

Communication Network Analysis in The Comment Section of A Youtube Podcast With AI

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ABSTRACT

The phenomenon of human-AI interaction is rapidly evolving, particularly in the realm of digital communication. One manifestation of this is the involvement of AI in YouTube content, such as podcasts that incorporate AI as a co-host. This study aims to analyze the comment network on the YouTube video "Gua Podcast Bareng AI... Dia Manggil Gua Sayang... (Episode 1)" to understand user interaction patterns with AI in digital spaces. The research employs the Social Network Analysis (SNA) method, collecting comment data through YouTube digital tools and analyzing it using Gephi software. The findings reveal that interactions in the YouTube comment section form two primary communication patterns: the circular network and the Y network. The network structure consists of 2,313 nodes and 717 edges, with a modularity value of 0.86, indicating the formation of discussion clusters. The key actors in the network are @JoshRafG and @manueladrians, who exert the greatest influence based on centrality measures. Frequently occurring words in the comments include "AI," "Bisa" (Can), "Dan" (And), and "Manusia" (Human), reflecting discussions surrounding the pros and cons of AI as a communicative entity. This study reveals that AI in digital interactions is increasingly anthropomorphized, influencing users' perceptions of AI as a social subject. These findings contribute to digital communication studies, particularly in understanding AI's role in virtual interactions and shifting societal perceptions of artificial intelligence on social media.

Keywords: Artificial Intelligence; Anthropomorphism; YouTube Podcast; Social Network Analysis; Digital Communication

INTRODUCTION

The phenomenon of human-AI interaction continues to evolve alongside technological advancements and the integration of AI into various aspects of life. AI is no longer merely a tool for automation; it has also emerged as an entity capable of natural communication with humans, as evidenced by chatbots, virtual assistants, and AI-generated content on digital platforms. In communication research, AI represents a tangible capability through which machines, as non-human entities, can perform tasks, communicate, interact, and exhibit logical behavior akin to humans (De Zúñiga et al., 2023). The presence of AI in communication triggers emotional engagement and attachment from users, who often treat AI as if it possesses consciousness and emotional tendency known as anthropomorphism. Anthropomorphism influences user trust in interactive communication and cognitive features, particularly in AI-powered conversational systems that employ human-like voices (Fakhimi et al., 2023). This phenomenon is particularly evident in social media interactions, where users not only seek information from AI but also share stories, engage in debates, and even form emotional connections with it.

The advancement of artificial intelligence (AI) has significantly transformed various aspects of human life, including digital communication. AI is no longer limited to technical applications but has increasingly integrated into social interactions, including podcast formats. The use of AI in podcast content creation has grown, with sophisticated technologies such as automatic speech recognition, speech synthesis, and generative pre-trained transformers (GPT) playing a crucial role (Vrzalíková, 2023). Social media has become a platform that enables extensive social interactions, facilitating communication without geographical limitations. Popular online social media platforms today include Facebook, Instagram, YouTube, X, and others, which have even influenced consumer lifestyles (Ahsan, 2015; Dwianto et al., 2018).

Among these platforms, YouTube has emerged as the largest video-sharing platform worldwide, boasting over 1.5 billion users in 2018. A survey conducted by Hootsuite (We Are Social) in the Indonesian Digital Report revealed that in 2021, 93.8% of Indonesia's total population were active YouTube users. Furthermore, YouTube continues to be Indonesia's most widely used social media platform, with 88% of the population utilizing it for both information and entertainment (Aminullah, 2023; Kemp, 2023). More than just an entertainment platform, YouTube serves as an easily accessible information hub, offering diverse content that allows users to choose audiovisual programs based on their preferences and needs.

YouTube's interactive features, such as comments and likes, provide audiences with opportunities to engage in discussions and express their appreciation for compelling narratives (Yellapu et al., 2024). Digital interaction enables YouTube to facilitate creative content sharing, including podcasts featuring AI as a co-host or conversational partner. This phenomenon is particularly intriguing because audience responses are reflected in the comment section, creating a new space for diverse forms of communication, including discussions about AI. One approach to understanding public perception of AI is to analyze user comments on AI-related content, such as AI-based podcasts. YouTube comments often serve as valuable sources for examining how anthropomorphism emerges in online discussions. One prominent example is the YouTube video "Gua Podcast Bareng AI... Dia Manggil Gua Sayang... (Episode 1)" by Josh Gultom, where AI appears as a conversational partner capable of responding contextually and mimicking human communication.

