M2R project

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Modelling the influence of cognitive and affective biases on reasoning

Cognitive and affective biases are reasoning mechanisms used by the brain as shortcuts to make faster decisions, in particular in emergency situations, or when the available information is partial or uncertain. They allow to gain time but can also lead to wrong or inaccurate decisions. These biases have been widely studied in psychology or economy for instance, and many lists have been designed, but they are not necessarily exhaustive nor consistent with each other.

Expected work:

- State of the art about cognitive biases (Kahneman, etc)

- Study of our previous work about cognitive biases (identification of some bias in interviews of the population after bushfires)

- Choice of an application field: propagation of information in a network, emergency evacuation...

- Selection and modelling of some relevant biases in that field

- Implementation of a simulator with the GAMA platform

- Experimentations with several scenarios to observe the influence of cognitive biases

Bibliography:

- Daniel Kahneman. Thinking, Fast and Slow. Macmillan, October 2011.

- Judgement under uncertainty: heuristics and biases. Amos Tversky at al. Report of Oregon Research Institute for Office of Naval Research, Advanced Research Projects Agency. August 1973.

- Maël Arnaud, Carole Adam, Julie Dugdale. The role of cognitive biases in reactions to bushfires. ISCRAM 2017, Albi, France, May 2017.

Profile: computer science Master with an interest for social and human sciences, psychology. Good programming skills are necessary.

Supervision: Carole Adam (MAGMA, Grenoble Informatics Lab) and Martial Mermillod (Grenoble Psychology and Neuro-Cognition Lab).