Jungian Character Network in Growing Other Character Archetypes in Films

Youngsue Han
German Interpretation and Translation
Hankuk University of Foreign Studies, Yongin-si, 17035, Republic of Korea

ABSTRACT

This research demonstrates a clear visual outline of character influence-relations in creating Jungian character archetypes in films using R computational technology. It contributes to the integration of Jungian analytical psychology into film studies by revealing character network relations in film. This paper handles character archetypes and their influence on developing other character archetypes in films in regards to network analysis drawn from Lynn Schmidt's analysis of 45 master characters in films. Additionally, this paper conducts a character network analysis visualization experiment using R open-source software to create an easily reproducible tutorial for scholars in humanities. This research is a pioneering work that could trigger the academic communities in humanities to actively adopt data science in their research and education.

Key words: *Gustave Jung, Archetype, Character Network Analysis, Digital Humanities, Master characters.*

1. INTRODUCTION

1.1 General Appearance

This paper aims to epitomize the visualization of character networks on influences and influenced among Jungian character archetypes in developing character archetypes in film using the R statistical language and *igraph* package for R. In particular, this paper provides an easily reproducible tutorial using open source software for encouraging adoption of data science ibn digital humanities.

Recent years have seen the rise of the digital humanities and an increasing computational approach to analyzing literary works, owing to technological progress and its wide availability. Moreover, as the relevant fields are maturing, the digital humanities are increasingly adopting Social Networks Analysis (SNA) for gaining novel insights into literary works and films.

A character network analysis is a recently emerged research technique stemming from increased use of the SNA at the intersection of literary/film analysis, the SNA, and computational technologies. The character network analysis focusses on characters and their networks as narrative entities in novels and films borrowing methodologies of the SNA used in sociology and artificial intelligence. The SNA is defined as being a strategy rather than a formal theory, with the goal of investigating social structures through the use of network and graph theory in modern sociology [1].

For character analysis I have relied on the Jungian master archetypes discussed in Victoria Lynn Schmidt's book *45 master characters: mythic models for creating original*

characters [2]. I have used the R statistical language for computational tools for analysis and visualization.

The outline of this paper is as follows. At the outset, this paper deals with a two-folded theoretical framework drawing on (1) character analysis from Jungian archetype and (2) network analysis in digital humanities. In the next section, this paper addresses data collection and the computational implementation of R scripts. Subsequently, this paper presents visualizations and discussions of analyzed character networks. Finally, this paper will conclude.

2. THEORETICAL BACKGROUND

2.1 Jungian archetype for film-character analysis

Carl Gustav Jung (1875-1961) was a Swiss psychologist known for his pioneering work and contribution to analytical psychology. Jung has three divisions in his personality theory which consists of (1) the 'ego' as the conscious mind, (2) the 'personal unconscious', not presently conscious but including hidden memories that are easily recalled, and (3)' collective unconscious'.

Jung initially supported Sigmund Freud because of their shared interest in the unconscious. However, Freud and Jung diverged because of Jung's disunity with Freud's emphasis on the impacts of libido on behavior and personality. Alternately, Jung introduced 'collective unconscious', a term to represent a form of the unconscious consisting of the unconscious mind containing memories and impulses commonly shared by a group. It arises from the inherited structure of the collective brains distinguishing from the personal unconscious in Freudian psychoanalysis originating from the experience of the

individual. Hence, 'the collective unconscious' is a unique feature in Jung's theory.

The contents of Jung's collective unconscious are defined as archetypes. According to Jung, the 'collective unconscious' contains numerous archetypes which is the model image of a person or role. Hence, the 'archetype' enables us to identify numerous character models to shape our personalities and aspirations. Jung believed that the archetypes were universal and mythic characters that inhabit the 'collective unconscious' of people. In Jung's theory, the archetypes are mental fingerprints in disclosing the details of personalities and fundamental human motifs.

Jung's ideas have not been as popular as Freud's. However, the Jung's ideas exert significant influences on the field of practical usage. Jung's personality topology contributed to the development of numerous personality tests. Although Jung did not attempt to deploy his theory for the quantitative measuring of personalities, Jung's theory of psychological typology was implemented, during World War II, by two American women Isabel Briggs Myers (1897~1980) and Katharine Cook Briggs (1875~1968), who developed the Myers-Briggs Type Indicator (MBTI) based on Jung's personality topology [3].

