ASONAM 2023 Tutorial I

The Rise of the Fediverse: Shaping the Future of Social Media Research through Mastodon

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Abstract

Centralized Online Social Networks are facing shifts in user engagement due to sudden policy changes and restricted API access. Consequently, Decentralized Online Social Networks are gaining popularity as a valid alternative, leading to the development of the Fediverse, i.e., the universe of interconnected decentralized platforms. Among these, Mastodon has emerged as the most widely adopted one, and its free APIs provide a unique opportunity for thriving social media research. This tutorial aims to (1) illustrate the emerging domain of Decentralized Online Social Networks, (2) discuss the state-of-the-art in social network analysis and mining research on Mastodon and the Fediverse, (3) discuss the main challenges and opportunities involving this social paradigm, and (4) introduce participants to the usage of Mastodon APIs. As a result, researchers and practitioners in ASONAM-related fields will gain a greater understanding of this promising new paradigm, which has the potential to influence the direction of future social media research significantly.

Biography

Lucio La Cava is a Ph.D. Student in Information and Communication Technologies at the Department of Computer Engineering, Modeling, Electronics, and Systems Engineering (DIMES) of the University of Calabria, Italy. His research project involves studying and characterizing emerging socio-economic domains through multimodal deep learning techniques (including Graph Representation Learning, NLP, Computer Vision) in conjunction with Network Science methodologies. His main focus is on Decentralized Online Social Networks (DOSNs) and the Web3 ecosystem.He is a member of the Machine Learning, NLP and Network Science Team @Artificial Intelligence and Data Science Lab at DIMES. He also serves as a reviewer for international premier conferences (IJCAI, KDD, ICDM, WWW, etc.) and journals.

ASONAM 2023 Tutorial II

Building a Continuous Social Media Data Collection System

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Abstract

There has been a recent shift by major social media platforms to restrict access to data. As a concrete example, Reddit, one of the more heavily studied social media platforms, recently changed their terms of service in a way that shut down the primary source used by researchers. The writing is on the wall: researchers need to get more serious about social media data collection. Drawing from my decade plus of experience, in this tutorial, I will provide the necessary toolkit to design and build continuous social media data collection systems. The major focus will be on the system aspect, i.e., how do we build a robust, low resource usage, long running system that can handle all the uncertainties involved and remain stable for multiple years.

Biography

Jeremy Blackburn is an Associate Professor in the Dept. of Computer Science at Binghamton University. His best known work is related to fringe Web communities, over the course of which he has collected some of the most novel and widely used social media datasets in existence. Prior to his career in academia, Jeremy was a Principal Developer and served as advisor for several startups. He still writes several tens of thousands of lines of code per year, most of it related to large-scale social media data collection, management, and analysis.

ASONAM 2023 Tutorial III

Mining and analyzing temporal networks with graph evolution rules

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Abstract

Discerning and deriving insights from temporal networks is essential for understanding their dynamic nature and uncovering their evolving features. Current strategies for modeling network evolution frequently assume that it is led by a single dynamic mechanism like triadic closure, or homophily, disregarding the well-known heterogeneous user behavior that is prevalent in large-scale networks. To address this limitation, methods based on graph evolution rules (GER) mining have proven promising. Similar to association rules in data mining, a graph evolution rule consists of a precondition and a postcondition. These rules suggest that a subgraph matching the precondition is likely to evolve into the postcondition, providing human-readable and explainable outcomes.
Although the graph B183evolution rules approach holds significant promise, there is a notable absence of a cohesive research framework with shared terminology or formalization. Furthermore, the existing algorithms frequently pose usability challenges since they demand data formats for input and output that are not readily intuitive and easy to embrace. This tutorial aims at providing the audience with a gentle introduction to the fascinating world of evolving networks to understand why graph evolution rules are valuable. In the final part, we will provide an hackers' guide for graph evolution rules, which serves as a comprehensive resource for applying, analyzing, and visually representing graph evolution rules.

Biography

Alessia Galdeman received a degree in Computer Science for digital communication in 2018, and a master degree in Computer Science in 2021. She is currently a senior Ph.D. student at the Computer Science Department of the University of Milan, where she is also a tutor of social media mining, network science and machine learning courses. She is web chair of the International Conference on Complex Networks and their Applications. Her current research interests include temporal networks, subgraph mining, Web3 platforms.

Sabrina Gaito is a full professor in the Department of Computer Science at the University of Milan, where she leads the Connets Lab (https://connets.di.unimi.it/) and teaches machine learning, network science and social media mining. Her research activity takes place within the network science and machine learning fields with applications to social, economic and block-chain-based networks. She is regularly a member of the program committee of main international conferences and of the editorial board of prominent journals