What are you and I?
anthropological physics fundamentals

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This is a report on the concept of *anthropological physics*. Further efforts should contextualize, develop and correct theoretical nuances. The sharing of this naive text is a convenient step to the collective maturing and research.

A single dramatic incident involving a breach of privacy could produce a set of statutes, rules, and prohibitions that could strangle the nascent field of computational social science in its crib. What is necessary, now, is to produce a self-regulatory regime of procedures, technologies, and rules that reduce this risk but preserve most of the research potential.

David Lazer, Alex (Sandy) Pentland, Lada Adamic, Sinan Aral, Albert Laszlo Barabasi, Devon Brewer, Nicholas Christakis, Noshir Contractor, James Fowler, Myron Gutmann, Tony Jebara, Gary King, Michael Macy, Deb Roy, and Marshall Van Alstyne [1]

What

The study of complex systems can be undertaken as a physics endeavor, specially if complex networks and statistics are into play. When the complex system is constituted by people, intriguing questions arise from diverse fields such as math, ethics, and sociology. The "anthropological physics" is an approach to these scenarios that enables scientific research while resolving ethical and moral issues by an open study of the self. It yields a transdisciplinary practice whose relevance emanate from anthropological and physical matters, from human constituted systems and natural laws.

How

If I annotate what I have been doing and what is happening in my environment, I might be able to use the annotations for my studies. Indeed, writing diaries is a common ethnographic technique, used often in scientific research. Thereafter, it might be reasonable to use my own annotations, be them in paper diaries or digital media [2]. It is also reasonable that if a partner wants to use his annotations, or wants me to use them, that they be used. There are some initiatives that receive this kind of data, again evoking ethical and moral issues. A sweet spot was found in recent civil,

government and academic efforts [3, 4], and has been called anthropological physics. General characteristics are:

- Exposure of the researcher to the environment of interest, such as virtual social networks.
- Use of the annotations from the exposure, be them activity logs, friendship or interaction networks, textual contents, etc.
- Upon need, expansion of observations to encompass open datasets or data donated by partners.
- Observance of natural laws as they appear in network structures and natural language.
- All resources are kept as open and publicized as possible, including software, data, and writings.

This framework enabled endeavors using Facebook, Twitter, email lists, and alternative social platforms [5, 6, 7, 8, 3], while maintaining ethical agreement among communities and researchers.

With

The open aspect of anthropological physics eased technological support, of which are noteworthy:

- Linked data/semantic web and other open standards for data. As data is being used by research, if it is not considered invasive, it might be published as RDF triples and related to OWL ontologies [9, 10, 3].
- Resource exploitation for the individual by complex networks and natural language criteria. This is envisioned as highly serviceable to individuals and collectives, and as a linked data navigation enhancement [11, 12].
- Extensive use of Free, Libre and Open Source Software (FLOSS). This helps results and procedures to be shared by means of immediate access to the tools, versions, and underlying algorithms.
- Social structures streaming. Real-time exposure of our networks is called upon for transparency of public events [6].

When

Application of anthropological physics gives place in everyday research worldwide. The explicit (spoken) use of the concept has been observed in Brazilian academic circuits since Feb/2013, with contributions by physicists,

computational scientists, anthropologists, social scientists and philosophers. Even so, this text is the first written document for discussion. Feedback should yield significant changes to this content. The academic community is presenting articulations that support further maturing of the topic [13].

Current efforts are oriented to: presenting a coherent semantic web legacy of participative data as journal articles [3]; implementing resource exploitation techniques for the individual [12]; implementing visualization facilities for sharing useful insights and report [6, 14].

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