

Validating Emerging Topics in Science and Technology

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Abstract

In recent work, we presented a novel approach to identifying emerging topics in science and technology by combining information from two large-scale models of the literature. The approach was used to nominate 25 emerging topics for each year from 2007-2010. Validation of the results was done by searching for other types of evidence to corroborate that the topics are of current importance, such as awards to authors of most cited papers or recognition in the science press. Although the evidence gathered was substantial and provided an anecdotal validation that the nominated emerging topics formed a reasonable set, there was no way to prove that this was the best possible set of emerging topics. In particular, we have only looked at false positives (top topics that weren't emergent), not false negatives (emergent topics that weren't on our list). This study attempts to fill that gap. We identify emergent topics using lists of awards and recognition in the science press. We locate these topics in our two large-scale models of science, and determine why they were not nominated as emerging topics using our current approach. Results of the study will be used to tune the approach to do a more comprehensive and accurate job of nominating emerging topics.