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Individuals, identities, and social networks: Using machine learning techniques to analyze how users identify with their social media networks

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Abstract

Empirical research on radicalization and polarization in social media networks has expanded rapidly. Studies on "echo chambers" and "filter bubbles" have shown that social media tend to gather users in like-minded social cliques that share common narratives and ideologies. Machine learning studies on social influence have also stressed how social influence online is dependent on both characteristics of individual users and social networks. However, there is lack of research investigating how individuals identify themselves with their online networks. Such relationships offer us a crucial element contributing to research concentrating on both individuals and social groups. In this paper, we introduce Identity Bubble Reinforcement Model (IBRM) model that stresses social media users' cognitive involvement in online social cliques. In recent survey studies, online identity bubbles and their three dimensions (social identification, homophily and information bias) are associated with enhanced social influence, group behavior and aggression in online behavior. In our paper, we outline how IBRM could be used to generate new approaches in machine learning when studying online social networks. We argue that enhanced techniques help us to understand current issues such as online radicalization. The most comprehensive understanding of the phenomenon will probably be achieved by combining the analysis of social network structures and psychometric examination.