

## Jina Kim

Ph.D. Student in Computer Science

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## Education

- 2021 – Ph.D., Computer Science, University of Minnesota, USA  
Advisor: Professor Yao-Yi Chiang
- 2020 Visiting Scholar, Language Technologies Institute, Carnegie Mellon University, USA  
Project Mentor: Jeffrey Gennari
- 2019 – 2021 M.S., Computer Science, Sungkyunkwan University, USA  
Advisor: Professor Eunil Park  
Thesis: A Human-Centered Machine Learning Approach for Mental Health in Social Media
- 2015 – 2019 B.S., Computer Engineering, Hansung University, Republic of Korea  
Advisors: Professor Kitae Hwang and Professor Inhwon Jung

## Honors & Awards

- 2023 **First Place, ACM SIGSPATIAL Student Research Competition (Graduate)**, the 2023 ACM SIGSPATIAL Conference. **Kim, J.**, Chiang, Y.-Y. Towards Learning of Spatial Triad from Online Text. Hamburg, Germany
- 2023 **First Place, ACM SIGSPATIAL Student Research Competition (Undergraduate)**, the 2023 ACM SIGSPATIAL Conference. Olson, R. M., **Kim, J.**, Chiang, Y.-Y. An Automatic Approach to Finding Geographic Name Changes on Historical Maps. Hamburg, Germany
- 2023 **First Place, Best Poster Award**, SIAM International Conference on Data Mining. **Kim, J.** Generating Meaningful Representations from Multimodal Spatial Data Describing Human-Environmental Interactions. Minneapolis, MN, USA
- 2022 **First Place, Student Poster Competition**, University Consortium for Geographic Information Science Symposium. **Kim, J.** Generating Geospatial Linked Data from Text Labels on Maps. Syracuse, NY, USA
- 2021 **Second Place, Best Achievement Award in Global Training Program**, Ministry of Science and ICT Government, Korea
- 2021 **Second Place, Fake-EmoReact Challenge**, the SocialNLP in conjunction with 2021 NAACL Conference.
- 2020 **First Place, Best Research Award**, College of Computing, Sungkyunkwan University
- 2019 **Undergraduate Distinguished Achievement Award**, Hansung University
- 2018 **First Place, 2018 Capstone Project**, An MQTT based Real Time LBS System Design for Vehicles and Pedestrians, Department of Computer Engineering, Hansung University
- 2017 **Second Place, 15th Embedded Software Contest**, Drone Streaming Solution Using Raspberry PI 3, Electronics and Telecommunications Research Institute (ETRI)

## Research Projects

- 2023 – Research Assistant (*in Charge of TA2*), **AI for Map Geolocation and Extraction to Find Critical Minerals**. Defense Advanced Research Projects Agency (DARPA)

- 2023 – Research Assistant (*in Charge of TA2*), **ROMULUS and REMUS, Two Systems for Building Mega-City**. Intelligence Intelligence Advanced Research Projects Activity (IARPA)
- 2021 – 2023 Research Assistant, **Machines Reading Maps**. National Endowment for the Humanities (NEH)
- 2020 – 2021 Research Assistant (*in Charge*), **Developing a Deep Learning Model for Detecting High-Risk Mental Health Group**. The Individual Research Grants Program, National Research Foundation of Korea
- 2020 Research Assistant, **Designing an Analysis Model on Abnormal Statements in Thermal Pipelines Monitoring Procedures**. The Commissioned Research, Korea Institute of Civil Engineering and Building Technology (KICT)
- 2019 Research Assistant (*in Charge*), **Developing a Deep Learning Model for Predicting Service Reuse**. The Individual Research Grants Program, National Research Foundation of Korea
- 2019 Research Assistant, **Big Data Research for Artificial Intelligence Applications**. Electronics and Telecommunications Research Institute
- 2019 Research Assistant, **Theorizing and Analyzing User Resistance Behavior: An Application of Big Data Approaches**. Samsung Research Grants Program, Samsung and Sungkyunkwan University
- 2017 – 2018 Undergraduate Research Intern, **Development of the Appliance with Messaging Technology underlying Hyper-Connected Society**. Seoul Business Agency and Hansung University

