Gaining Deeper Insights Into Thin Profile Donors via Attributed Graph Contrastive Learning

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Abstract

Marketers face challenges in understanding consumer preferences when data on attributes and transactional history are limited, as in the case of new businesses and nonprofit organizations. These challenges are heightened by growing privacy concerns and restrictions on third-party data. To address this, we propose the Attributed Graph Contrastive Learning (AGCL) framework, which leverages Graph Convolutional Networks (GCNs) to augment limited data by incorporating structural and attribute information from directly and indirectly connected consumers and products. Enhanced with contrastive self-supervised learning, AGCL captures key contextual connections, uncovering distinct latent segments otherwise unattainable from sparse data. Applied to real-world nonprofit data, AGCL produces comprehensive representations that enable actionable recommendations and improved engagement with thin-profile donors, demonstrating its utility in overcoming data sparsity while adhering to privacy-conscious practices.

Keywords**:** *Graph Representation Learning; Contrastive Learning; Thin-profile Donors.*

Track**:** *Public Sector and Non-Profit Marketing*