



Enhancing Machine Learning and Natural Language Processing to better understand consumer feedback

ABOUT THE COMPANY

Kansas City-based Service Management Group (SMG) partners with nearly 500 brands across various industries with the goal of helping them get smarter about their customers by providing best-in-class Experience Management Software.

BACKGROUND

SMG uses a Natural Language Processing (NLP) engine to prepare all customer input data before being fed into the text analytics platform, ensuring that analysis is only performed on clean, organized data.

SMG processes customer surveys and comments and provides feedback to their clients in two primary ways:

- Case Management (e.g. “my hamburger was burnt”)
- Text Analytics
- Comparative analysis measuring the success of new products
- Evaluating relative success of products and ranking against competitors based on online consumer reviews

CHALLENGE

To stay competitive, SMG needed to strengthen its systems to provide clients more robust analysis of consumer feedback. SMG’s Machine Learning (ML) and NLP functionality needed to be improved to better train the model, develop non-English normalization and associate words of emotion to defined categories.

SOLUTION

27Global operationalized the ML model by:

- Automating the continued training of the ML model as new data is ingested
- Enabling data output from one model to be immediately moved to another model
- Developing non-English normalization to “map” non-English words to their equivalent in other languages
- Enhancing the model to associate words of emotion into categorical groupings
- Words of similar meaning are categorized into groups; each group of words is mapped to a root word
- A root word library was built out (Ex - “Him” and “His” map to the root word “He”)

With these improvements, SMG clients can better analyze text provided by customers about products and services.

RESULTS

SMG now has an enhanced ML model that better recognizes and associates words of emotions and performs word categorization into appropriate groupings. Additionally, improvements were implemented to automate the translation and association of multi-language text to their English equivalents when analyzing customer reviews written in non-English languages, including Spanish, French, German, Chinese Mandarin, Arabic, Russian, Japanese, Portuguese and Hindi.

Additional opportunities for improvement beyond the initial project scope was identified and implemented, including:

- Logging of data
- Version control on models
- Storing dictionary of English and non-English words
- Packaging the ML model for future utilization elsewhere
- Code review/cleanse

Through these solutions, 27Global helped SMG improve how they provide feedback to their clients on brand image and customer experience. These improvements aid in their mission of making human experiences the heart of every business.

“27Global established well-formed expectations from the beginning of the project, delivered within budget and on time. The consultants did an excellent job of communicating throughout the project, and we completely trust them as a partner with our hardest challenges.”

-Chris Atkinson, VP of Architecture & Analytics, SMG