

Copernicus: Towards a Computable, Generalized Model of Technical Emergence and Innovation

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Abstract

This presentation will describe the process followed in developing Copernicus, a platform for the systematic development and evaluation of “indicators” detecting emergent phenomena described in the scientific and technical literature, and relating those indicators to how emergence unfolds in the global scientific and technical community. We present our fundamental theoretical approach, which derives constructs and heuristics from evolutionary economics and complexity science. We then describe sample indicators which leverage new capabilities in topic modeling, network analytics, and sentiment analysis to reveal particular dynamics in the communities of practice which co-evolve with particular emergent concepts. We also provide a brief method used to evaluate the utility of different indicators, along with future directions for the application of advanced analytics to scientometric methods.