## **Publications**

### **Conference & Symposium Proceedings**

- Kim, J.**, Li, Z., Lin, Y., Namgung, M., Jang, L., Chiang, Y.-Y. (November 2023). The mapKurator System: A Complete Pipeline for Extracting and Linking Text from Historical Maps (Demo Paper). In *Proceedings of the 31th ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems*, Article 35, 1–4, Hamburg, Germany
- Olson, R. M., **Kim, J.**, Chiang, Y.-Y. (November 2023). An Automatic Approach to Finding Geographic Name Changes on Historical Maps. In *Proceedings of the 31th ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems*, Article 7, 1–2, Hamburg, Germany (SRC First Place - Undergraduate Category)
- Kim, J.**, Chiang, Y.-Y. (November 2023). Towards Learning of Spatial Triad from Online Text. In *Proceedings of the 31th ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems*, Article 1, 1–2, Hamburg, Germany (SRC First Place - Graduate Category)
- Li, Z., **Kim, J.**, Chiang, Y.-Y., Chen, M. (December 2022). SpaBERT: A Pretrained Language Model from Geographic Data for Geo-Entity Representation. In *Proceedings of the 2022 Conference on Empirical Methods in Natural Language Processing (EMNLP) - Findings*, pp. 2757-2769, Abu Dhabi
- Kim, J.**, Bae, K., Park, E., del Pobil, A. P. (November 2019). Who will Subscribe to My Streaming Channel?: The Case of Twitch. In *Conference Companion Publication of the 2019 on Computer Supported Cooperative Work and Social Computing (CSCW)*, pp. 247-251, Austin, Texas.

