

Jonas Kuhn, “Intelligent systems in research on literature?”

Abstract: In the emerging field of Computational Literary Studies, the application of computational tools and models on literary texts is a defining element. Many approaches employ machine learning (ML) techniques to capture patterns in corpora. Under a popular notion of Artificial Intelligence, which equates AI to data-driven ML, any such study would count as an Intelligent Systems approach. Key challenges might be seen in developing generic data-driven models, applicable and adaptable across domains — natural sciences as much as social sciences and the humanities — and in scaling up the data volume that can be processed.

This general-problem-solving view of Intelligent Systems is undoubtedly productive for perfecting the induction of complex non-linear input/output functions on datasets of arbitrary provenance. However, I argue for an accompanying research agenda, which one might call a critically reflected Intelligent Systems approach. It is characterised by a continuous process of critical dissection of the modelling techniques applied to the object of study. The dissection should reveal for each substep in the workflow what nuances of the multifaceted notion of intelligence this step appeals to and how it relates to the guiding research questions. (A substep may be the use of a computational tool, an act of intellectual theorising or some combination.) For research aiming at a theoretical understanding of its subject, it is the outcome of this dissection that provides the main motivation for experimenting with AI components (much more than the scaled-up data volume): although each component model of intelligent behaviour is imperfect, it constitutes a tool in the researcher’s hands for systematically playing through some hypothesised chain of implications — using an experimental intelligent system (where each component’s reliability in the relevant context can be critically evaluated against theoretically grounded reference data).

To illustrate the methodological point I use conceivable text-analytical questions from the recently started "CAUTION" project with Janina Jacke (Göttingen) on Unreliable Narration: certain indicators for a narrator being unreliable lie in language or narration style (for example exaggerations); to (approximately) capture such indicators, a data-driven model trained on a corpus of examples is promising. However, to systematically capture how contradictory implications of the narration lead the reader to conclude that the narrator is unreliable, it appears more effective (currently) to use symbolic knowledge representation and reasoning techniques. Here, the reflected application of a classical AI system may contribute to operationalising key narratological concepts. The two examples appeal to very distinct capabilities of intelligent agents.

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