

INTISARI

Pemodelan Topik dan *Social Network Analysis* Pada Data Publikasi Penelitian Dosen Departemen Matematika FMIPA UGM

Oleh

Meirizka Maulidya Anisha

20/459366/PA/20027

Dengan dorongan pemerintah dan semakin berkembangnya ilmu pengetahuan, semakin banyak karya ilmiah dosen yang dipublikasikan. Hal tersebut menunjukkan peningkatan dalam jumlah tulisan ilmiah. Namun, data dari jurnal-jurnal ini sering kali hanya disimpan tanpa dimanfaatkan dengan baik. *Social Network Analysis* (SNA) merupakan alat untuk memetakan hubungan pengetahuan penting antar individu. Pemodelan topik, atau yang dikenal sebagai topic modeling, memiliki kemampuan untuk mengevaluasi dokumen teks dan menemukan tema utama yang terdapat di dalamnya. Salah satu metode untuk pemodelan topik adalah *Correlated Topic Model* (CTM). CTM adalah metode yang dengan jelas menggambarkan hubungan antara topik tersembunyi dalam kumpulan dokumen. Penelitian akan dibatasi pada daftar publikasi dosen Departemen Matematika FMIPA UGM yang diambil dari website Departemen Matematika FMIPA UGM. Setelah dilakukan analisis jaringan sosial atau SNA, akan dilakukan pemodelan topik menggunakan metode *Corelated Topic Model* (CTM) dengan pembobotan *Term Frequency-Inverse Document Frequency* (TF-IDF). Diperoleh 47 topik dengan topik dominan adalah topik 30 dan topik yang memiliki korelasi adalah topik 6, topik 8, topik 10, topik 12, topik 18, topik 21, topik 27, topik 31, topik 33, topik 33, dan topik 47. *Node* atau penulis yang memiliki *degree centrality* dan *betweenness centrality* terbesar secara berurutan adalah *node* 22 dan *node* 74.

Kata kunci: pemodelan topik, *Correlated Topic Model* (CTM), *Social Network Analysis* (SNA), publikasi penelitian, *Term Frequency-Inverse Document Frequency* (TF-IDF)

ABSTRACT

Topic Modeling and Social Network Analysis on Research Publications of Lectures of Mathematic Department FMIPA UGM

By

Meirizka Maulidya Anisha

20/459366/PA/20027

With government encouragement and the continuous development of scientific knowledge, an increasing number of scholarly works by lecturers are being published. This trend indicates a rise in the number of scientific writings. However, data from these journals are often stored without being effectively utilized. Social Network Analysis (SNA) is a tool used to map the important knowledge relationships between individuals. Topic modeling has the capability to evaluate text documents and identify the main themes contained within them. One method for topic modeling is the Correlated Topic Model (CTM). CTM clearly illustrates the relationships between hidden topics within a collection of documents. This research will be limited to the list of publications by lecturers from the Mathematics Department of FMIPA UGM, which is sourced from the Mathematics Department's website. After conducting Social Network Analysis (SNA), topic modeling will be performed using the Correlated Topic Model (CTM) method with Term Frequency-Inverse Document Frequency (TF-IDF) weighting. Forty-seven topics were identified, with the dominant topics being Topic 30 and the correlated topics being Topic 6, Topic 8, Topic 10, Topic 12, Topic 18, Topic 21, Topic 27, Topic 31, Topic 33, and Topic 47. The nodes or authors with the highest degree centrality and betweenness centrality were Node 22 and Node 74 respectively.

Keywords: *topic modeling, Correlated Topic Model (CTM), Social Network Analysis (SNA), research publications, Term Frequency-Inverse Document Frequency (TF-IDF)*