Creative Social Systems

In this paper we present a computational approach based on the view that creativity is a social phenomenon and that any computational modelling of creativity needs to account for this. Research on computational creativity tends to implicitly assume that creativity is a process that takes place inside the head of a single person and, therefore, it can be emulated artificially by capturing the underlying mental processes in a computer program. Further, most computational models of creativity are evaluated based on how humans regard their output. In other words, the solution generated by a computer is evaluated by an external system (the human), whose assessment is kept unconnected from subsequent generative cycles. It follows from this view that creativeness is regarded as a property that can be recognised in an absolute way, without articulating a particular context.

In this paper we use both computational modelling of social systems and examples from real design solutions to support the notion that creativity is the emergent result of a system involving humans interacting with their environment, including their ideas and their judgements about those ideas. It is not a property solely contained within individuals, ideas or tangible solutions. We analyse the resemblance of creativity to other systemic social phenomena, such as *majority* or *dissent*, i.e., processes that need three or more interacting elements to take place. As such, we consider it insufficient to model isolated creative processes and propose to complement the modelling of creativity by integrating the generative and evaluative processes in models of individuals, societies and knowledge through an extension of the DIFI (Domain–Individual–Field–Interaction) model.

Computational simulations through a multi-agent system are provided as illustrative analogies of social systems where creative solutions are generated by design agents embedded in their context, which includes other agents and knowledge. Agents in this system are both generators and evaluators of solutions. This multi-agent system provides a laboratory to test these claims about social behavior and social effects. A range of situational processes are discussed that may determine the generation and evaluation of creative solutions. The link between creativity and innovation is also explored.

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