

Research on deep learning models using recurrent neural networks in the problem of text content extraction at the customer care department of Mobifone Thai Nguyen

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Abstract: This study proposes a deep learning model utilizing Recurrent Neural Networks (RNNs) for automatic text content extraction in the customer care department of Mobifone Thai Nguyen. Customer service interactions generate vast amounts of unstructured textual data, from which key information must be efficiently extracted to improve service quality and operational efficiency. Traditional keyword-based methods often fail to capture contextual dependencies and semantic nuances. To address this, we develop an RNN-based architecture, specifically employing Long Short-Term Memory (LSTM) networks, to model sequential dependencies in Vietnamese customer service dialogues and support tickets. The model is trained and evaluated on a proprietary dataset collected from Mobifone Thai Nguyen's customer care system. Experimental results demonstrate that the proposed deep learning approach significantly outperforms baseline machine learning methods in terms of precision, recall, and F1-score for extracting relevant content such as customer issues, requests, and resolutions. This research confirms the applicability of RNNs for Vietnamese text extraction tasks in a real-world telecommunications context, offering a practical solution for automating information processing and enhancing customer service management.

Keywords: deep learning, recurrent neural network, text content extraction, customer care