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Serious Game Experimentation for Measuring Trust

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With a deluge of data in this Big Data era, finding out a signal among the background of noise represents a challenge. It is almost impossible to be an expert in many subject matters needed to make rational judgments on an appealing pattern, so we rely on trust. While statistical methods help in finding correlations among data, the question is whether the data itself and/or the persons behind the data could be trusted. This kind of conflict manifests itself in the public debate of Climate Change, for example. In social systems, trust forms a foundation for social interactions. Resultant social network and interaction patterns could reveal the level of trust among social actors. In economics and business, trust forms a basis for economic exchanges.

In this talk, we present our work on an experiment with human participants using a 3D High-Fidelity Graphics serious game in which we measured trust and the effect of an intervention on the trust level. The game has good enough visuals and gameplays to induce players to immerse themselves in the game world. The players in the game are divided into two teams and are tasked to perform a mission. The teams could choose to be competitive and achieve their own team goal or they could choose to collaborate and share truthful information to achieve a greater multi-team goal. Not sharing information could be advantageous for competitive team, as well as intentionally sharing misleading information. Sharing truthful information in a collaborative teamwork depends on the level of trust about the other team. We ran the game for 60 sessions and observed that the subsequent actions and communication of players after a distrust judgment diverge from those after a trust judgment. This shows the implicit trust or distrust have observable phenomena in the form of subsequent actions and communication instances. The network of trust relationships manifests itself as a social network. Trust was shown to have contexts or dimension, e.g., a player may trust another for a particular expertise or task but not for another.

With this result, an interesting avenue opens up to extend the trust measurement using 3D serious game. Future work will use this trust measurement framework to evaluate disaster response scenarios and public policy design. Our trust measurement approach could also be useful to evaluate the analytics and the data in the Big Data deluge.

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