### **Journal Articles**

- Lee, S., **Kim, J.**, Kim, D., Kim, K. J., Park, E. (2023). Computational Approaches to Developing the Implicit Media Bias Dataset: Assessing Political Orientations of Nonpolitical News Articles. *Applied Mathematics and Computation*, 458, 128219 (SCIE, JCR 2022 IF=4.000, Q1 in *Mathematics, Applied*).
- Lee, S., **Kim, J.**, Park, E. (2023). Can book covers help predict bestsellers using machine learning approaches?. *Telematics and Informatics*, 78, 101948 (SSCI, JCR 2021 IF=9.140, Q1 in *Information Science & Library Science*).
- Kim, E., Ji, H., **Kim, J.**, Park, E. (2023). Classifying apartment defect repair tasks in South Korea: A machine learning approach, *Journal of Asian Architecture and Building Engineering*, ISSN: 1346-7581 (A&HCI).
- Kang, J., **Kim, J.**, Yang, M., Park, E., Ko, M., Lee, M., Han, J. (2022). Behind the Scenes of K-pop Fandom: Unveiling K-pop Fandom Collaboration Network. *Quality & Quantity*, 56, 1481–1502 (SSCI).
- Ji, H., **Kim, J.**, Hwang, S., Park, E. (2022). Automated crack detection via semantic segmentation approaches using advanced U-Net architectures. *Intelligent Automation & Soft Computing*, 34(1), 593-607 (SCIE, JCR 2021 IF=3.401, Q2 in *Automation & Control Systems*).
- Kim, J.**, Park, E. (2022). Understanding social resistance to determine the future of Internet of Things (IoT) services, *Behaviour & Information Technology*, 41(3), 547-557, ISSN: 0144-929X (SSCI, JCR 2021 IF=3.320, Q2 in *Computer Science, Cybernetics*).
- Oh, S., Ji, H., **Kim, J.**, Park, E., del Pobil, A. P. (2022). Deep learning model based on expectation-confirmation theory to predict customer satisfaction in hospitality services, *Information Technology & Tourism*, 24, 109-126, ISSN: 1098-3058 (SSCI, JCR 2021 IF=6.093, Q1 in *Hospitality, Leisure, Sport & Tourism*).
- Ji, H., Oh, S., **Kim, J.**, Choi, S., Park, E. (2022). Integrating Deep Learning and Machine Translation for Understanding Unrefined Languages. *Computers, Materials & Continua*, 70(1), 669-678 (SCIE, JCR 2020 IF= 3.772, Q2 in *Computer Science, Information Systems*).
- Kim, J.\***, Jang, Y.\*, Bae, K., Oh, S., Jeong, N. J., Park, E., Han, J., del Pobil, A. P. (2021). Between Comments and Repeat Visit: Capturing Repeat Visitors with a Hybrid Approach. *Data Technologies and Applications*, 55(4), 542-557. ISSN: 2514-9288 (SSCI, JCR 2019 IF=0.704).
- Lee, S., Ji, H., **Kim, J.**, Park, E. (2021). What books will be your bestseller? A machine learning approach with Amazon Kindle, *The Electronic Library*, 39(1), 137-151. ISSN: 0264-0473 (SSCI, JCR 2021 IF=1.675).
- Kim, J.**, Lee, D., Park, E. (2021). Authors' Reply to: Bibliometric Studies and the Discipline of Social Media Mental Health Research. Comment on "Machine Learning for Mental Health in Social Media: Bibliometric Study", *Journal of Medical Internet Research*, 23(6), e29549. ISSN: 1438- 8871 (SCIE, JCR 2021 IF=7.093, Q1 in *Medical Informatics*).
- Kim, J.**, Lee, D., Park, E. (2021). Machine Learning for Mental Health in Social Media: A Bibliometric Study, *Journal of Medical Internet Research*, 23(3), e24870. ISSN: 1438-8871 (SCIE, JCR 2021 IF=7.093, Q1 in *Medical Informatics*).
- Kim, J.**, Ji, H., Oh, S., Hwang, S., Park, E., del Pobil, A. P. (2021). A deep hybrid learning model for customer repurchase behavior. *Journal of Retailing and Consumer Services*, 59, 102381. ISSN: 0969-6989 (SSCI, JCR 2018 IF=3.585, Q2 in *Business*).
- Hwang, S., **Kim, J.**, Park, E., del Pobil, A. P. (2020). Who will be your next customer: A machine learning approach to customer return visits in airline services, *Journal of Business Research*, 121, 121-126. ISSN: 0148-2963 (SSCI, JCR 2020 IF=7.550, Q1 in *Business*).

- Kim, J.,** Lee, J., Park, E., Han, J. (2020). A deep learning model for detecting mental illness from user content on social media. *Scientific Reports*, 10, 11846, ISSN: 2045-2322 (SCIE, JCR 2019 IF=3.998, Q1 in Multidisciplinary Sciences).
- Kim, J.,** Shin, S., Bae, K., Oh, S., Park, E., del Pobil, A. P. (2020). Can AI be a content generator? Effects of content generators and information delivery methods on the psychology of content consumers, *Telematics and Informatics*, 55, 101452. ISSN: 0736-5853 (SSCI, JCR 2020 IF=6.182, Q1 in Information Science & Library Science).
- Oh, S., **Kim, J.,** Ji, H., Park, E., Han, J., Ko, M., Lee, M. (2020). Cross-cultural Comparison of Interactive Streaming Services: Evidence from Twitch, *Telematics and Informatics*, 55, 101434. ISSN: 0736-5853 (SSCI, JCR 2020 IF=6.182, Q1 in Information Science & Library Science).
- Park, E., Jang, Y., **Kim, J.,** Jeong N. J., Bae, K., del Pobil, A. P. (2019). Determinants of customer satisfaction with airline services: An analysis of customer feedback big data, *Journal of Retailing and Consumer Services*, 51, 186-190, ISSN: 0969-6989 (SSCI, JCR 2019 IF=4.219, Q2 in Business).
- Kim, J.,** Park, E. (2019). Beyond coolness: Predicting the technology adoption of interactive wearable devices, *Journal of Retailing and Consumer Services*, 49, 114-119, ISSN: 0969-6989 (SSCI, JCR 2019 IF=4.219, Q2 in Business).

