

DAZIBAO DYNAMICS:

A Geographical and Social Network Analysis of Propaganda Posters
From the Chinese Cultural Revolution

HUM 346: Introduction to Digital Humanities
Final Assignment
Spring 2024

Melissa Woo

I pledge my honor that I have not violated the Honor Code on this examination.

Table of Contents

Introduction.....	2
Research Question.....	3
Hypothesis.....	4
Data.....	4
Handwritten Text Recognition (HTR).....	6
Annotation and Metadata Collection.....	6
Datasheet Creation.....	8
Analysis.....	8
Visualization.....	10
Presentation.....	13
References.....	14

Introduction

On May 25th, 1966, a large wall poster appeared on the campus of Beijing University – rough wide brush strokes covered coarse paper with a mix of stark red and black ink layering text upon text. Signed by Nie Yuanzi of the philosophy department and five other faculty members, the poster accused university administrators of “repressing the masses and the revolution” and acting “entirely against the Party’s Central Committee and Mao Zedong’s Thought” as “obstacles to the revolutionary cause.”¹ The language – harsh, provocative, and emotionally charged – was published in the *People’s Daily* within a week:

“To all revolutionary intellectuals, now is the time to fight. Let us unite and raise high the great flag... Let us expose all kinds of plots and monstrous tactics and controls. Let us annihilate all the monsters and demons completely, thoroughly, and entirely!”²

This was the first of the many posters that came to be known as 大字报 (*dazibao*), a term which can be translated literally as “big character posters.” Sloganeering, the rhetoric of agitation, and polarizing language became characteristics of these prominent forms of communication and expression. *Dazibao* were heralded as the best fighting form for the Chinese Communist Party (CCP) masses and a major manifestation of political struggle, with Mao publishing his response entitled “Bombard the Capitalist Headquarters: My Big Character Poster” and writing,

“How well written! Comrades, please read this poster and the commentary... The administrators from Beijing University are on the side of the bourgeois [and have] pushed down the fervent movement of the proletarian Cultural Revolution”.³

Mao’s poster, displayed in the residential area of China’s top-ranking officials and broadcast across the nation, fanned the flames of revolutionary zeal. Days later, the CCP Central Committee issued a directive, stating “Make the fullest use of big character posters and great debates to argue matters out, so that the masses can clarify the corrective views, criticize the wrong views, and expose all ghosts and monsters. In distinguishing right from wrong, we can draw a clear line between the enemy and ourselves”⁴.

During the Chinese Cultural Revolution (1966-1976), *dazibao* emerged as a prominent form of CCP propaganda, playing a pivotal role in shaping public opinion and facilitating political activism. They are a potent expression of a fraught and violent moment in the history of modern China.

¹ Sheng, Hua. "Big character posters in China: A historical survey." *J. Chinese. L.* 4 (1990): 234.

² Ibid.

³ Barmé, Geremie R. "History writ large: Big-character posters, red logorrhoea and the art of words." *PORTAL: Journal of Multidisciplinary International Studies* 9.3 (2012): 1-35.

⁴ Ho, Denise. “Exhibiting the Cultural Revolution.” Fairbank Center for Chinese Studies, *Harvard University*, 2017.



Figure 1. (L) The first *dazibao* to gain recognition and spark the resurgence of the practice through the Cultural Revolution. (R) *Dazibao* on display at the Fairbank Center at Harvard University, November 2017.

Scholars have extensively studied *dazibao* as both historical artifacts and ideological instruments of the era. Existing research has highlighted their significance in mobilizing mass movements, influencing public discourse, and challenging established authority structures.

Research Question

What can a data-driven exploration of *dazibao* reveal about the geographical and social structuration of propaganda networks during the Chinese Cultural Revolution?

This work would add to the existing literature by considering a dimension beyond the textual content of *dazibao*, exploring how geographic location of publishing and social networks underlying propaganda dissemination shaped public discourse and societal divisions throughout the Chinese Cultural Revolution. This has many ramifications – for example, it would help identify patterns of polarization throughout the community among citizens involved in and targeted by the *dazibao* or analyze the role of central figures or locations in the propagation of *dazibao* messages. Such findings would not only enhance our understanding of propaganda's influence but also shed light on broader mechanisms of social influence and information dissemination in political contexts.

Hypothesis

We hypothesize that the content and dissemination patterns of *dazibao* contributed significantly to the polarization of Chinese society along ideological lines, leading to the formation of distinct and antagonistic social groups.

