Percolate: an anthropological physics platform for social harnessing

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Draft

Percolate is a python package for harnessing the social networks of the user. It is based on the pilars of: analysis, social percolation, creation of audiovisual artifacts, resource recommendation, and typologies. The fields of complex networks and linked data give scientific support for the exploitation of the integrated (virtual) social space.

complex networks | software toolbox | anthropological physics

Abbreviations: RDF, resource description framework; BoW, bag of words; PyPI, python package index

Introduction

Results

Packages.

Gmane

The Gmane package is dedicated to exploring the Gmane database of email lists. Core functionalities are:

- Download email messages from Gmane database.
- Load messages and make basic data structures.
- Make interaction networks.
- Take measures from interaction network.
- Make PCA from measures, with observance of each component formation.
- Observe Erdös sectors in the networks (see appendix).
- Histograms and circular statistics for time activity.
- Histograms for user activity.
- Facilities for network evolution of fixed window size, such as plotting timeline of measures and making video of the evolving network through Versinus [?].

Participation

The participation package is dedicated to exploring social participation data. Core features are:

- Access to a starting set of participatory data (see appendix).
- Data integration through linked data principles (RDF data, OWL ontologies).
- Access to routines of participatory data translation from PostgreSQL, MySQL and MongoDB to RDF (triplification).
- Access to routines for delivering participatory OWL ontologies.
- Routines to raise ontology from data, return OWL code and images.
- Analysis of participatory data through complex networks and text mining.
- Resource recommendation, with explicit routines and potential uses.
- Bootstrapping the basic structure of ontologies to HTML.
- Simplest web server to give HTTP access to data and methods.

Social

The social package delivers routines for usual social network data, such as Facebook, Twitter, LinkedIn and IRC. Core features are:

- Screen scrapping of Facebook data.
- Twitter search and streaming through multiple APP keys.
- Parsing IRC logs.
- Access data from LinkedIn (ToDo).

MASS

MASS is music and audio in sample sequences. Core features are:

- Synthesis routines for notes and noises.
- Calculations in 64 bit floating point.
- Parameters updated each PCM sample.
- Exact handle of duration, frequency measurements.
- ADSR envelopes.
- Table lookup.
- Four basic waveforms (sine, saw, square and triangle).
- Tremolo and vibrato implementations.
- Musical and DSP methods implemented according to [?].
- Predefined synthesis methods for other packages (Gmane, Social, Participation).

Percolate

Percolate unites Gmane, Participation, Social and MASS packages to enable anthropological physics experiments and social harnessing. Core features are:

- Enable percolator processes in social systems.
- Enable knowledge about the networked self.
- Make abstract animations from social data.
- Verification of expected stability and differentiation on the social structures.
- Directions for agents and networks typologies, extending features from Gmane package.
- Integrated resource recommendation, extending facilities from the Participation package.
- Generation of activity reports.

Real Data.

Reserved for Publication Footnotes

Current outcomes.

Discussion

Materials and Methods

Appendix: Erdös sectors

Definition 1. *The Erdös Sectors S of the network N are defined as the three sectors provenient from the comperrisson of N to an Erdös-Renyi network with the same number of nodes and adges.*

$$equations \tag{1}$$

Appendix: Data and ontologies on the participation package

Data: Participa.br, AA, Cidade Democrtica

Routines for data triplification: Participa.br, AA, Cidade Democrtica

Ontologies: OPa, OPS, OBS, VBS, OCD, Ontologiaa (old OPA?).

Routines for raising ontologies: OPa, OPS, OBS, VBS, OCD, Ontologiaa

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