This phenomenon is significant as it demonstrates how AI is increasingly regarded not just as a software tool but as an entity capable of engaging in conversations resembling human dialogue. The podcast has attracted over 2 million views and received more than 2,000 comments, many of which emphasize AI's role in social interactions. The substantial audience engagement and volume of responses indicate strong public interest in human-AI communication. In general, YouTube content creators view generative AI as a valuable resource for improving communication skills and promoting intercultural understanding (Bal et al., 2024). However, the human tendency to anthropomorphize AI—assigning human-like traits to non-human entities—remains a subject of ongoing discussion. On YouTube, viewer engagement, particularly through comments and responses, forms a networked structure where interactions can be analyzed using social network analysis (Wahyu et al., 2022).

The Media Equation theory proposed by Reeves and Nass (1996) suggests that humans tend to treat media and technology as if they were social beings. This theory is relevant to the current study, as it helps explain why YouTube users respond to AI in the podcast in ways similar to human interactions. Many comments demonstrate how viewers attribute human-like qualities to AI, perceiving it as possessing personality, emotions, or even forming social relationships with it. This phenomenon is closely linked to the concept of anthropomorphism, wherein users begin to see AI not merely as a technological tool but as a social entity. This perception elicits various reactions across different social groups and can lead to behavioral changes that are often sensitive. Intelligent AI responses in communication enhance efficiency and the use of positive emotional language but may also lead to negative evaluations and misunderstandings (Hohenstein et al., 2021).

Research on YouTube video comments aligns with previous studies, such as Wahyu et al. (2022), which examined audience reactions through comments on the official YouTube channel of Wonderful Indonesia. This study analyzed the network structure within the video, particularly due to the presence of religious themes rather than tourism-related content. The findings indicate that storytelling techniques influence audience perceptions, leading to a positive image of the destination.

However, the network structure formed was influenced by religious discussions rather than the tourism aspects of Java Island. Another study examined the development of Smart City Madani in Pekanbaru, aiming to assess public readiness for the transition to a smart city. This study sampled 227 users (approximately 0.031% of Pekanbaru's active Twitter population). Based on social interactions on Twitter, the findings suggest that Pekanbaru residents were not yet prepared for the Smart City Madani transition (Anam et al., 2021). Another study (Rinaldi et al., 2021) analyzed Twitter content sources related to the government's reopening of tourism during the pandemic, revealing that social media users expressed both negative and positive sentiments. The study explored public sentiment regarding tourism reopening posts and highlighted discrepancies between shared content and user comments.

Emphasizing the urgency of this study, the researcher seeks to understand how humans interact with AI in digital spaces, particularly in the YouTube video "Gua Podcast Bareng AI... Dia Manggil Gua Sayang... (Episode 1)." To achieve this, the researcher analyzes the comment network on Josh Gultom's YouTube video. This analysis reflects shifts in human perceptions of AI, wherein anthropomorphism becomes increasingly apparent in digital interactions. This research is significant as it aims to uncover how comment networks form among viewers of Josh Gultom's podcast. The study will explore interaction patterns between YouTube users and AI in podcasts using the Social Network Analysis (SNA) approach. By examining the structure of message networks, this research provides insights into the evolving dynamics of user comments on the podcast video. The implications of this study contribute to digital communication research by understanding AI's role in virtual spaces as a social entity that shapes responsive and user-centered interaction systems. More broadly, the findings may inform discussions on public sentiment towards AI in podcasts, helping to illustrate how digital media, particularly YouTube, serves as a space for society to construct, negotiate, and normalize AI's presence in everyday life.

METHODS

Social Network Analysis (SNA)

This study employs the Social Network Analysis (SNA) method to examine interaction patterns within the comment section of a YouTube video. Social Network Analysis is a technique used to understand relationships or connections between individuals within a group. This research focuses on how communication networks are formed in discussions about AI in a selected YouTube podcast. The approach used is quantitative, based on the philosophy of positivism, and applies concrete, objective, measurable, rational, and systematic scientific principles.

