

Beauty and Brains: Detecting Anomalous Pattern Co-Occurrences

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Abstract

Our world is filled with both beautiful and brainy people, but how often does a Nobel Prize winner also wins a beauty pageant? Let us assume that someone who is both very beautiful and very smart is more rare than what we would expect from the combination of the number of beautiful and brainy people. Of course there will still always be some individuals that defy this stereotype; these beautiful brainy people are exactly the class of anomaly we focus on in this paper. They do not possess rare qualities, but it is the unexpected combination of factors that makes them stand out.

In this paper [1] we define the above described class of anomaly and propose a method to quickly identify them in transaction data. Further, as we take a pattern set based approach, our method readily explains why a transaction is anomalous. The effectiveness of our method is thoroughly verified with a wide range of experiments on both real world and synthetic data.

References

- [1] R. Bertens, J. Vreeken, and A. Siebes. Beauty and brains: Detecting anomalous pattern co-occurrences. In *SDM (in review)*, 2016.

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