Furthermore, the discipline of film studies has recently seen the fledgling rise of Jungian film theory. Since the 1970s Freud-Lacanian framework has been cemented into one of the dominant tools in film studies while other psychoanalytic approaches have been marginalized. Currently, Jungian film studies is a fast-growing academic field. Film studies have recently begun to employ Jung's concept of archetypes-prototypical characters which play the role of blueprint in constructing clear-cut characters like that of protagonist, antagonist, deuteragonist, tritagonist and supporting characters in films. Bassil-Morozow and Hockley (2017) attempted to bridge the space between Jungian concepts and traditional film theory by covering a range of Jungian concepts. The authors argued that cinema can be regarded as a place where the unconscious and conscious meet [4].

In Jung's writings, prevalent archetypes are great mother, father, child, devil, god, wise old man, wise old woman, the trickster, the hero [5]. Victoria Schmidt embraced Jung's master characters modifying and extending them into 45 in her a monograph *45 master characters: mythic models for creating original characters* (2012) that provides the interaction between protagonist characters in films [2]. She followed Jung's theory to explore the most common male and female fictional archetypes drawing on examples of how such archetypes played their parts in novels, film and television.

In her book (2012), she extended Jung's master characters in constructing 45 master characters which consist of main characters with the subdivisions of 'heroes' and 'villains' and supporting characters as shown in Table 1 and Table 2. In addition, she provided relations with whom an archetype is best paired in formation of an original archetype. For example, in the case of developing the 'Aphrodite' archetype, the following archetype characters have influences on Aphrodite as follows:

• The Woman's Man — can teach her to value herself for her mind and spirit as well as her body.

• The Messiah — can teach her how to channel her sexual energy to advance spiritually.
• The Recluse and Mystic — can teach her how to be alone without fear of abandonment and also how to know herself deep down inside.
• The Amazon — can teach her to set limits and accept discipline as a positive thing in life.

Interestingly, Schmidt's information on pairing among archetypes in development of an archetype in films constructs data into a character network, which could save an empirical survey for this research. Hence, I have drawn on her description on pairing of characters in character-formation to conduct character network analysis.

Table 1. Main characters in Schmidt's 45 master characters: *mythic models for creating original characters (2012)*

Female Heroes and Villains	Male Heroes and Villains
Aphrodite: The Seductive Muse and the Femme Fatale Artemis: The Amazon and the Gorgon Athena: The Father's Daughter and the Backstabber Demeter: The Nurturer and the Overcontrolling Mother Hera: The Matriarch and the Scorned Woman Hestia: The Mystic and the Betrayer Isis: The Female Messiah and the Destroyer Persephone: The Maiden and the Troubled Teen	Apollo: The Businessman and the Traitor Ares: The Protector and the Gladiator Hades: The Recluse and the Warlock Hermes: The Fool and the Derelict Dionysus: The Woman's Man and the Seducer Osiris: The Male Messiah and the Punisher Poseidon: The Artist and the Abuser Zeus: The King and the Dictator

Table 2. Supporting characters in Schmidt's *45 master characters*

Supporting Characters		
Friends	**Rivals**	**Symbols**
Magi Mentor Best Friend Lover	Joker Jester Nemesis Investigator Pessimist Psychic	Shadow Lost Soul Double

2.2 Network Analysis in Digital Humanities

The SNA is a study of social structures through mathematical theories like networks and graph theory. The SNA has initially emerged as one of the key analytic methods in modern sociology. Later, it also gained extensive ground to affect a wide range of academic disciplines and practical applications. Prior to the advent of computational technology and internet, the SNA relied on limited data from interviews and surveys. Currently, both researchers in humanities and computer science have embarked on analyzing networks from various literary and historical texts using computational software. While the former tends to perform qualitative studies examining the intricacies of plot structure and character

interactions in literary works, computer scientists concentrate more on frequencies, statistics and algorithms [6].

The network analysis generally deploys 'vertex' and 'edge' for representing relations between actors borrowing from graphic theory in mathematics. It characterizes a social network as a social structure made up of 'nodes' (actors/ vertices / points) and 'edges' (ties / arcs / lines / links, or connections) connecting nodes within the networks. In general, the visualization of the SNA is displayed through sociograms in which nodes are represented as points or circles and edges are depicted as lines.