In the data collection process, this study utilizes YouTube digital data tools to extract conversations from the comment section and gather information related to communication networks within the video. YouTube data tools comprise a set of online tools that facilitate data retrieval regarding videos, including ratings, comments, user engagement, and inter-channel relationships. Through this method, the researcher can identify interaction characteristics and communication patterns emerging in the comment section. To analyze the structure of the network formed, this study employs Gephi, a software used for network visualization and calculations, such as network diameter, modularity, and relationship distribution across various display formats.

In Social Network Analysis, several network properties can be used to determine the layout of interactions within a network. These properties help facilitate analysis. The network properties are listed in Table 1.

Table 1. Explanation of Network Properties

No.	Properti Jaringan	Deskripsi
1	<i>Nodes</i>	Represent the position of actors within the network
2	<i>Edges</i>	Represent interactions between two or more actors
3	<i>Average Degree</i>	The average number of interactions each actor has within the entire network
4	<i>Diameter</i>	The maximum distance within the entire network
5	<i>Average Path Length</i>	The average distance between all actors within the network

Source: (Sanjani & Alamsyah, 2019)

Social Network Analysis (SNA) involves several approaches beyond merely illustrating patterns of connections between nodes or actors. To determine central nodes within a network, various centrality metrics are often used, including degree centrality, betweenness centrality, closeness centrality, and eigenvector centrality.

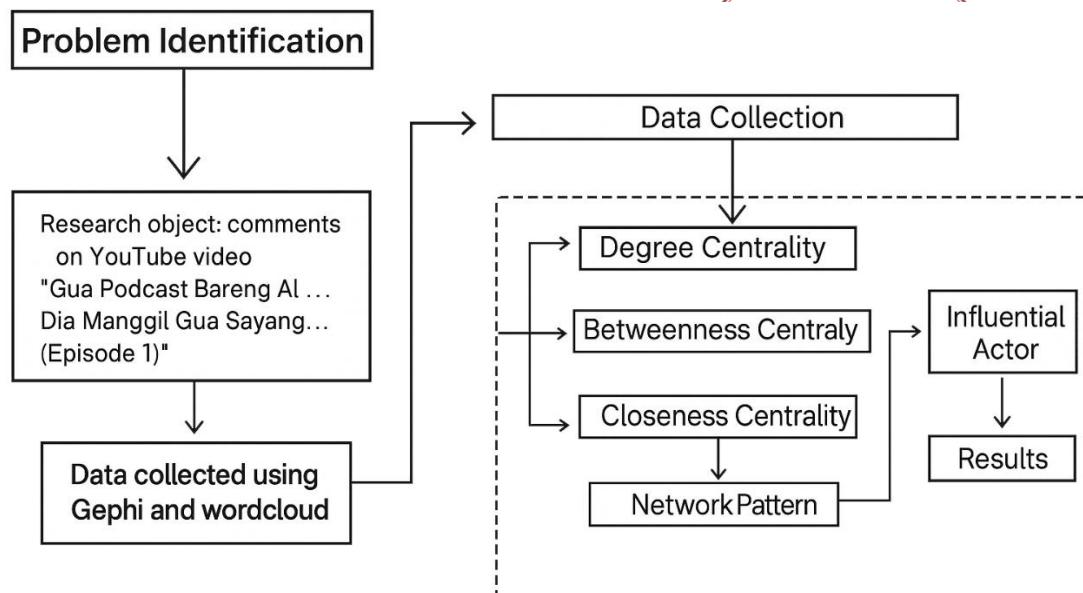


Figure 1. Research Stages

The research stages begin with problem identification through observation of the urgency of the phenomenon under study, followed by problem formulation. During the data collection stage, the researcher retrieves comment data from the podcast under investigation using YouTube digital tools. The data obtained through the crawling process is then stored in GDF format for further analysis. Subsequently, the collected data is processed and imported into Gephi software for visualization and analysis by calculating three centrality values: degree centrality, betweenness centrality, and closeness centrality. This stage aims to identify connections formed within the network and understand communication patterns occurring in the comment section of the YouTube podcast featuring AI. In the final stage, the analysis and visualization results obtained through Gephi are presented to illustrate the dynamics of interactions within the comment network. The three centrality values calculated will help identify the actors with the most significant influence in the interaction patterns of the comment network under study.

