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Title: Identifying Hot Information Security Topics Using LDA and Multivariate Mann-Kendall Test

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Abstract: Discovering promising research themes in a scientific domain by evaluating semantic information extracted from bibliometric databases represents a challenging task for Natural Language Processing (NLP). While existing NLP methods generally characterize the research topics using unique key terms, we take a step further by more accurately modeling the research themes as finite sets of key terms. The proposed approach involves two stages: identifying the research themes from paper metadata using LDA topic modeling; and, evaluation of research theme trends by employing a version of the Mann-Kendall test that is able to cope with multivariate time series of term occurrences. The results obtained by applying this general methodology to Information Security domain confirm its viability.

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