

Natural Language Generation using Machine Learning

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Abstract: *Natural Language Generation (NLG) is the subfield of Natural Language Processing (NLP) focused on producing human-like text from structured or unstructured data. Over the last decade, machine learning —especially deep learning — has transformed NLG, enabling models to generate coherent, context-aware, and stylistically varied text for tasks such as machine translation, summarization, dialogue systems, data-to text, and creative writing. This paper provides a comprehensive survey of NLG using machine learning: theoretical foundations, model architectures, training methodologies, datasets, evaluation metrics, applications, ethical concerns, open challenges, and directions for future research.*

Keywords: Natural Language Generation, Deep Learning, Transformer, Sequence-to-Sequence, Evaluation Metrics, Ethics, Pretrained Language Models