RESULT AND DISCUSSION

Network Patterns

In this study, the analyzed object is the podcast “*Gua Podcast Bareng AI... Dia Manggil Gua Sayang... (Episode 1)*” available on the YouTube platform. Based on the social network analysis conducted, two main communication patterns were identified: the circular network and the Y network.

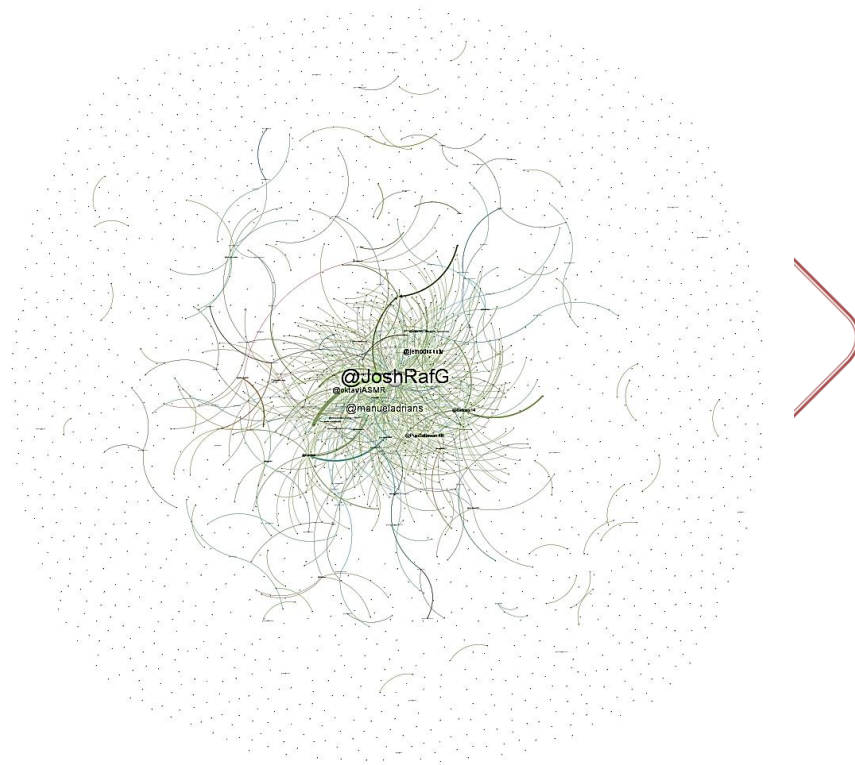


Figure 2. Network Visualization in the YouTube Podcast by Josh Gultom: *Gua Podcast Bareng AI... Dia Manggil Gua Sayang... (Episode 1)*

The circular communication pattern is observed in the interactions among users commenting on this podcast. In this pattern, communication moves in a cyclic or circular manner, where messages are exchanged bidirectionally within the network. Actors are not only connected to a single individual or group but also participate in an ongoing flow of information circulating among multiple actors, creating a more dynamic and open communication structure. Additionally, the communication pattern found in the YouTube comment section follows a Y network structure, where certain actors act as intermediaries connecting two other actors. In this case, interaction is limited to specific individuals relying on one party to convey messages or information to another. This pattern highlights the role of certain actors in bridging two separate streams of communication.

Network Structure

The YouTube podcast “*Gua Podcast Bareng AI... Dia Manggil Gua Sayang... (Episode 1)*” received widespread responses from various YouTube users. Based on data obtained through analysis using Gephi software, this study identified numerous actors and communication relationships formed in the comment section of the video. The collected data illustrate how interactions within the network evolve, forming a structured communication pattern.

