

Project Title: MetaConfigurator: A Resource-Effective Method to Develop Needs-Based Configurators for Product Customisation  
研究項目: MetaConfigurator: 以資源節約的方法來開發基於需求的產品配置系統  
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#### Abstract:

Product configurators are considered to be critical toolkits for customised product design and have been successfully implanted in various companies, such as Dell, BMW and Nike. Among the various versions of product configurators, needs-based systems are particularly useful to map customer needs in natural language directly to the targeted product configurations. Although needs-based configurators are more user-friendly and applicable in B2C environment, they are resource intensive to be implemented. A large amount of product relevant data such as customer needs are required to be collected, annotated, and processed to train the configuration model. Such approach is, moreover, limited to one product family and cannot be generalised to other products or even the updated product family. This restricts its wide application in practice.

This proposal will develop a MetaConfigurator framework to overcome these challenges. We will leverage natural language processing, deep learning and transfer learning techniques to interpret ambiguous and probably ill-defined customer needs sentences and map them to well-defined product configurations. Using the massive amount of product review data from e-commerce website, we firstly extract product related knowledge or features in a product category. Then, the generic knowledge is adapted to a specific product using a relatively small amount of customer needs data to build the product-specific needs-based configurator. Through this pretraining-then-finetuning process, a more user-friendly product configurator can be derived in a more efficient way.

