes the kind of life these means support . . . Post-scarcity society, in short, is the fulfilment of the social and cultural potentialities latent in a technology of abundance . . .⁴ that is capable of providing for the first time in history the material basis for liberation.”
 - Murray Bookchin. *Post-Scarcity Anarchism*, AK Press, 2004 [p. iv-v].

...To This? – Post-Scarcity Autarchy

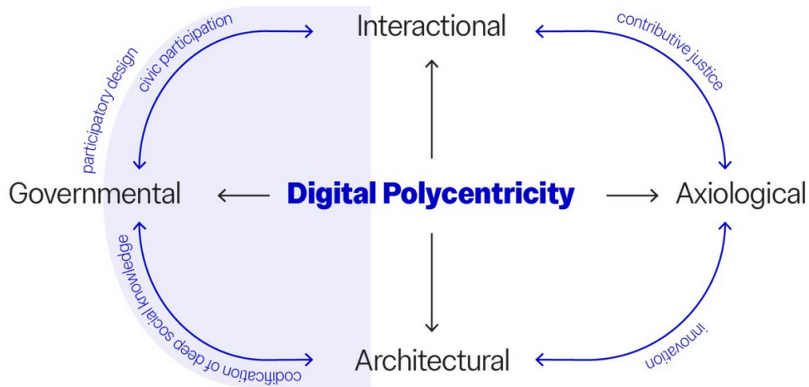


- Democratic backsliding – Bermeo
 - In which political institutions guaranteeing democratic processes and accountability are gradually hollowed out
- Post-scarcity Autarchy
 - Government with complete control
- Diagnosis: **inequitable distribution of power**
 - How did we get “stuck” with hierarchical social arrangements, when it is far from inevitable (Graeber/Wengrow)
 - How do we get “unstuck”?

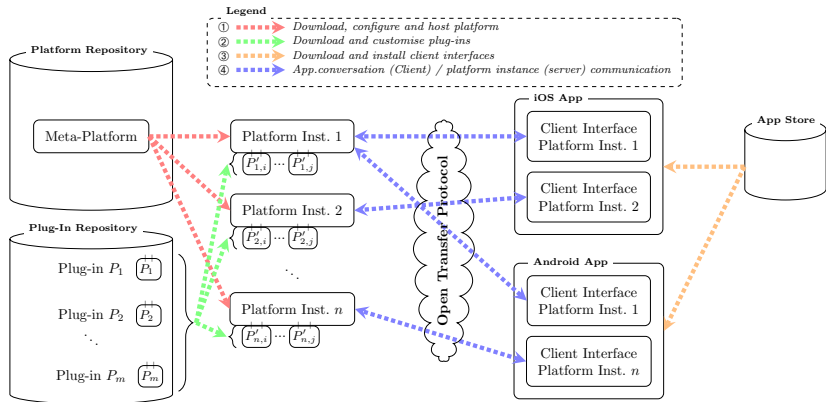
Power, Empowerment and Re-Empowerment

- What is “power”? (or “domination”?)
- Empowerment: reasoning in five cognitive dimensions
 - Self-determination
 - Competence
 - Influence
 - Knowledge
 - Meaning
- The Architecture of Re-Empowerment
 - Value-sensitive operationalisation
 - Ethical platformisation
 - Codification of deep social knowledge
 - Socially-guided Machine Learning

Value-Sensitive Operationalisation (Smit)



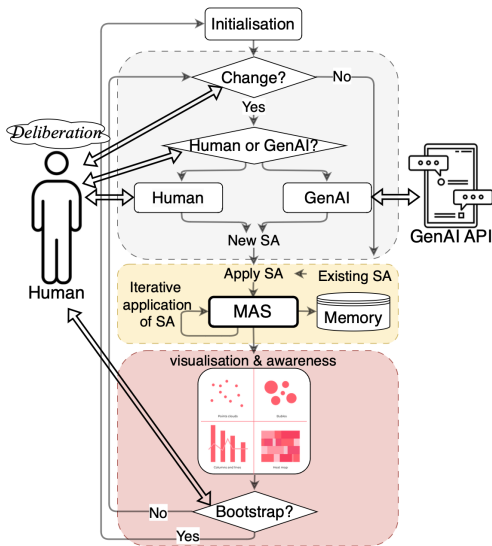
Ethical Platformisation (Scott)



Codification of Deep Social Knowledge

- Rules of Order (Roberts)
- Self-Governing Institutions (Ostrom) (Lecture 2)
- Fair Resource Allocation (Rescher) (Lecture 3)
- Knowledge Management Processes (Ober) (Lecture 4)
- Avoidance of Tyranny (Ober: Basic Democracy) (Lecture 5)
- Relevant Expertise Aggregation (Aristotle via Ober)
- Social Influence (Nowak) (Lecture 6)
- Consensus Formation (Ober/Canevaro) (Lecture 8)
- Community Complexity (Rychwalska)

Socially-Guided Machine Learning Framework

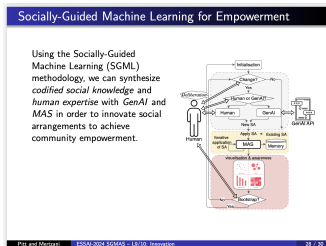


Social Implications of The 'Architecture of Re-Empowerment'

How can we use it solve societal problems?



Innovation Support for Mitigating Societal Problems Recap...



Examples of use:

- mitigate wicked problems
- increase community cohesion
- alleviate existing asymmetries in the distribution of power

Social Implication - Wicked Problems

Reminder: “Wicked problems is a class of social problems whose defining characteristics include **no obvious terminating condition**, **no right or wrong solution**, and **no learning by trial and error**”.

Using the SGML methodology for innovation support, users can engage with the system to:

- collaboratively generate new SA with genAI
- visualise the outcomes of applying these new arrangements iteratively to the MAS
- assess both short-term and long-term implications
- co-create with the system new, more appropriate solutions for dealing with problems and adapting to the circumstances

Overall, the SGML offers an opportunity for more **adaptive**, **creative**, **responsible** and **fit-for-purpose** solutions.

“Community cohesion is concerned with the extent to which the socially constructed rules promote **coherence**, **affinity** and **collective action**.”

The SGML methodology for innovation support can **facilitate democratic processes of deliberation** in the following ways:

- by bringing together multiple users to collectively determine their SAs
- by helping them evaluate those SAs
- by facilitating their decision making with regards to the choice of SAs

Overall, the SGML could support the **self-organisation** of affinity groups, which are groups of friends who are equally concerned with their **human relationships** and **power dynamics**, and their **social goals** of collective action and public interest.

Social Implication - Distribution of Power

Humans can benefit from the co-production with AI, but they are also exposed to some systemic risks that threaten sustainability, including algorithmic bias, unequal access and benefits, and cascading failures.

The SGML methodology can be a step towards alleviating the inequalities and inequity in the distribution of power by:

- increasing public awareness of the asymmetry in the distribution of power
- democratising technology and enabling individuals to benefit from AI technology

Overall, the SGML can help humans **identify existing asymmetries, envision the impact** of different SAs to the **power dynamics, modify** those SAs either alone or supported by genAI, and **evaluate** which of those **help mitigating those asymmetries**.

- citizen assemblies
- conflict resolution (international conflicts)
- democratic-deficit training (intra and inter national)

- analyse issues of power, empowerment and re-empowerment
- introduce four pillars (i.e. Value Sensitive Design, Ethical Platformisation, Codification of Deep Social Knowledge and Socially Guided Machine Learning) of the the Architecture Re-Empowerment
- discuss relevant societal implications