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(Tutorial Abstract)**

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# Ethics in Self-\* Sociotechnical Systems

(Tutorial Abstract)

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## DESCRIPTION

The surprising capabilities demonstrated by AI technologies overlaid on detailed data and fine-grained control give cause for concern that agents can wield enormous power over human welfare, drawing increasing attention to ethics in AI.

Ethics is inherently a multiagent concern—an amalgam of (1) one party's concern for another and (2) a notion of justice. To capture the multiagent conception, this tutorial introduces ethics as a sociotechnical construct. Specifically, in this tutorial, we demonstrate how ethics can be modeled and analyzed, and requirements on ethics (value preferences) can be elicited, in an *self-\* sociotechnical system* (STS). An STS comprises of autonomous social entities (*principals*, i.e., people and organizations), and technical entities (*agents*, who help principals), and resources (e.g., data, services, sensors, and actuators).

This tutorial includes three key elements. (1) Specifying a decentralized STS, representing *ethical postures* of individual agents as well as the systemic (STS level) ethical posture. (2) Reasoning about ethics, including how individual agents can select actions that align with the ethical postures of all concerned principals. (3) Eliciting value preferences (which capture ethical requirements) of stakeholders using a value-based negotiation technique.

We build upon our earlier tutorials (e.g., at AAMAS 2020) on engineering ethics in sociotechnical systems. However, we extend the previous tutorials substantially, including ideas on ethics and values applied to self-\* sociotechnical systems. Attendees will learn the theoretical foundations as well as how to apply those foundations to systematically engineer an ethical STS.

## MOTIVATION FOR ACSOS

There has been an increasing interest in Ethics and AI in recent years and rightly so. Self-\* sociotechnical systems have been key topics of interests in the AI and autonomic computing literature. In this tutorial, we will demonstrate that multiagent systems research has much to offer in making autonomic computing systems ethical, not just at a single-agent level but at a societal level.

We bring together the latest research including theoretical underpinnings and practical approaches valuable to both re-

searchers and practitioners. However, realizing the full potential of multiagent systems for supporting ethics in autonomic computing systems requires educating a new generation of students and researchers in the relevant concepts. Our tutorial intends to do so with the following objectives.

- Motivate and explain a topic of emerging importance for autonomic and self-\* systems.
- Introduce novices to major topics within autonomic and self-\* systems.
- Introduce expert non-specialists to a subarea of autonomic and self-\* systems research.

The presenters' selected publications, closely-related to the tutorial topic, are listed in the references. The material related to the tutorial including the slides are made available on the tutorial website: <https://sites.google.com/view/ai-ethics/tutorials/acsos-2020>.

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