Arnold and Tilton (2015) presented examples of visual representation of a family tree and citation network in their recently published technical textbook, *Humanities Data in R: Exploring Networks, Geospatial Data, Images, and Text* (2015) as shown Fig. 1 and Fig. 2 [7].

Fig. 1. Family tree

Arnold and Tilton (2015) implemented R scripts using the *igraph* package to represent parent-child relation of the Royal family in forms of family trees shown in Fig. 1.

Fig. 2. A citation network of US Supreme Court cases which dealt primarily with the topic of segregation [6]

Citation network in the SNA can be divides in two: (1) academic citation networks and (2) legal citation networks. The academic citation networks contain sources and the bibliographic references in academic papers. The legal system of Common law known as judicial precedent features a body of law referencing to precedent decisions of courts and similar tribunals. Hence, the exploration of the citation network from

massively accumulated legal opinions can be of benefit. Fig. 2 represents an example of visualization of a citation network built from United States Supreme Court case opinions relying on Supreme Court Citation Network Data.

This paper reviews recent works relevant to character networks in film. Tran, Quang Dieu, Dosam Hwang, and Jason J. Jung (2015) proposed a co-occurrence character network analysis for movie summarization based on discovery and analysis movie storytelling. They conducted experiments on 17 movies including the *Star War* series, the *Lord of the Ring* series and *Harry Porter* series with more than 2000 minutes of movies play time along with evaluation of results compared to IMDb and IMSDb database. Their experiment outperformed the conventional approaches in terms of the movie summarization rate [8].

Tran, Quang Dieu, Dosam Hwang, and Jason J. Jung (2017) coped with poor performances of content-based indexing. They considered image processing techniques for semi-automatically character-based indexing. Moreover, they created a movie ontological model is created for connecting character appearances and character's roles in the movie. Their experimental results showed that their proposed method assists user in consuming index time and providing a method for automatic indexing, searching and browsing based on semantic queries [9].

Quang Dieu Tran, Dosam Hwang, O-Joun Lee, Jai E. Jung (2017) proposed a novel method to summarize a movie based on character network analysis and the appearance of protagonist and main characters in the movie by carrying out experiment on two movies *Titanic* (1997) and *Frozen* (2013). They showed that their method outperforms conventional approaches in terms of the movie summarization rate [10].

Finally, O-Joun Lee, Nayoung Jo, and Jason J. Jung (2018) measured similarity among movies' stories by clustering them with the character network and the genre distribution. As to methods, they used two kinds of features: (1) proximity among movie characters and (2) genres of the movies to construct the story-based taxonomy by clustering the movies [11].

3. EXPERIMENTAL DESIGN AND METHOD

My method for extracting character network data from films depends on 'Developing the Character Arc' in 16 chapters of Schmidt's 45 master characters: mythic models for creating original characters (2012). Throughout her analysis of characters in film, Schmidt provided data on relations of 'influences' and 'influenced' between main characters in developing character archetypes as shown in Table 3 (Developing the female character archetype) and Table 4 (Developing the male character archetype). In Table 3 and Table 4, 'Female Heroes' and 'Male Heroes' in the left columns of each table are influenced in their growth from characters in the column of '**Developing the Character Archetype**'. I have cited Schmidt's description on roles of influencing characters in the right column of the Table 3 and Table 4.