Additionally, we posit that the structure and content of *dazibao* networks reflect the broader political and social dynamics of the Cultural Revolution, providing insights into the strategies and tactics employed by various factions to promote their ideologies and agendas. Through a comprehensive analysis of *dazibao* networks, we aim to uncover the underlying mechanisms driving the propagation of propaganda and the role of social networks during this turbulent period in Chinese history. Specifically, the analysis is expected to reveal key individuals or locations that acted as central nodes in the propagation of *dazibao* messages, indicating their influential role in shaping public discourse.

Furthermore, we anticipate that the content and dissemination patterns of Dazibao will show increasing patterns of polarization, highlighting the divisions within communities targeted by or involved in producing Dazibao. This is particularly significant as the Cultural Revolution began with widespread participation from many social groups and geographical areas, leading to the splitting of families and friends along political lines⁵. By examining these patterns, we aim to uncover the underlying mechanisms driving the propagation of propaganda and the formation of social networks during this turbulent period in Chinese history.

Data

Though many *dazibao* from the Cultural Revolution have been lost, many have been preserved (both intentionally and unintentionally). We create a dataset of annotated propaganda posters by aggregating and uniformly analyzing several collections of *dazibao*.

One main source is the collection of *dazibao* compiled by the Fairbank Center for Chinese Studies at Harvard University, which held the first-ever exhibition of big character posters and woodblock prints from the Cultural Revolution in the United States in November 2017, marking the first time that these *dazibao* have been exhibited anywhere in the world⁶. There is an online 3D exhibition with interactive capabilities powered by kunstmatrix that shows many of the *dazibao* that the Fairbank Center was able to collect, thus digitizing a collection of over 100 high quality images of detailed *dazibao*

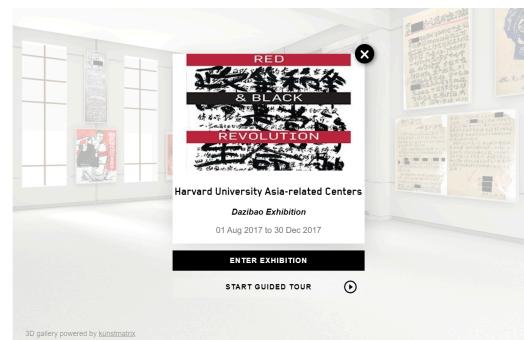


Figure 2. Digital *dazibao* exhibition.

⁵ Thurston, Anne F. "Victims of China's Cultural Revolution: The Invisible Wounds: Part I." *Pacific Affairs* 57, no. 4 (1984): 599-620.

⁶ Ho, Denise. "Exhibiting the Cultural Revolution." Fairbank Center for Chinese Studies, *Harvard University*, 2017.

序 言

「紅衛兵資料」是研究中共文革時期最重要之資料。文革初期，這些資料零星的流入香港，後來美國政府將其所藏陸續公諸學術界，數量大增。但當時大都未經有系統的整理，使用不便。日後，哈佛大學燕京圖書館、密西根大學東亞圖書館及香港友聯研究所，曾分別製作卡片、書目，分袋保存，及剪貼工作，為此批資料之首次整理。

一九七五年，中國研究資料中心將所有參差不齊、不同版式之紅衛兵資料原件、複製品及頭微膠片全體統一尺寸，重新複製，並依資料名稱與出版年月編印成十九巨冊，予使用者莫大之便利。一九七九年，該中心又編成索引一冊；其中除極小部分專集小冊及口報外，皆依各報羅馬譯音編目，並記載其編輯單位、出版地點與年月，更增加查閱便利。這些資料出版地區，大部雖為北京、廣東及西藏，但也包括了其餘十九個省。出版時間雖亦集中在一九六七、六八年，但也包含一九六六、六九、七〇年之一小部分。我們常感到研究中共資料之不易得，因而對此愈覺珍貴。

Figure 3. Screenshot from UNC Red Guard Publication archives.

Another main source is Red Guard publications during the Cultural Revolution, which unintentionally preserved *dazibao* images by printing them in newspapers to disseminate their messages. The University of North Carolina's collection of primary resources on the Chinese Cultural Revolution include more than 10,000 original pages of Red Guard publications, approximately 75% of which come from the U.S. Department of State while the rest were obtained from the ARL Chinese Center from other sources.⁷

The third source is the *dazibao* recorded in various memoirs, interviews, and other scholarly literature. Nearly 100 images can be directly found on Getty Images by searching the keyword “*dazibao*”⁸, while many more are miscellaneous published across prior literature. We note that the manual collection process from prior literature would be time-intensive, but could provide more images for the dataset.