Table 2. Network Structure

Analysis	Data
Size	Nodes : 2313
	Edges : 717
Graph Density	0,000
Modularity	0,86
Diameter	4
Average Degree	0,31
Average Path Length	1,952

The analysis of the comment network structure reveals a unique pattern of interaction among users. The network consists of 2,313 actors (nodes) and 717 relationships (edges), where each node represents an account involved in the discussion, while edges illustrate interactions between actors in the comment section. The analysis results indicate that the graph density value is 0.000, signifying a low level of connectivity within the network, making interactions between actors relatively fragmented. However, the modularity value of 0.86 suggests the formation of well-defined clusters or discussion groups, with certain actors playing dominant roles in the interactions.

Furthermore, the network diameter is measured at 4, implying that most actors in the network are relatively closely linked, allowing interactions to occur more easily. In terms of connectivity, the average degree value of 0.31 indicates that the relationships between actors in the network are relatively low, potentially slowing down the distribution of information. However, the average path length of 1.952 suggests that communication pathways within the network are relatively short, enabling efficient information dissemination in discussions (Sari & Dwiyanti, 2018).

Based on these findings, it can be concluded that despite the high number of incoming comments, the communication pattern in the comment section remains dispersed, with limited interconnectivity. Nevertheless, the presence of dominant groups within the network suggests more active discussions among certain actors, which may contribute to the formation of collective opinions regarding AI in the podcast.

Influential Actors in the YouTube Podcast

The “Gua Podcast Bareng AI... Dia Manggil Gua Sayang... (Episode 1)” podcast by Josh Gultom exhibits key influential actors, as identified through centrality measurements. Four key indicators were used to determine the primary actors in the communication network: degree centrality, betweenness centrality, closeness centrality, and eigenvector centrality.

Table 3. Actor Degree Centrality Calculation

No.	Actor	Degree	In-degree	Outdegree
1	@JoshRafG	138	91	47
2	@manueladrians	70	70	0
3	@oktaviASMR	51	51	0
4	@jemodusuntv	44	43	1
5	@Bidoss14	28	28	0
6	@PujoSetiawan-l6h	28	27	1
7	@koprasofficialchannel6732	24	24	0
8	@Bar0kat	17	17	0
9	@GibsonSitohang	15	13	2
10	@AdiosFey_SALADIN_Tahanina	14	12	2

According to Table 3, the communication network in the “Gua Podcast Bareng AI... Dia Manggil Gua Sayang... (Episode 1)” comment section has one or more dominant actors. Actor dominance within the network is determined by the total degree centrality value, where a higher value indicates greater influence in communication. The most dominant actor in this network is @JoshRafG, with a degree centrality of 138 and an in-degree centrality of 91. This indicates that @JoshRafG has 138

connections with other accounts and is frequently accessed or mentioned by other users in discussions. Additionally, the out-degree centrality of @JoshRafG is 47, demonstrating that this account is also active in responding to or replying to comments from other actors within the network.

Besides @JoshRafG, several other actors also have high centrality values, including @manueladrians, @oktaviASMR, @jemodusuntv, @Bidoss14, @PujoSetiawan-l6h, @koprasofficialchannel6732, @Bar0kat, @GibsonSitohang, and @AdiosFey_SALADIN_Tahanina. These actors serve as primary conduits in the dissemination of information related to AI in the podcast. @JoshRafG also has the highest in-degree centrality value compared to the other actors, reinforcing their position as a focal point in discussions about AI within the podcast.

