

# **A Pilot Investigation into Measuring the Gap between Restaurant Industry Interests and Academic Research using Natural Language Processing**

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## **Introduction**

There is a vast gap between the interests of the restaurant industry and the research performed in academia (Arendt et al., 2012; Baum, 2019; Elnasr, Sobaih & Jones, 2015; King, Funk, & Wilkins, 2011). This gap has resulted in an especially ineffective relationship, where the findings from academic research rarely translate to or are used in practice. This situation leaves the restaurant industry without practical solutions to some of their most pressing problems and leaves academics isolated in their ivory tower, working on irrelevant issues and asking irrelevant questions.

The first step in bridging this gap and increasing the effectiveness of Hospitality research for the industry is to understand the nature of the disconnect. Prior work investigating this problem has suffered from numerous shortcomings: first, it is mostly qualitative; second, it relies on data that is out of date, sorely lagging the state of the industry; and third, it suffers from the biases introduced by specific investigators' goals and interests. In this work in progress, latest methods from natural language processing (NLP), a subfield of artificial intelligence (AI) focused on automatic, machine understanding of human language are being applied to measure the gap between the restaurant industry and academic restaurant research precisely, in real-time, and objectively.

## **Methodology**

To establish a baseline characterization of the gap, powerful NLP concepts like Keyphrase Analysis, Topic Modelling, Word Embeddings, and Similarity Assessment will be used. Additionally, how the discussion topics vary over time, in both industry and academia will be

analyzed. Furthermore, topics that are trending in a particular time frame will be assessed and tracked. Data analysis involves five key steps:

1. Extracting data from two sources in order to gauge industry and academic research trends;
2. five years (2011-2015) of records (1,700+) of US foodservice news pertinent from the National Restaurant Association's SmartBrief email archive, and (ii) five years (2011-2015) of peer-reviewed foodservice research publications from high ranking academic journals.
3. Cleaning and preprocessing the raw data to extract relevant meaningful data.
4. Data Stemming and Lemmatization to convert word forms to their stem form and linguistically valid lemmas.
5. Conversion of text into word count vectors to reflect the importance of a word to a document in the collected corpus.
6. Applying Topic Modelling on data to gather a sense of topics covered by these articles, and thus, enhance understanding of the issues being discussed in a broader perspective.

## Implications

Proven NLP techniques will be applied to measure the industry-academia gap, pointing the way for future research directions both in hospitality and tourism, and also potentially leading to new AI techniques for concept detection and tracking. This novel application of computer science to the problems of tourism and hospitality will form a foundation on which the research team can build a dramatically more effective research program.

## References

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