ED Exclusive Editorial

Dazibao Readers in Beijing

By: James Andanson
March 30, 1979
Sigma
542248310

Figure 4. Getty Images.

⁷ “Hong wei bing zi liao [electronic resource] = Red Guard publications.” Cultural Revolution Primary Resources, University of North Carolina. https://guides.lib.unc.edu/cul_revolution/primary.

⁸ <https://www.gettyimages.com/photos/dazibao?assettype=image&phrase=dazibao&sort=mostpopular&license=rf%2Crm>

Handwritten Text Recognition (HTR)

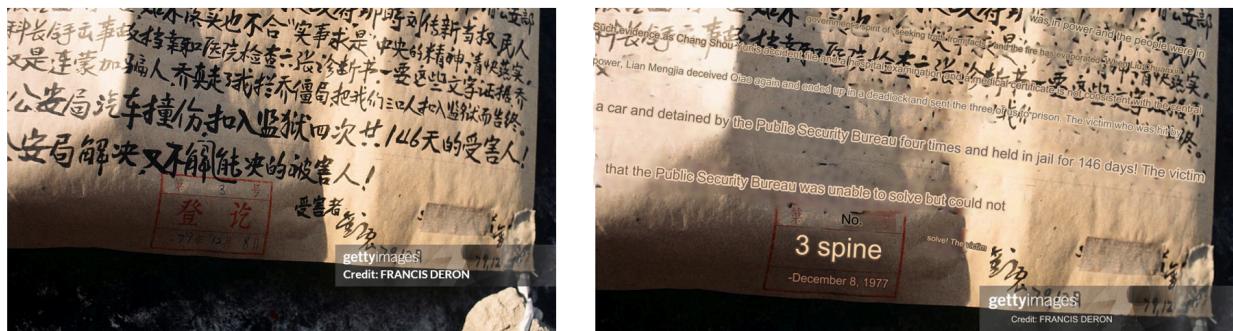


Figure 5. (L) Section of a *dazibao* published on Getty Images. (R) Example recognition and translation.

To transcribe handwritten text from *dazibao* images, we'll use Handwritten Text Recognition (HTR) from Transkribus. Following methodology from existing literature⁹, high quality *dazibao* images will be uploaded to Transkribus, where preprocessing tools will be applied to enhance image quality and optimize them for HTR.

Next, the images will undergo page segmentation for division into distinct text regions, ensuring accurate recognition and transcription. A subset of the dataset will be manually transcribed to train the HTR model, teaching it the handwriting style and characters specific to *dazibao*. Once the model is trained, it'll be applied to the entire dataset to automatically transcribe all handwritten text.

The transcriptions will then be reviewed and corrected manually to ensure accuracy before export in a machine-readable format (like .csv).

Annotation and Metadata Collection

The project will manually annotate and collect metadata for each *dazibao*, organizing the data into a spreadsheet with columns for different attributes. Missing values and formatting inconsistencies will be systematically addressed, with missing authorship, target, and location marked as "Unknown". Text entries will be standardized for capitalization and punctuation, while numeric values will be consistently formatted for readability and analysis.

⁹ Nockels, J., Gooding, P., Ames, S. et al. Understanding the application of handwritten text recognition technology in heritage contexts: a systematic review of Transkribus in published research. *Arch Sci* 22, 367–392 (2022). <https://doi.org/10.1007/s10502-022-09397-0>.

Feature	Details/Significance	Example
Date	The date of initial publication will be entered in a standardized format (YYYY-MM-DD).	1966-08-12
Author	Full name or group name. Indicates the creator or group responsible for the Dazibao. If unknown, use "Unknown."	Zhang Wei and Li Jing
Target	Description of the audience or subject of the Dazibao. Specifies the audience or subject of the dazibao's message.	University officials
Location Published	Official street address and longitude/latitude coordinates. Records the precise location where the Dazibao was displayed or published.	123 Main Street, Beijing (39.9042° N, 116.4074° E)
Text	Full text of the Dazibao. Contains the text of the Dazibao.	Down with the capitalist roaders!
Imagery	Dropdown selection from predefined common images. Indicates whether the Dazibao includes common images: Chairman Mao, Hammer/Sickle, Little Red Book, Red Guard armband, Peasants, Red Guards.	Chairman Mao
Material	Dropdown selection (paper, cloth, wood, etc.). Specifies the material on which the Dazibao is written or printed.	Paper
Size	Dimensions in centimeters (length x width). Records the dimensions of the Dazibao.	30cm x 40cm
Script	Dropdown selection (simplified Chinese, traditional Chinese). Specifies the script style used in the Dazibao.	Traditional

Table 1. Metadata definition for dazibao dataset.

