

# AI/nthropology

*Keywords: interdisciplinary research methods, data collection, explainability, large-scale data, cultural bias*

## Extended Abstract

In this paper, we propose a framework and overview outlining how anthropologists and computer scientists can work together, and how interdisciplinary approaches that include qualitative and quantitative methods can lead to technological innovations that take cultural context into consideration. We propose an interdisciplinary research pipeline addressing specific topic areas where anthropological considerations and insights can lead to the building of better informed, more culturally sensitive, and therefore more robust models of Artificial Intelligence (AI). But we also propose to anthropologists to consider the use of AI for larger cultural pattern detection and offer areas and examples from our own work where anthropology can benefit from the power of AI and big data analytics beyond conceptualizations of the digital realm as a field site.

*Anthropology for AI.* While much recent anthropological work on AI/ML has focused on justifiably critiquing the development and use of algorithms in various social domains (Seaver, 2017; Christin, 2020), aka ‘social impact’, we see an important extension of this work as the contribution of anthropology to *improving* AI systems so that they better meet the needs of humans embedded in diverse cultures. Critique is vital, but why stop there? We are not convinced that AI is irredeemable, hopelessly biased, unethical and should be abandoned; we rather see opportunities for using AI for advancing the cause of justice, equity and even emancipation, provided it is developed and used with the interpretive and qualitative knowledge that anthropology is uniquely positioned to provide. But to build better models, engineers ought to consider the domain expertise of social and cultural scholars along various points of the development process. We link those areas to specific ‘stages’ in the ML process from beginning to end and identify 10 domains where anthropologists should be included to form a socio-technological partnership, we call “Anthropology for AI”. These domains are: 1. Intentionality & Social Context (considerations of cultural contexts and social structures that should inform tech development or are impacted by it), 2. Ethical and Social Impact (considerations of non-Western assumptions regarding privacy, transparency, safety, and fairness) 3. Data Construction and Annotations (questions around representation of viewpoints), 4. Social Theories (how existing social theories can be used to inform technological solutions to social problems), 5. Anthropology-Machine Collaboration (anthropologically informed quality control of supervised ML), 6. Explanations and Explications (bridge formalist ethnoscience and interpretative thick descriptions), 7. Data Interpretation (re-contextualizations of ML outcomes into culturally

situated realities), 8. Applying algorithms “in the wild” (usability, impact and acceptance of technology) 9. Policies, Regulation and Local Law (questions around culturally distinct formal and informal norms and rules), 10. Control and Autonomy (questions related to power and control in nation-states, and systems of government) (Figure 1). Using *data construction* as one example to describe the relevance of anthropology for AI: anthropologists can advise the curation, sampling and collection of datasets that are true representations of a target population’s perception. This may involve understanding formal and informal communication pathways, social hierarchies, acceptable norms and practices of communication, specialized jargon, etc. to construct an accurate representation of the diversity of values, viewpoints and knowledge for a particular model. Moving away from big data, anthropology and related fields can provide insights for *how* to collect data for smaller scale models (e.g., dialect, low-resource languages, oral traditions, etc.), instead of scraping digital data via Western technological means.

*AI for Anthropology.* In the second part of this paper, we highlight opportunities for Anthropology to make use of ML to advance the field and current knowledge base, specifically addressing how ML can help overcome pitfalls like subjectivity, bias and historical anchoring. This is related but distinct from computational social science, as it refers to the use of AI as a method for inductive reasoning to diagnose (Abebe, 2020) and describe specific cultural phenomena, complementing or strengthening the discipline or perhaps form a new discipline, such as ‘Machine Anthropology’ (see Special Issue Big Data & Society) or AI/anthropology. We propose 5 areas where anthropologists could tap into the potential of AI as an analytic tool for both big and thick data, and to help address the struggles of anthropology as a discipline concerned with influencing the object of inquiry: 1. Cultural Patterns & Implicit Bias (use of AI to identify large-scale patterns and quantification of implicit biases as means to understand culture), 2. Theory Formation (use of AI to gain new insights and form theories based on local data via induction and inclusion of local viewpoints), 3. Cross-Cultural Comparisons (AI’s scaling capabilities that are usually time intensive, or subject to Western bias, e.g. polling), 4. Social Complexities (Modeling capabilities to describe complex social structures, historically limited) and 5. Reproducibility and Objectivity (addressing Anthropology’s subjectivity problem, allowing for dialectic between close and distant reading, and stronger objectivity by including diversity of viewpoints) (Figure 2.)