Table 3. Developing the female character archetype

Female Heroes	Developing the Character Archetype
Aphrodite: The Seductive Muse and **the Femme Fatale**	• **The Woman's Man** — can teach her to value herself for her mind and spirit as well as her body. • **The Messiah** — can teach her how to channel her sexual energy to advance spiritually. • **The Recluse and Mystic** — can teach her how to be alone without fear of abandonment and also how to know herself deep down inside. • **The Amazon** — can teach her to set limits and accept discipline as a positive thing in life
Artemis: The Amazon and **the Gorgon**	• **The Protector** — can teach her to trust others to help her. • **The Fool and The Maiden** — can teach her about fun, adventure and how to be easygoing. • **The Nurturer** — can teach her the value of giving birth and being a mother.
Athena: The Father's Daughter and **the Backstabber**	• **The Artist** — can teach her about creativity and letting go in the moment. • **The Seducer** — can open her sexuality and teach her how to have personal relationships with men. • **The Destroyer** — can teach her about raw female power. • **The Scorned Woman** — hates other women, such as mistresses, so much she can be an example of how ridiculous it is to hate all women. • **The Matriarch** — can show her female power within the family and teach her traditional values.
Demeter: The Nurturer and **the Overcontrolling Mother**	• **The Woman's Man** — can nurture her back and show her what it feels like to be in an equal relationship with another. • **The Recluse** — can teach her the value of being alone and knowing herself. • **The Gorgon** — can teach her the harsh realities of life and how to stop people from walking all over her. • **The Mystic** — can teach her self-love.
Hera: The Matriarch and **the Scorned Woman**	• **The Dictator** — steals control from her and upsets the family system. • **The Fool and The Maiden** — show her youth, love, spontaneity and letting go of control. • **The Mystic** — can teach her how to look inside herself to find out who she really is. • **The Father's Daughter** — can teach her about having her own career and how to be a team player instead of a dictator.
Hestia: The Mystic and **the** Betrayer	• **The Gladiator** — can teach her about feeling and expressing intense emotions. • **The Seducer or Seductive Muse** — can teach her about sexuality and loosening up her shy, quiet nature. • **Messiah** — can push her further into the spirit realms, giving her a chance to act out her convictions.

Isis: The Female Messiah and **the Destroyer**	• Self-growing character
Persephone: The Maiden and **the Troubled Teen**	• **The Woman's Man** — can show her the strength that lies inside her and can help her understand and accept her sensitivities and spiritual gifts. • **The Warlock** — would abduct her in some way, waking her up and taking her out of the protected little world she has made for herself. • **The Amazon** — would teach her how to care for herself and to be strong. She can show her how to accept her own power and sensitivity as a positive thing. She can also drag her out of her protected world. • **The Overcontrolling Mother** — can be so overbearing and controlling that she pushes the Maiden out of the house where she then learns to fend for herself.

Table 4. Developing the male character archetype

Male Heroes	Developing the Character Archetype
Apollo: The Businessman and **the Traitor**	• **The Artist** — can teach him to get in touch with the feminine qualities of love and emotions. • **The Seducer** — can teach him how to let go of the consequences of his actions and have some fun in life. • **The Mystic** — can teach him how to be a spiritual person and how to be by himself without a lot of work and activities to numb his mind. This quiet time may bring up memories and feelings that he is trying to suppress through his workaholic lifestyle. • **The Gorgon** — can humiliate him and teach him to be humble. She can turn his life upside down causing chaos and uncertainty.
Ares: The Protector and **the Gladiator**	• **The King** — can teach him self-control and discipline of his actions. • **The Troubled Teen** — may not want to be rescued, so the Protector will have to learn to let go of someone who doesn't want his help. • **The Father's Daughter** — is great at using her logical mind and can teach him how to fight with words. Her influence can calm him down and force him to reflect before he acts out. • **The Overcontrolling Mother** — will teach him to be disciplined with her controlling nature. Her emotions and rage can easily match his own; she's a worthy opponent. He can't lash out at her physically without paying a high price.
Hades: The Recluse and **the Warlock**	• **The Fool** — can teach him how to have fun and to let loose. He can show him how to talk to people and rejoin life. • **The Dictator** — would enforce so many rules and regulations that the Recluse would have to stand up for himself or give up his isolated lifestyle to follow