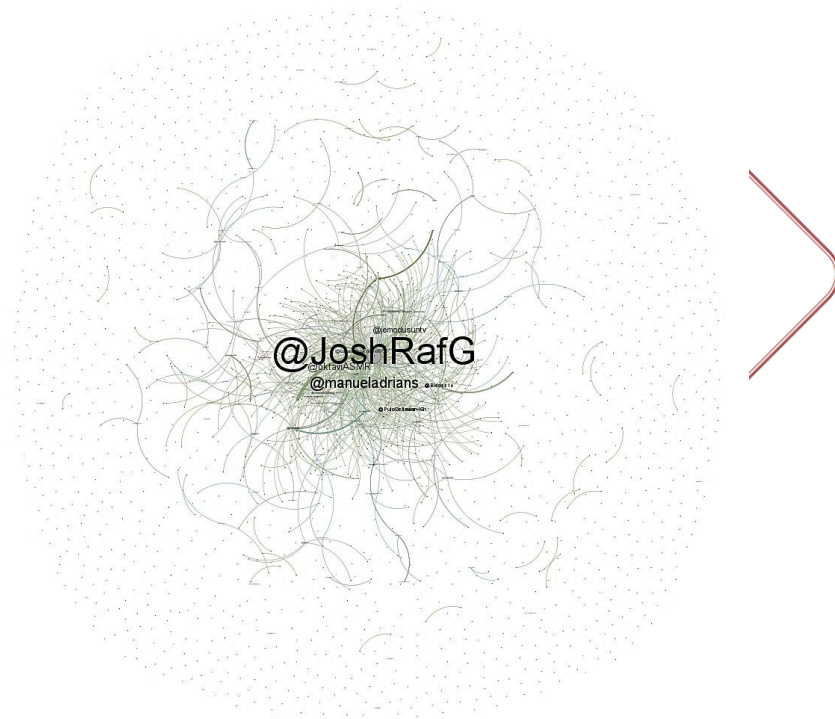


Figure 3. Network Visualization of Centrality Degree in the YouTube Podcast by Josh Gultom: *Gua Podcast Bareng AI... Dia Manggil Gua Sayang... (Episode 1)*

In the visualization presented in Figure 3, the most dominant actor is indicated by the largest label size. However, other actors, while represented with smaller label sizes, still play a significant role in the communication network and contribute to the overall interaction structure.

Table 4. Actor Centrality Calculation

No.	Aktor	Betweenes Centrality
1	@JoshRafG	0,000844
2	@satutitikduakoma12	0,000035
3	@BangZeni-tu2gz	0,000018

The Table 4 analyzing comments on the video "*Gua Podcast Bareng AI... Dia Manggil Gua Sayang... (Episode 1)*" reveals that the betweenness centrality values of actors within the network are generally very low. The actor BangZeni-tu2gz holds the lowest betweenness centrality value at 0.000018, indicating a minimal role in facilitating information flow within the social network. Overall, actors in this comment network do not serve as key connectors or information disseminators. Similarly, JoshRafG has a betweenness centrality value of 0.000844, which remains relatively low, further emphasizing their limited influence in the distribution of information within the network.

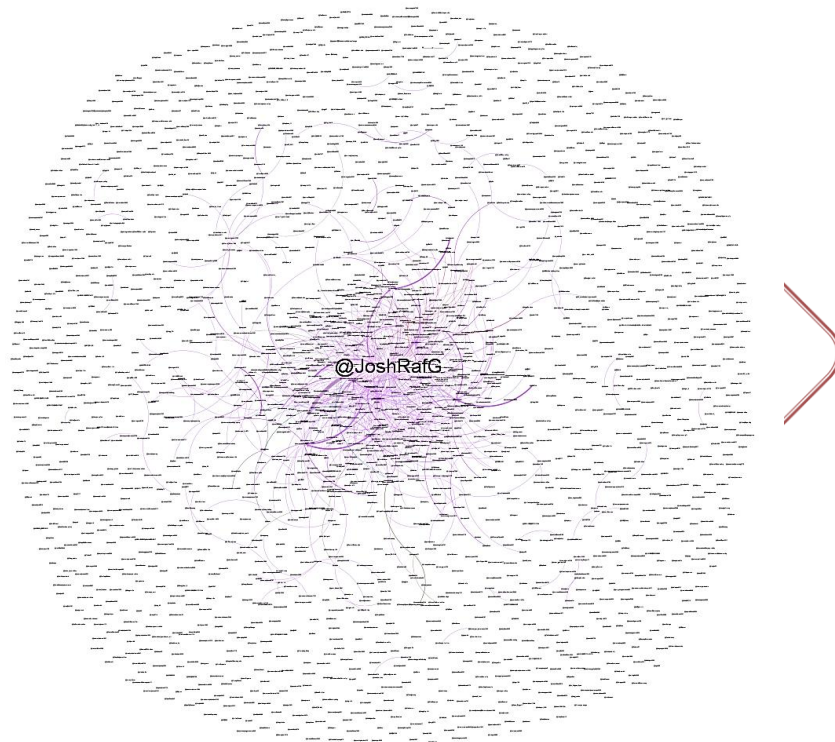


Figure 4. Network Visualization of Betweenness Centrality in the YouTube Podcast by Josh Gultom: Gua Podcast Bareng AI... Dia Manggil Gua Sayang... (Episode 1)