For each author and target, we will use memoirs, historical records, and Red Guard publications from the Cultural Revolution era to aggregate social network information. These sources may provide details such as home and work addresses, as well as names of family members and coworkers, allowing us to reconstruct social networks from that time period.

Feature	Details/Significance	Example
Name	Full name of individual	Zhang Wei
Home Address	Official street address and longitude/latitude coordinates. Records the precise location where the individual lived.	123 Main Street, Beijing (39.9042° N, 116.4074° E)
Family Members	Names of family members of the individual.	Zhang Jing (spouse), Zhang Ming (child)
Work Address	Official street address and longitude/latitude coordinates. Records the precise location where the individual worked.	456 Center Avenue, Beijing (39.9062° N, 116.3987° E)
Coworkers	Names of individuals who worked with the individual.	Wang Tao, Liu Mei

Table 2. Metadata definition for social network dataset.

Datasheet Creation

The datasheet for the *dazibao* and social network datasets will adhere to the "Datasheets for Datasets" guidelines¹⁰, ensuring transparency and reproducibility. It will detail collection methods, preprocessing steps, and metadata annotations, including sources, selection criteria, noise removal, image enhancement, and text normalization. Metadata will cover date, authorship, target audience, location, and handling of missing values and formatting inconsistencies. The datasheet will provide structured format and access information, data licensing, citation guidelines, and documentation on dataset usage, maintenance, and ethical considerations.

Analysis

In our study, we will construct a tripartite network that integrates geographical and social dimensions to explore the propaganda networks during the Chinese Cultural Revolution. The tripartite graph will consist of three types of nodes: publishing sites (representing geographical locations), each instance of the *dazibao*, and individuals.

Node Creation:

- Dazibao Nodes: Each *dazibao* instance will be represented as a node in the network.
- Location Nodes: Nodes representing the physical publishing locations of the *dazibao*.
- Individual Nodes: Nodes representing individuals who authored or were targeted in the *dazibao*.

Edge Creation:

- Dazibao-Location Edges: Connect each *dazibao* node to the location node representing its publishing location.
- Dazibao-Individual Edges: Connect *dazibao* nodes to individual nodes representing authors (blue) or targets (red) mentioned in the *dazibao*.
- Individual-Individual Edges: Connect individual nodes to other individual nodes with solid lines if family and dashed lines if coworkers.

¹⁰ Gebru, T., Morgenstern, J., Vecchione, B., Vaughan, J. W., Wallach, H., Iii, H. D., & Crawford, K. (2021). Datasheets for datasets. *Communications of the ACM*, 64(12), 86-92.

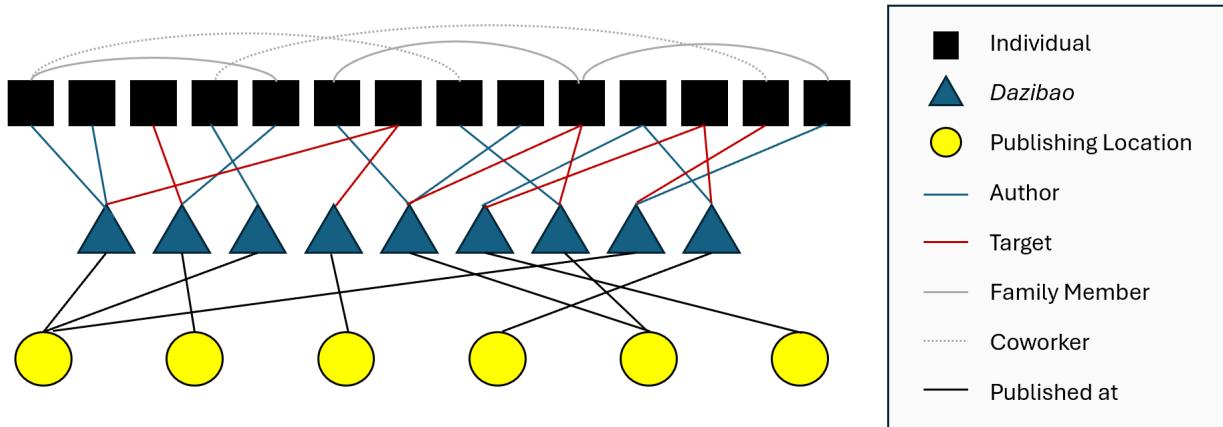


Figure 6. Example tripartite graph based on dazibao and social network dataset.