### **Book Chapters**

- Chiang, Y.-Y., Chen, M., Duan, W., **Kim, J.,** Knoblock, C. A., Leyk, S., Li, Z., Lin, Y., Namgung, M., Shbita, B., Uhl, J. H. (2023). GeoAI for the Digitization of Historical Maps. In *Handbook of Geospatial Artificial Intelligence* (pp. 217-247). CRC Press.

### **Presentations**

- Kim, J.,** Chiang, Y.-Y. (June 2023) Learning a Joint Embedding Space from Multimodal Spatial Data to Capture Human-Environmental Interactions. *University Consortium for Geographic Information Science Symposium*, New Haven, CT, USA
- Jang, L., **Kim, J.,** Namgung M., Shrotriya, T., Lin, Y., Li, Z., Chiang, Y.-Y. (April 2023) The mapKurator System: Extracting and Linking Text from Large Numbers of Historical Map Scans. David Rumsey Map Center, Stanford, CA, USA
- Lin, Y., **Kim, J.,** Li, Z., Chiang, Y.-Y. (March 2023) SynMap: A Synthetic Dataset for Text Spotting in Scanned Historical Maps. *GeoAI and Deep Learning Symposium: GeoAI for Cartography and Mapping, American Association of Geographers Annual Meeting 2023*, Denver, CO, USA
- Jiao, Y., **Kim, J.,** Namgung, M., Uhl, J. H., Burghardt, K., Chiang, Y.-Y., Leyk, S., Lerman, K. (March 2023) Assessing Spatio-Temporal Street Name Evolution Using Natural Language Processing and Geospatial Analysis. *GeoAI and Deep Learning Symposium: Intelligent Geospatial Analytics, American Association of Geographers Annual Meeting 2023*, Denver, CO, USA
- Kim, J.,** Jang, L., Li, Z., Lin, Y., Namgung, M., Chiang, Y.-Y. (March 2023) The mapKurator System: Extracting and Linking Text from Large Numbers of Historical Map Scans. *GeoAI and Deep Learning Symposium: GeoAI for Cartography and Mapping, American Association of Geographers Annual Meeting 2023*, Denver, CO, USA
- Kim, J.,** Chiang, Y.-Y. (March 2023) Map Understanding Model: Generating GeoSpatial Linked Data from Map Images. *GeoAI and Deep Learning Symposium: Spatially Explicit Machine Learning and Artificial Intelligence II, American Association of Geographers Annual Meeting 2023*, Denver, CO, USA

**Kim, J.**, Namgung, M., Chiang, Y.-Y., Uhl, J.H., Burghardt, K., Leyk, S., Lerman, K. (September 2022) Identifying Street Name Evolution in Semantic, Temporal, and Geographic Spaces. *Spatial Humanities*, Ghent, Belgium

Chiang, Y.-Y., Holmes-Wong, D., **Kim, J.**, Li, Z., McDonough, K., Simon, R., Vitale, V. (September 2022) Machines Reading Maps: unlocking historical maps with machine learning and Semantic Web technologies. *Spatial Humanities*, Ghent, Belgium

**Kim, J.**, Chiang, Y.-Y. (June 2022) Generating Geospatial Linked Data from Text Labels on Maps, University Consortium for Geographic Information Science Symposium, Syracuse, NY, USA

## **Invited Keynotes, Panel, and Seminars**

- 2024 **Kim, J.**, Towards Learning Meaningful Representations from Multimodal Spatial Data, Sungkyunkwan University, Seoul, Republic of Korea
- 2024 **Kim, J.**, Navigating the Path to Graduate Studies & Towards Learning Meaningful Representations from Multimodal Spatial Data, Hansung University, Seoul, Republic of Korea
- 2024 **Kim, J.**, Towards Learning Meaningful Representations from Multimodal Spatial Data, Pusan National University, Busan, Republic of Korea
- 2024 **Kim, J.**, Towards Learning Meaningful Representations from Multimodal Spatial Data, Pukyong National University, Busan, Republic of Korea
- 2023 **Kim, J.**, Broadening Perspectives on AI Applications, Sungkyunkwan University, Seoul, Republic of Korea
- 2022 **Kim, J.**, Chiang, Y.-Y. The mapKurator pipeline for automatically georeferencing historical maps. The Library of Congress, Washington, DC, USA