## References

- <sup>1</sup> Seaver, N. (2017). Algorithms as culture: Some tactics for the ethnography of algorithmic systems. *Big data & society*, 4(2), 2053951717738104.
- <sup>1</sup> Christin, A. (2020). The ethnographer and the algorithm: beyond the black box. *Theory and Society*, 49(5-6), 897-918.
- <sup>1</sup> Abebe, R., Barocas, S., Kleinberg, J., Levy, K., Raghavan, M., & Robinson, D. G. (2020, January). Roles for computing in social change. In *Proceedings of the 2020 conference on fairness, accountability, and transparency* (pp. 252-260).

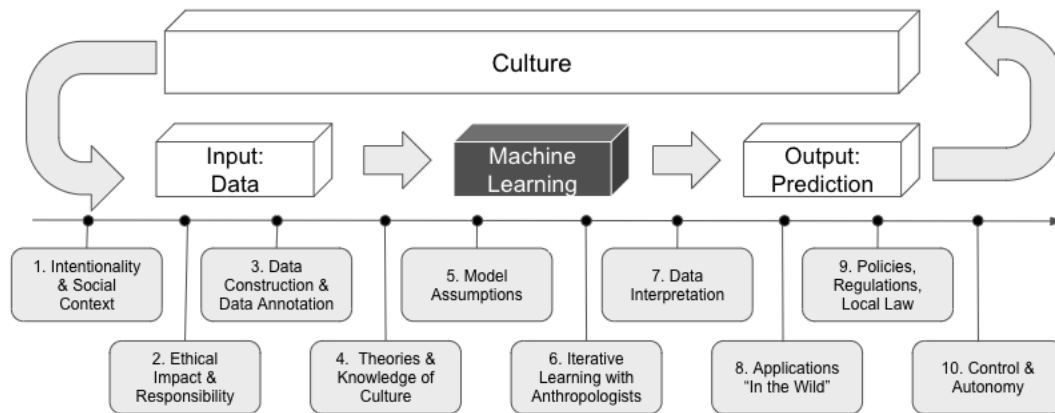


Figure 1. Anthropology for AI Research Pipeline and Domain Considerations

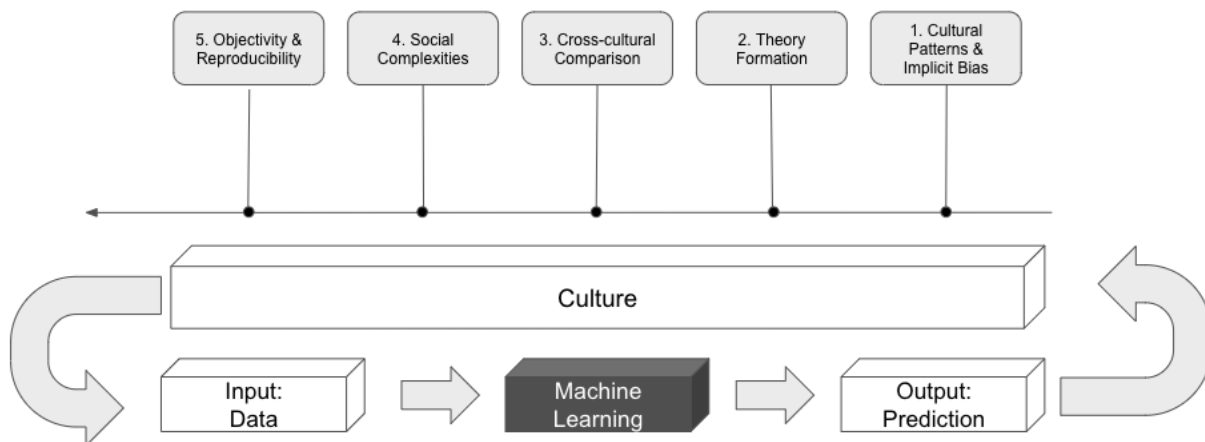


Figure 2. AI for Anthropology Research Considerations