Network Connectivity Analysis: This analysis focuses on measuring the connectivity between geographical nodes (publishing locations) and social nodes (individuals and dazibao) within the tripartite network. We will calculate the degree centrality of each node, which measures the number of connections a node has.¹¹ A high degree centrality for geographical nodes would indicate that certain locations were central hubs for dazibao distribution, while a high degree centrality for social nodes would suggest influential individuals or groups. If we find a strong correlation between high-degree centrality nodes in both geographical and social dimensions, it would support our hypothesis that dazibao played a significant role in shaping public discourse and societal divisions.

Community Detection Analysis: This analysis aims to identify clusters of nodes that are densely connected within each network (geographical and social) and across both networks. We will use community detection algorithms such as Louvain or Infomap to identify these clusters.¹² If the community detection algorithm reveals distinct clusters of dazibao instances and individuals that align with known social or geographical divisions, it would validate our hypothesis that dazibao contributed to the polarization of Chinese society along ideological lines.

Centrality Measures Analysis: This analysis will calculate centrality measures such as betweenness centrality for both geographical and social nodes. Betweenness centrality measures the extent to which a node lies on the shortest path between other nodes in the network, indicating its importance in connecting different parts of the network.¹³ If certain geographical locations or individuals have high betweenness centrality, it would suggest that they played a crucial role in the dissemination of dazibao messages. This finding would support our hypothesis that key individuals or locations acted as central nodes in the propagation of dazibao messages. Comparing these relevant measures over time would allow us to track trends throughout the Revolution.

¹¹ Zhang, Junlong, and Yu Luo. "Degree centrality, betweenness centrality, and closeness centrality in social networks." *2017 2nd international conference on modelling, simulation and applied mathematics (MSAM2017)*. Atlantis press, 2017.

¹² Yang, Zhao, René Algesheimer, and Claudio J. Tessone. "A comparative analysis of community detection algorithms on artificial networks." *Scientific reports* 6.1 (2016): 30750.

¹³ Zhang and Yu. "Degree centrality, betweenness centrality, and closeness centrality in social networks." 2017.

Network Alignment Analysis: We will use network alignment techniques such as structural alignment or attribute-based alignment to investigate alignment of the geographical and social networks based on shared attributes. Prior literature¹⁴ describes the process of identifying nodes in the geographical network that correspond to nodes in the social network based on common attributes such as geographical location, authorship, or targets mentioned in the *dazibao*.

One process described in Trung (2020) involves constructing a similarity matrix between nodes in the geographical and social networks based on these shared attributes. This matrix quantifies the similarity between pairs of nodes, with higher values indicating greater similarity. An alignment algorithm is then used to find the best alignment between the two networks that maximizes the overall similarity between corresponding nodes.

If the alignment is successful, we expect to see clusters of aligned nodes that correspond to geographical locations and social entities (such as authors or targets) that are closely related in both networks. This would indicate that *dazibao* content and dissemination patterns were closely linked to geographical and social factors, providing strong support for our hypothesis regarding the role of *dazibao* in shaping public discourse and societal divisions during the Chinese Cultural Revolution.

Visualization

To effectively communicate the complex interplay between social connections and geographical distribution, we propose using interactive and dynamic visualizations that allow for exploration and analysis of the data from multiple perspectives.

We propose using a geographic map as the backdrop for the visualization, with yellow circular nodes representing publishing locations positioned at their respective geographical coordinates. Different layers of maps can show maps recorded from different time periods, georeferenced so that they can serve as basemaps in GIS software.

The size or color of the nodes can indicate the number of *dazibao* published at each location, providing a visual representation of the intensity of activity in different regions.

¹⁴ Trung, Huynh Thanh, Nguyen Thanh Toan, Tong Van Vinh, Hoang Thanh Dat, Duong Chi Thang, Nguyen Quoc Viet Hung, and Abdul Sattar. "A comparative study on network alignment techniques." *Expert Systems with Applications* 140 (2020): 112883.