	another man's rule.
	• **The Maiden** — would teach him how to love and what it means to be as playful and innocent as a child. Her adventurous nature could change his entire life. • **The Scorned Woman** — would be so hurt by her past relationships that she would outdo him in her antisocial behavior. He would probably see himself mirrored in her and decide to change his ways.
Hermes: **The Fool** and the **Derelict**	• **The Businessman** — can teach the Fool responsibility and about how to take care of himself as adults do. • **The Abuser** — a father could take all the fun out of the Fool's life by pushing him to grow up and take care of himself so he can leave home. • **The Matriarch** — would teach him about family and commitment. He'd learn that to be totally without roots is to be totally alone. • **The Destroyer** — would change his life and make him wake up to the fact that he can be an adult and still have fun
Dionysus: **The Woman's Man** and **the Seducer**	• **The Businessman** — can teach the Woman's Man how to be a part of the boys' club as well as provide him with a male role model. • **The Dictator** — can force the Woman's Man into taking responsibility for his life, or he can cause the Woman's Man to stand up for himself and fight it out. • **The Nurturer** — can take care of him and wait until he's ready for commitment. She is his dependable rock. • **The Femme Fatale** — can love him and leave him just as he seems to do to other women. He may fall in love with her for her independence and sensuality and then learn what it's like to be dumped.
Osiris: The **Male Messiah** and the **Punisher**	• Self-growing character
Poseidon: **The Artist** and **the Abuser**	• **The Businessman** — can teach the Artist how to take care of and manage his own career and destiny. He can show him how to be organized and in control of his feelings. • **The Woman's Man** — can show the artist how to be sexual and sensual. He can teach him how to love women and to find his feminine side. • He can make the artist feel ashamed for the way he overreacts to events in his life. • **The Seductive Muse** — can teach him how to get in touch with his body and how to feel pleasure and happiness instead of just pain. The love she instills in men can make him willing to change for her. • **The Troubled Teen** — can turn his world upside down, leaving when he is on a rampage. She won't enable him to be emotionally abusive to her. She'll force

	him to look at his actions.
Zeus: **The King** and **the Dictator**	• **The Artist** — can help him find and express his emotions and show him how to be open to love and creativity. • **The Backstabber** — if the King loses a strong ally and friend his whole world may crumble, and he'd have to reevaluate his entire life. • **The Amazon** — can show him that women can be great allies and friends. She can teach him that his feminine side doesn't have to be as weak as he thinks it is. • **The Femme Fatale** — the King thinks he's in total control of women and would be completely devastated if a woman got the better of him. The Femme Fatale can be sneakier and therefore more powerful than he is.

For creating and assessing basic properties of network graphs, I have used igraph for R package. R is an open source programming language for statistical computing and graphics. R is now available for addressing tasks ranging from standard manipulation, visualization, and characterization of network data. (e.g., igraph, network, and SNA), to modeling of networks, to network topology inference.

The igraph is a library collection for covering basics of network visualization of 'graphic theory'. It was developed in C language by Gábor Csárdi and Tamás Nepusz. (http://igraph.org/r/) [12]. Currently it is freely available for both Python and R under GNU General Public License Version 2 and is widely used in academic research in network science and related fields. I have imported the csv file into R software and *igraph* for R package to produce visualization with R script as follows:

```
install.packages("igraph")
library (igraph)
dat <- read.csv(header=TRUE,row.names=1,check.names=FALSE)
m=as.matrix(dat)
net=graph.adjacency(m,mode="directed",weighted=TRUE,diag=FALSE)
plot.igraph(net,vertex.label=V(net)$name,layout=layout.fruchterman.reingold,
vertex.label.color="black",edge.color="black",edge.width=E(net)$weight/3, edge.arrow.size=0.1)
```

I have implemented the R scripts using R version 3.4.4 and Rstudio Desktop 1.1.442 on Macbook Pro installed with macOS High Sierra. The Rstudio is a free and open-source integrated development environment (IDE) for R, a programming language for statistical computing and graphics. It is available for Windows, macOS, and Linux.

Table 5. Matrix of the character networks in films from Schmidt's *45 master characters: mythic models for creating original characters* (2012)

	F1	F2	F3	F4	F5	F6	F7	F8	M1	M2	M3	M4	M5	M6	M7	M8	Influences
F1	0	0	0	0	0	1	0	0	0	1	1	0	0	0	0	0	3
F2	1	0	0	1	0	0	0	1	1	1	0	0	0	0	0	0	4
F3	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	1	3
F4	0	1	0	0	0	0	0	1	0	0	0	0	1	0	0	1	4
F5	0	0	1	0	0	0	0	0	0	0	0	0	0	1	1	0	3
F6	1	0	0	1	1	0	1	0	0	0	0	1	0	0	0	0	5
F7	1	0	1	0	0	1	0	0	0	0	0	0	1	1	0	0	5
F8	0	1	0	0	1	0	1	0	0	0	1	0	0	0	1	1	6
M1	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	4
M2	0	0	0	0	1	0	0	0	0	0	0	0	1	0	1	1	4
M3	0	0	1	0	0	0	0	0	1	1	0	0	0	0	0	0	3
M4	1	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	3
M5	1	0	1	1	0	1	0	1	1	0	1	0	0	0	0	0	7
M6	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	4
M7	1	0	0	1	0	0	1	1	0	0	0	1	0	0	0	0	5
M8	0	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	3
Influenced	6	4	4	4	5	5	4	4	3	4	4	4	4	4	4	4	