The visualization in Figure 4 illustrates that the actor JoshRafG has a relatively high betweenness centrality value despite having very low connectivity, whereas other actors have a betweenness centrality value of 0.0. To identify influential actors, closeness centrality is used as a measure of the average distance between actors or nodes within the network. The closeness centrality coefficient ranges from 0 to 1, indicating the degree of proximity between actors, which in turn affects the speed of information dissemination within the network.

Table 5 Actor Closness Centrality Calculation

No.	Aktor	Closeness Centrality
1	@JoshRafG	1,0
2	@GibsonSitohang	1,0
3	@AdiosFey SALADIN Tahanina	1,0

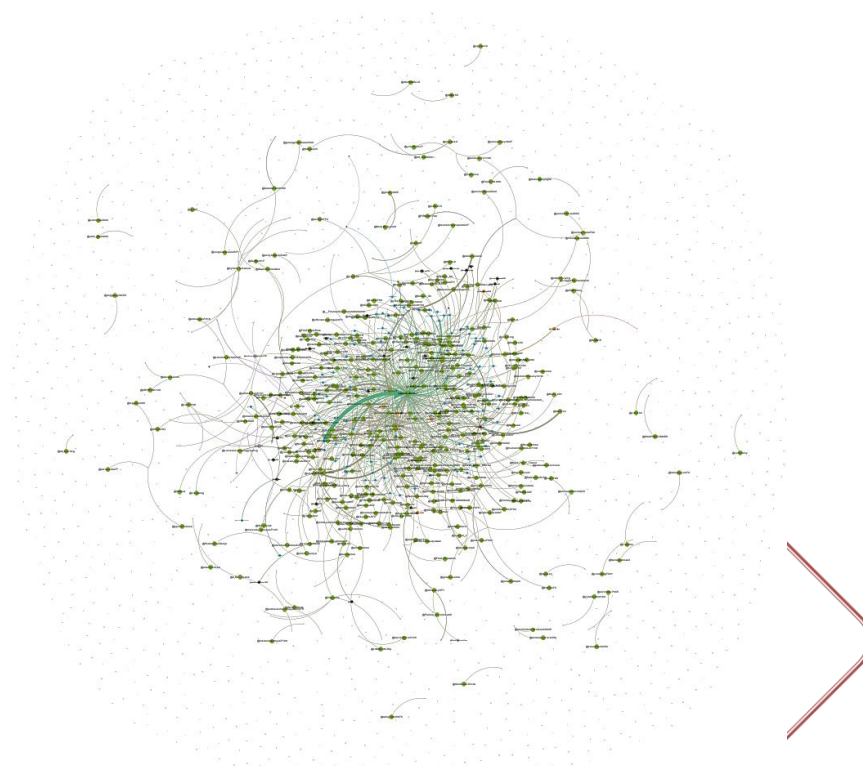


Figure 5. Network Visualization of Closeness Centrality in the YouTube Podcast by Josh Gultom: Gua Podcast Bareng AI... Dia Manggil Gua Sayang... (Episode 1)

Within the "*Gua Podcast Bareng AI... Dia Manggil Gua Sayang... (Episode 1)*" network, 1,736 actors have a closeness centrality value of 1.0, as illustrated in Figure 5, which provides a sample of the closeness centrality calculation. This value suggests that these actors are highly connected to others within the network. A higher closeness centrality value signifies stronger relationships between actors, enabling faster dissemination of information when they engage in communication.

To determine influential actors, their popularity within the network is evaluated—whether as sources of information, focal points of discussion, or key drivers in network formation and information spread. This analysis is conducted using eigenvector centrality, which identifies the most significant actors based on their connections to other influential figures in the network. The eigenvector centrality coefficient ranges between 0 and 1 (Utami et al., 2021).

