



Contribution ID: 250

Type: **oral**

Pattern Recognition by Humans and Machines

Thursday 23 October 2014 11:40 (20 minutes)

Data visualisation is centered on new ways of processing and displaying large data sets to support pattern recognition by humans rather than by machines. The motivation for approaches based on data visualisation is to encourage data exploration and curiosity by analysts. They should help formulating the right question more than addressing specific predefined issues or expectations. Translated into IAEA's terms, they should help verify the completeness of information declared to the IAEA more than their correctness.

Data visualisation contrasts with traditional information retrieval where one needs first to formulate a query in order to get to a narrow slice of data. Using traditional information retrieval, no one knows what is missed out. The system may fail to recall relevant data due to the way the query was formulated, or the query itself may not be the most relevant one to be asked in the first place.

Examples of data visualisations relevant to safeguards will be illustrated, including new approaches for the review of surveillance images and for trade analysis. Common to these examples is the attempt to enlarge the view of the analyst on a universe of data, where context or detailed data is presented on-demand and by levels of abstraction.

The paper will make reference to ongoing research and to enabling information technologies.

Country or International Organization

European Commission, Joint Research Centre

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Session Classification: Technical Aspects of Information Collection and Analysis