

Axis 5 - Modeling and probabilistic models for security

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The positioning of the SDRT-I3C team is very particular: it is located at the moving border between several scientific fields: some fields of the world of engineering sciences, the other fields of the world of human and social sciences.

Since the first drafting of a plan of attack of the axis 5 of the nascent SDRT team, the Covid-19 crisis has occurred. It showed the humility that is essential in a major crisis for any modeling attempt (incomplete or distorted data, models unable to predict beyond a 7-day horizon). It highlighted the destructive power of the propagation of false news, which caused a very serious loss of confidence in Science and its proposals.

A conference on "Models of crisis, crisis of models" was held at the Cnam on October 27 on this subject.

Two lines of research are clearly relevant at the end of 2021:

The statistical management of missing data (such as degraded data in times of severe crisis, see the Covid-19 crisis) and the implementation of "degraded models" (the "least bad possible" given the available information),
The use of societal data (Open Data) and "GAFA" data (Google Trends, Twitter, etc.) to build robust and spatialized models, acceptable to insurers' actuaries for the financialization of reasonable size claims.

As other more distant axes we could mention :

The implementation of statistical causality in the human and social sciences,
Computer security on new industrial data sets. The European Commissioner Thierry Breton cites 3 sectors: industrial data, IoT, 5G,
The spread of hate on social networks,
The measurement and effects of misinformation "fake news".

<https://esd-en.cnam.fr/axis-5-modeling-and-probabilistic-models-for-security-1223779.kjsp?RH=1576512148977>