

A WNS PERSPECTIVE

SUPPORT VECTOR MACHINE (SVM) – HELPING UNLOCK VALUE FROM BIG DATA



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'Connecting the dots' is on the mind of every business leader who is trying to navigate the enormous challenges that his business faces today. This also means that the focus invariably is on generating business friendly insights from massive volumes of multi-dimensional data. The way forward undeniably is to adopt sophisticated and automated methods of analysis as means to intelligently mine data. Machine learning with its propensity to analyze actions and use the resultant knowledge to devise ways to perform similar processes better, becomes an obvious choice for businesses looking to make sense of voluminous data.

In the form of Support Vector Machine (SVM), machine learning has its own group of supervised algorithms, which can be widely deployed for classification purposes across large data sets. What makes SVM extremely effective is its ability to model complex, real-world problems such as text and image classification, handwriting recognition and more. Further, the 'Kernel Trick' gives

SVM the flexibility to efficiently perform even non-linear classification.

The use cases of SVM span multiple industries and multiple functions. Let's look at some specific examples:

- **Social Media** – SVM has been internally deployed on social media data for tracking clear mentions of a brand and classifying the same against any one of the key brand metrics – e.g. Perceived Value, Loyalty and the likes. As social media data is representative of unstructured data and presents challenges in terms of context setting, lack of uniformity and sarcasm, SVM's ability to accurately and cost-effectively classify (in this case - expressed customer impression under the relevant brand metric) makes a strong case for its increased adoption in numerous scenarios.
- **Theme Generation Using Social Data** - The algorithm is capable of accurately mapping social mentions to pre-defined categories relevant to an industry,

for instance travel and hospitality, which can help identify the key themes being discussed across social media vis-à-vis the product / service offerings of a company. There is a plethora of social impressions across platforms such as Twitter, Facebook and YouTube, which signify the true Voice of Customer (VoC). However, they present the twin challenges of lack of structure and massive volumes generated virtually on a continuous basis. Thus SVM's ability to automatically and accurately classify the social conversations under relevant business categories can help companies focus on service areas that warrant immediate attention. This can be effectively used by, say for instance, E&U companies that have an underlying responsibility in the form of statutory obligations to ensure timely support to vulnerable customers (comprising of old pensioners, disabled and those who are chronically sick). SVMs can help in automating classification of e-mails from such set of customers which can



be then routed to specialist complaint handlers responsible for managing the vulnerable segment. This helps reduce turnaround times, and enables timely and effective resolution.

- **Opinion Mining** - It is the computational study of people's attitudes, opinions and intended emotional communication towards issues, service levels, companies or individuals. SVMs have been used for classifying the polarity of a given text at the document or sentence level as positive, negative, or neutral. The polarity of the sentiment expressed can be an important basis for formulating corrective strategies which can eventually help a company improve its NPS

or CSAT scores. For example, the insurance industry can leverage SVM to undertake sentiment analysis for new products, thereby generating valuable insights into 'user-experience' for newly launched policies. SVM-based machine learning models for sentiment analysis can help accurately predict the polarity of the sentiment embedded in such social conversations.

SVM can also be applied to create 'Response Models' in direct marketing where intelligent identification of prospects is required. Response modeling helps in predicting which customers / prospects would have a high likelihood of responding favorably

to the campaign. SVM on account of its theoretical soundness and practical performance could help generalize better than conventional models.

The application of machine learning is increasing by the day, with the scope ranging from complex business problems to environmental challenges. Within machine learning, SVM tends to work exceedingly well with data that is multi-attributable and that needs to be classified for better business contextualization. And given how cost effective and accurate SVM is, it is fast emerging as an inevitable business choice for enterprises that seek to effectively mine their data.

About WNS

WNS (Holdings) Limited (NYSE: WNS) is a leading global Business Process Management (BPM) company. WNS offers business value to 200+ global clients by combining operational excellence with deep domain expertise in key industry verticals, including banking and financial services, consulting and professional services, healthcare, insurance, manufacturing, media and entertainment, retail & consumer packaged goods, telecom and diversified businesses, shipping and logistics, travel and leisure, and utilities. WNS delivers an entire spectrum of business process management services such as customer care, finance and accounting, human resource solutions, research and analytics, technology solutions, and industry-specific back-office and front-office processes. WNS has delivery centers world-wide, including China, Costa Rica, India, the Philippines, Poland, Romania, South Africa, Sri Lanka, Turkey, UK and US.



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