

Revert Propagation: Who are responsible for a contagion initialization in a diffusion network?

آرمان سپهر

دکتری مهندسی کامپیوتر از دانشگاه صنعتی شریف

Abstract

Millions of stories are transferred in a social network and some of them are malicious. Can we identify the source node(s) that are responsible to initiate the propagation originally? If so, why did they initiated the propagation? The problem of identifying the source of propagation based on limited observations has been studied significantly in recent years, as it can help to reduce the damage caused by unwanted infections with early detection. In this talk, we present an efficient algorithm for finding a node initiating a piece of information into the network and also inferring the time when it is initiated. We propose Source Location Estimation method, SOLE, that estimate the source probability for each node and then choose the source set which are maximize the probability using a well-known greedy method with a theoretical guarantee. This talk begins with an overview of the diffusion models and how information propagates through the networks and then followed by a discussion about finding responsible source node that initialize the diffusion process.

Biography

Arman Sepehr obtained his Ph.D. in Computer Engineering from Sharif University of Technology in 2022. He also holds a Bachelor's and Master's degree from the same prestigious institution. Throughout his academic journey, Arman has a keen interest in various areas of research, including machine learning techniques, probability graphical methods, and deep learning methods. He also undertook a research position at the renowned Max Planck Institute, further enhancing his expertise in the field. Arman's specialization lies in graphical methods and graph theory, where he applies his knowledge and skills to solve complex problems and contribute to advancements in the field of computer engineering.

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