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| Human-centered visual predictive analytics  **Emmanouil Adamakis** 1#  1 Human Computer Interaction Lab, Institute of Computer Science, Foundation for Research and Technology Hellas  # Presenting author: Emmanouil Adamakis, email: madamakis@ics.forth.gr |

abstract

In today's data-driven world, data interchange plays a pivotal role in our daily lives. Every digital transaction, from the simplest to the most complex, requires data exchange between the parties involved. From individuals and small businesses to large corporations, organizations, and governments all store, process and exchange data. With the emergence of the Big Data era, numerous opportunities yielded with respect of data analysis and information process for providing insights, but also new caveats and challenges entailed due to the five characteristics of Big Data (5Vs): volume, value, variety, velocity, and veracity.

Visual analytics is a research area that focuses on offering efficient and transparent methods of processing, visualizing, and analyzing large volumes of data so that analysts may better understand them and extract insights that could support data-driven decision making. Visual predictive analytics is the natural evolution of visual analytics assimilating a wide range of stochastic methods, contemporary analysis approaches as well as modern information acquisition techniques (e.g. statistical modelling, machine learning, data mining, etc). The main objective of visual predictive analytics is to leverage all the phases of the big data analysis lifecycle, such as data cleaning, diagnostics, exploratory analysis, feature selection, and incremental learning towards assisting users in finding patterns in the data and eventually validating their hypotheses or predicting new ones.

Despite increasing levels of automation through the use of AI-powered systems, the human is the leading actor in these systems. The long-term success of AI is dependent on our recognition that people are critical in its design, operation, and use. A human-centered approach to AI-powered systems design necessitates the active participation of end-users and stakeholders in the design process, incorporating multidisciplinary teams and supporting the active collaboration of UX specialists with AI practitioners. Explainable AI, active human involvement in refining AI algorithms through training and feedback, and AI UX design is highlighted as major goals. The human in the loop concept, as well as the use of visual predictive analytics, are some of the essential foundations in developing human-centered AI in this context.

Our proposed methodology for dealing with the aspects mentioned above pursues the development of a methodological framework to facilitate human-centered Visual Predictive Analytics. To that end, we believe that the suggested framework will enhance human abilities along with maintaining control over AI by ensuring that it meets users’ needs as well as operating transparently, thus allowing users to gain new insights, while respecting privacy and ethics.