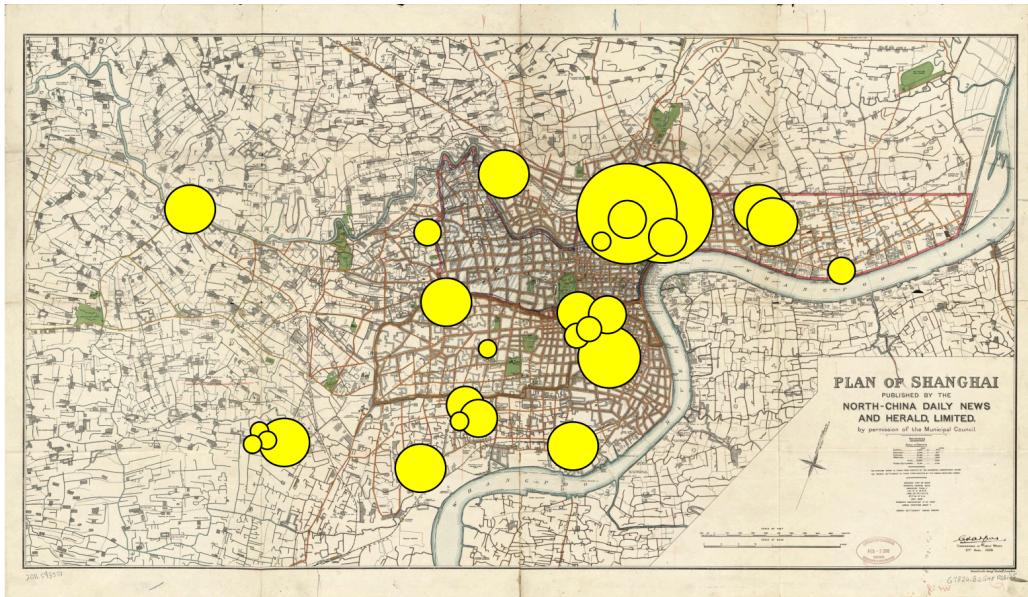


Figure 7. Example hotspot visualization of publishing locations overlaid on Shanghai City Map.

Additionally, social network data can be overlaid on the geographical map, with nodes representing individuals positioned based on their associated publishing locations. Literature¹⁵ shows that combining the fields of Social Network Analysis (SNA) and GISystems better models how humans socialize, share information, and form social groups within the complex geographic landscape. The article details how a typical SN can be used as a layer in a GISystem by integrating SN graph structure into a planar layer by leveraging geolocation variables.

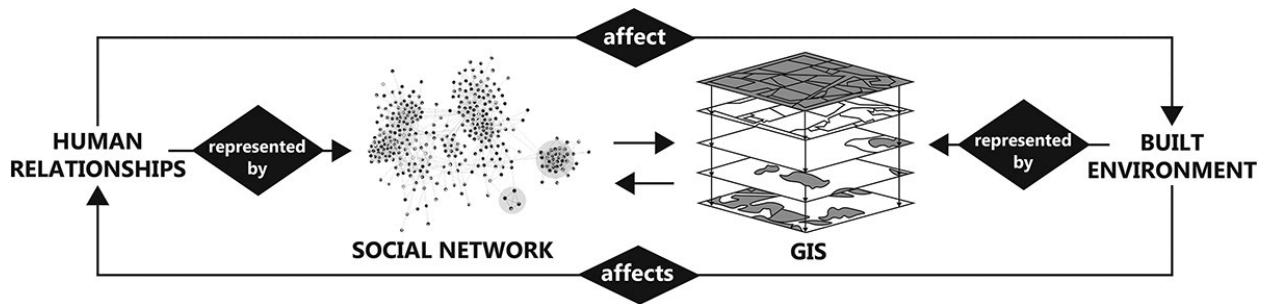


Figure. Andris, 2016: Integration of SN and GIS structures.

¹⁵ Andris, C. (2016). Integrating social network data into GISystems. International Journal of Geographical Information Science, 30(10), 2009–2031. <https://doi.org/10.1080/13658816.2016.1153103>