F1: Aphrodite, F2: Artemis, F3: Athena, F4: Demeter, F5: Hera, F6: Hestia, F7: Isis. F8: Persephone
M1: Apollo, M2: Zeus, M3: Poseidon, M4: Osiris, M5: Dionysus, M6: Hermes, M7: Hades, M8: Ares
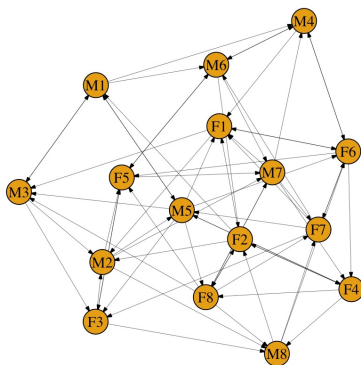
4. RESULTS

Fig. 3. Visualized character network in developing archetype in films

Fig. 3 displays visualization from implementation of R scripts using *igraph* packages. In the diagram of the networks was represented in the layout of the Fruchterman-Reingold Algorithm which is a force-directed layout algorithm. Every *node* signifies a Jungian archetype character in mythic forms and *edges* with arrow directedness denote relation from the 'influences' and the 'influenced'. For example, F1 (Aphrodite) *node* has three influences with three *edges* with directed arrows going to M2, M3, and F6 and six edges directed to F1 coming from F2, F6, F7, M4, M5, and M7. F1 has influences on M3, M3, and F5 and is influenced by F2, F6, F7, M4, M5, and M7 in development of character archetype.

The results of my visualization of character network from Schmidt's 45 characters provides more comprehensive overview of character network in film than her description in Schmidt's book. She did not deal with impacts of characters in growing other characters with visual diagrams. Moreover, she provided information on the relations at each end of every chapter without considering character network. Hence, the character relation in her book is difficult be grasp a whole outline and even seems to be fragmentary.

My visualization of character network in developing character improves the limits of Schmidt's book. Moreover, it is easy for scholars in humanities to reproduce and to understand tangible benefits of adopting data science. It could inspire humanities to extend topics of the SNA like frequencies of conversations, mentoring, sexual intercourses, and conflicts among characters in literary works and films.

5. CONCLUSION

I have manifested a clear visual outline of character influence-relations in making up Jungian character archetypes in films by using R computational technology. My research has contributed to the integration of Jungian analytical psychology into film studies by revealing character network relations in film. Furthermore, my research has provided an epitomized way of performing the visualization of character networks by using computational technology, and by doing so, my research galvanizes the further relevant research based on massive and empirical data.

However, my analysis of characters is limited because of the small-size data from Schmidt's single monograph and from the cultural bias of Western culture and history. In spite of my reliance on small data, this research contributes to galvanizing the academic communities in humanities into more active adoption of data science and embarking on building up massive data.

In humanities, massive data collection might be far different from those in business activities. Scholars and students should manually build up data from texts along with critical reviews. Moreover, up to now, many scholars in humanities are still reluctant to adopt data science in their research. Against this backdrop, my research provides an easily reproducible tutorial and could be a pioneer in removing fears among scholars and students in humanities on technical barriers. If given an opportunity, I hope to perform further character network analysis using massive and empirical data and produce localized renditions of analysis from data sources outside western cultures.

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Youngsue Han
He received the B.A. in German Studies, M.A in European Studies from Hankuk University of Foreign Studies, Korea in 2000 and 2005 respectively and also received Dual Ph.D. in sociology from University of Siegen, Germany in 2015 and Lancaster University, UK in 2016. Since then, he taught machine learning and digital humanities at Sogang University. Currently, he teaches at Hankuk University of Foreign Studies. His main research interests include machine learning and digital humanities.