Table 6. Actor Eigenvector Centrality Calculation

No.	Aktor	Eigenvector Centrality
1	@JoshRafG	1,0
2	@Captain_Kazuto_Entertainment	0,739241
3	@Wullyn-n6l	0,728689
4	@EricBlakblakan	0,728689
5	@fendyflyzone7163	0,728689

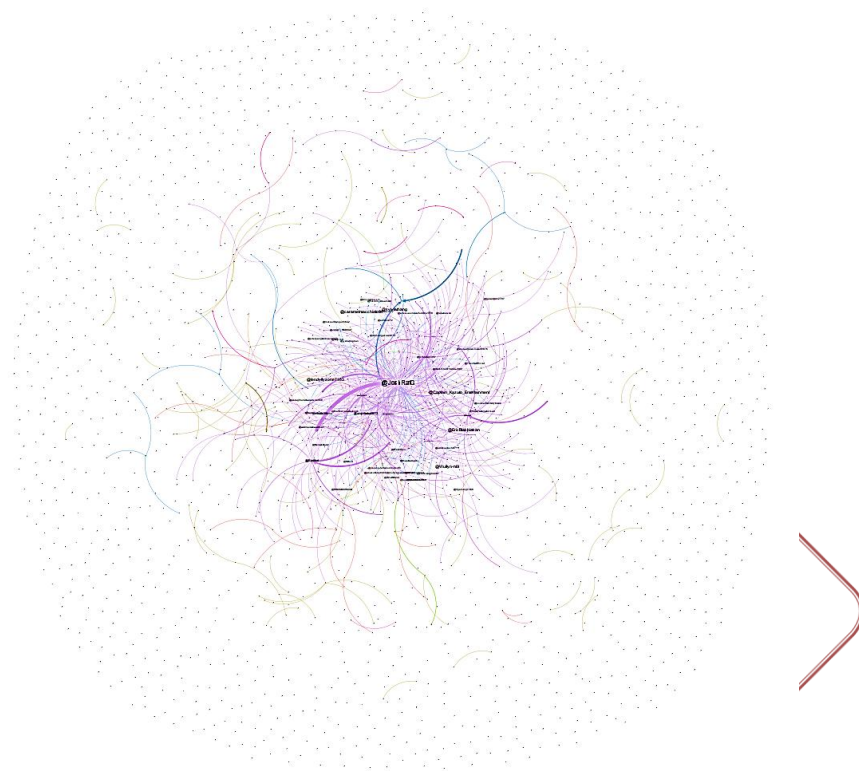


Figure 6. Network Visualization of Eigenvector Centrality in the YouTube Podcast by Josh Gultom: *Gua Podcast Bareng AI... Dia Manggil Gua Sayang... (Episode 1)*

The Table 6 above reveals that the actor JoshRafG holds an eigenvector centrality value of 1.0, signifying a strong connection with numerous influential actors within the "*Gua Podcast Bareng AI... Dia Manggil Gua Sayang... (Episode 1)*" network. As a result, JoshRafG can be identified as a key figure in shaping the podcast's communication network.

An analysis of degree centrality, closeness centrality, betweenness centrality, and eigenvector centrality indicates that the most influential actors in the podcast's comment network are @JoshRafG and @Captain_Kazuto_Entertainment. These two figures play pivotal roles and exhibit substantial influence, as reflected in their consistently high centrality scores compared to other actors. The communication network of Josh Gultom's podcast can be effectively visualized using Gephi, and the application of Social Network Analysis (SNA) has demonstrated its capability in identifying key actors responsible for the dissemination of information within the discussion.

Additionally, this study examines the most frequently used words in the YouTube comments on Josh Gultom's podcast "*Gua Podcast Bareng AI... Dia Manggil Gua Sayang... (Episode 1)*." The most common words appearing in the comments include "AI," "Dan," "Manusia," and "Teknologi." These keywords can be visualized using wordcloud.com, which automatically generates a graphical representation. Below is the visual output created by the researcher to highlight the most prominent words.

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