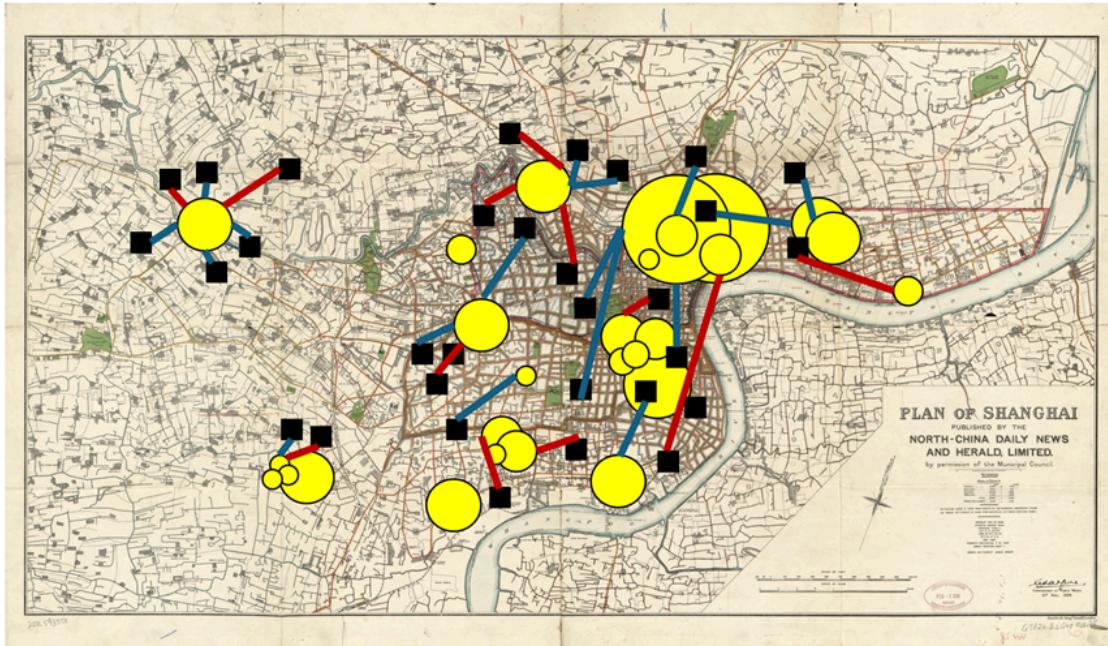


Figure 8. Example hotspot visualization with the info layer of individuals (authors and targets).

Interactive features can enhance the visualization by allowing users to filter the data based on different criteria, such as time period, authorship, or target. This enables users to focus on specific aspects of the data and explore relationships between different variables. Zooming in on a certain area would allow users to see specific examples of *dazibao* along with the relevant metadata (including translated text, author/target names, dates, etc.), organized in a popup window of more information.

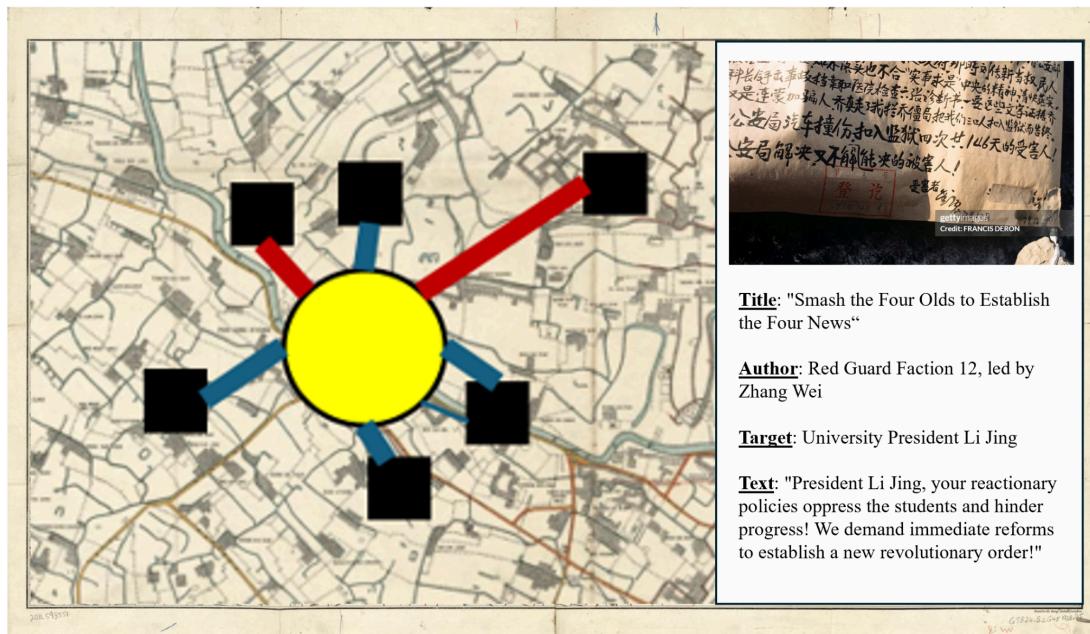


Figure 9. Zoomed-in visualization of single publishing location, with additional information on *dazibao*.

Furthermore, animations (like via a sliding time scale) can be used to show changes in the network over time, illustrating how social connections and geographical distribution evolved throughout the Cultural Revolution. This dynamic approach can help reveal patterns and trends that may not be apparent in static visualizations.

