Call for participation in a two-days workshop on "Cortext Platform"

Exploring Technoscience and "Expert" Knowledge through Computational Tools

A two-days workshop is organized and promoted by the Pa.S.T.I.S. Research Unit (*Padova Science, Technology & Innovation Studies,* FISPPA Department - University of Padova) to train in the use of computational tools for conducting social research on technoscience, with a special focus on the **Cortext Digital Platform** of IFRIS (*Institut Francilien Recherche, Innovation, Société*).

The two-days workshop will take place on **Thursday 2 and Wednesday 3, May 2017** at the FISPPA Department, Via Cesarotti 10/12, Padova.

The workshop comprises an introductory lecture, followed by seminars and practical activities, as well as group discussions, with the aim to offer an opportunity to learn about innovative methodological approaches for social research on technoscience.

The workshop, held in English, is open to researchers, Ph.D. and students who are conducting research, or preparing their thesis, with a specific interest in exploring technoscientific innovation process and the construction of "expert" knowledge (including Social Science and Humanities) via computational tools, such as data mining, machine learning, natural language processing, and network analysis.

Since the workshops are open to a maximum of 15 participants, a selection will be made by the organizers, based on a 200 words letter of motivation (in English) describing the main topic or current investigation, the adopted approach and relevance of the participation in the workshop to their research.

Interested people should send their letter of motivation to Stefano Crabu (email: stefano.crabu@unipd.it) by March 31, specifying name, email and affiliation. Participants are expected to attend the entire two-days workshop.

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Introductory Lecture (May 2, 2017 - H: 11:00)

Oncology's Metaknowledge Networks:
An Investigation of the Collective Dynamics of Bio-clinical Innovation

Jean-Philippe Cointet[a], Alberto Cambrosio[b] and Pascale Bourret[c]

[a]LISIS-INRA – France;
[b]McGill University – Canada;
[c]Aix-Marseille Université and UMR SESSTIM –France

This lecture will introduce our ongoing research project on the collective dynamics of clinical oncology research, and present a few preliminary results. Given the dominant position of oncology at the frontier of biomedical innovation, our project proposes to achieve a deep understanding of how oncology —its collective, distributed cognition and agency, its complex system of skills, technologies, entities, and claims— 'thinks', what it attends to and how it searches the space of possible diagnoses and treatments in pursuit of advance. To gain this understanding, we deploy a 'metaknowledge' approach that draws on digital archives and new computational tools to trace research teams and collaboration networks, investigative and clinical technologies, the myriad recombinant elements under investigation—tissues, cells, genes, proteins, biomarkers—and the changing landscape of institutions that hosts them. Specifically, we plan to use a combination of machine learning, natural language processing, and network analysis tools linked with qualitative and historical investigation of oncology's emergence and development. Together, these tools and data will allow us unprecedented, integrative insight into how oncology 'thinks', how it followed its particular path of innovation, and the possible consequences of that path for biomedical insight and human health.

Venue: Aula Seminari, Dip. FISPPA, Via Cesarotti 10/12, Padova

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Thematic Workshops (May 2nd and 3rd)
The Cortext Digital Platform

Jean-Philippe Cointet (LISIS-INRA – France)

The Cortext digital platform of IFRIS combines several scientific and technical expertise: the natural language processing, information retrieval, knowledge management, complex network analysis, scientometrics, web design and computer science. Digital platform of IFRIS, CorText has developed a software solution to meet the needs of researchers conducting empirical studies in the areas of social studies of science. The software platform allows the construction of datasets, analysis and data visualization. Software tools, designed and developed within the platform, are available via an open web application. **More info:** http://www.cortext.net/

Objectives of the Workshop #1
2 May 2017, H: 15:30, @Computer Lab

FAMILIARIZING WITH THE CORTEXT PLATFORM
- **The data collection**: data sources, interfaces and options;
- **The corpus**: *how to produce, upload and parse the corpus ?*
- **Exploring the corpus**: i) demography script to generate basic descriptive statistics about the structure and evolution of the main fields in your dataset; ii) Lexical Extraction script to automatically extract list of pertinent terms; iii) Named Entity Recognizer to detect named entities such as persons, organizations, locations, etc.

Objectives of the Workshop #2
2 May 2017, H: 10:00-13:30 / 15:30-19:00, @Computer Lab

ANALYSIS OF THE CORPUS, AND GRAPHIC VISUALIZATION
- **Period Detector** to longitudinally analyze the composition of data and to automatically detect structurally distinct periods;
- **Heterogeneous Networks Mapping** to perform homogeneous and heterogeneous network analysis and to produces intelligible representation of dynamics;
- **Contingency Matrix** to provide a direct visualization of existing correlations between distinct fields in your data.

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