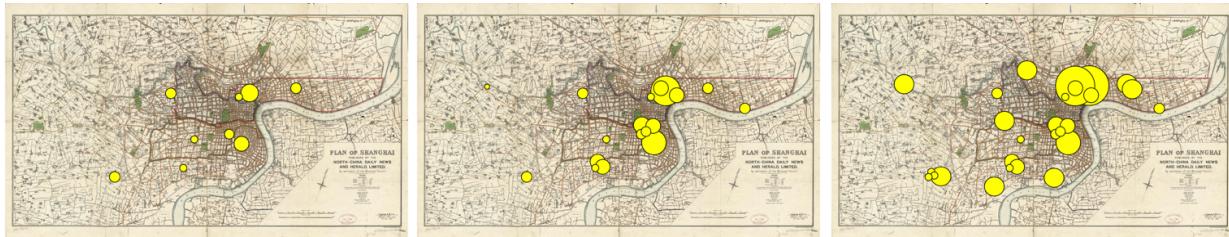


Figure 10. Example representation of growth of dazibao across publishing locations over time.

Presentation

Academic Publications: The research findings will be published in peer-reviewed journals focusing on digital humanities, history, and cultural studies. These publications will detail the methodology, results, and implications of the study, contributing to scholarly discussions on propaganda networks and social dynamics during the Cultural Revolution.

Conference Presentations: The project team will present the research at relevant academic conferences, such as the Association for Asian Studies (AAS) Annual Conference¹⁶ and DH 2024, the annual conference of the Alliance of Digital Humanities Organizations¹⁷. These presentations will provide opportunities to engage with other researchers and receive feedback on the study.

Online Repositories: The annotated images, datasheet, metadata, hosted interactive visualization, and research findings will be made available through online repositories such as Zenodo and GitHub. This will enable other researchers to access and use the data for further analysis and replication of the study.

Copyright and Preservation: The project team will adhere to copyright laws and ethical guidelines when disseminating the research findings, potentially including the anonymization of all authorship/targeting and social network data. Proper attribution will be given to all sources, and permissions will be obtained as necessary for the use of copyrighted material.

Sustainability: To ensure the sustainability of the project, the research team will document all processes and methodologies used in the study. This documentation will serve as a guide for future researchers interested in conducting similar studies. The project team will also seek funding opportunities to support ongoing maintenance and updates to the dataset and research findings.

¹⁶ <https://www.asianstudies.org/conference/>

¹⁷ <https://dh2024.adho.org/>

References

- Andris, C. (2016). Integrating social network data into GISystems. *International Journal of Geographical Information Science*, 30(10), 2009–2031. <https://doi.org/10.1080/13658816.2016.1153103>
- Barmé, Geremie R. "History writ large: Big-character posters, red logorrhoea and the art of words." *PORTAL: Journal of Multidisciplinary International Studies* 9.3 (2012): 1-35.
- Gebru, T., Morgenstern, J., Vecchione, B., Vaughan, J. W., Wallach, H., Iii, H. D., & Crawford, K. (2021). Datasheets for datasets. *Communications of the ACM*, 64(12), 86-92.
- Ho, Denise. "Exhibiting the Cultural Revolution." Fairbank Center for Chinese Studies, *Harvard University*, 2017.
- Nockels, J., Gooding, P., Ames, S. et al. Understanding the application of handwritten text recognition technology in heritage contexts: a systematic review of Transkribus in published research. *Arch Sci* 22, 367–392 (2022). <https://doi.org/10.1007/s10502-022-09397-0>.
- Sheng, Hua. "Big character posters in China: A historical survey." *J. Chinese. L.* 4 (1990): 234.
- Thurston, Anne F. "Victims of China's Cultural Revolution: The Invisible Wounds: Part I." *Pacific Affairs* 57, no. 4 (1984): 599-620.
- Trung, Huynh Thanh, Nguyen Thanh Toan, Tong Van Vinh, Hoang Thanh Dat, Duong Chi Thang, Nguyen Quoc Viet Hung, and Abdul Sattar. "A comparative study on network alignment techniques." *Expert Systems with Applications* 140 (2020): 112883.
- "Hong wei bing zi liao [electronic resource] = Red Guard publications." Cultural Revolution Primary Resources, University of North Carolina. https://guides.lib.unc.edu/cul_revolution/primary.
- Yang, Zhao, René Algesheimer, and Claudio J. Tessone. "A comparative analysis of community detection algorithms on artificial networks." *Scientific reports* 6.1 (2016): 30750.
- Zhang, Junlong, and Yu Luo. "Degree centrality, betweenness centrality, and closeness centrality in social network." *2017 2nd international conference on modelling, simulation and applied mathematics (MSAM2017)*. Atlantis press, 2017.