## **Work Experience**

- 2021 AI Scientist Intern, RAONDATA, Republic of Korea
- 2018 Undergraduate Summer Research Intern, Electronics and Telecommunications Research Institute (ETRI), Republic of Korea

## **Teaching**

### **Teaching Assistant**

University of Minnesota

Fall 2022 CSCI 1133 – Introduction to Computing and Programming Concepts

Sungkyunkwan University

Fall 2020 AAI 3020 – Capstone Design Project for Artificial Intelligence

Fall 2019 AAI 2007 – Introduction to Algorithms (in English)

### **Directed Students**

- 2023 – Rhett Olson, Computer Science and Engineering, University of Minnesota.  
**Project title:** An Automatic Approach to Finding Geographic Name Changes on Historical Maps (SRC First Place - Undergraduate Category @ ACM SIGSPATIAL 2023)
- 2022 Jack Milless, Computer Science and Engineering, University of Minnesota.  
**Project title:** Linking Text Components in Historical Map Images

## **Professional Service**

- 2023 Co-Organizer, Workshop on Leveraging Language Models for Learning Geo-Entity Representation. University Consortium for Geographic Information Science Symposium, New Haven, CT, US
- 2022 Organizer and Webmaster, Spatial Women <https://spatialwomen.github.io/>
- 2022 Co-Organizer, Workshop on Machines Reading Maps, the Library of Congress, Washington, DC, USA
- 2022 Co-Organizer, Workshop on Reading and Linking Place: Text on Historical Maps, University Consortium for Geographic Information Science Symposium, Syracuse, NY, USA
- 2022 Program Co-Organizer, 2023 AAG Symposium on GeoAI and Deep Learning for Geospatial Research: GeoAI for Cartography and Mapping, American Association of Geographers Annual Meeting, Denver, CO, USA
- 2022 Proceedings Chair, SIAM International Conference on Data Mining (SDM '23), Minneapolis, MN
- 2022 Program Committee, ACM International Conference on Information and Knowledge Management (CIKM '22) Demo Track, Atlanta, GA

## **Academic Reviews**

### **Conferences**

- '21, '22, '23 International Conference on Advances in Geographic Information Systems (ACM SIGSPATIAL)
- '22 International Workshop on Health Intelligence (W3PHIAI) @ AAAI
- '22 International Conference of AI in Medicine (AIME)
- '22 Conference on Information and Knowledge Management (CIKM)

### **Journals**

Scientific Reports

Behaviour & Information Technology

International Journal of Human-Computer Interaction

Scientific Reports

Behaviour & Information Technology

## **Media Interviews and Coverage of Research**

- 2023 The David Rumsey Map Center e-newsletter (April 2023). AI Advancements in Map Studies. <https://mailchi.mp/stanford/apr2023-ai-advancements-in-map-studies>
- 2022 Olivia Hultgren, UMN CSE News Page (October 2022). Interview for research on digital map processing. The article "University of Minnesota's Knowledge Computing Lab turns location data into time-saving tools" was published online at the UMN CSE News website

- 2021 Etnews and more than five Korean media companies (June 2021) Sungkyunkwan University-RAONDATA researchers take second place in Fake-EmoReact competition operated by SocialNLP and NAACL '21
- 2020 Veritas-a and more than 10 Korean media companies (July 2020) Detecting mental health problems in social media

## **References**

**Yao-Yi Chiang, Ph.D.** (e-mail: yaoyi@umn.edu)

Associate Professor, Department of Computer Science & Engineering, University of Minnesota, USA

**Eunil Park, Ph.D.** (e-mail: eunilpark@skku.edu)

Assistant Professor, Department of Interaction Science & Department of Applied Artificial Intelligence, Sungkyunkwan University, Republic of Korea

**Jinyoung Han, Ph.D.** (e-mail: jinyounghan@skku.edu)

Assistant Professor, Department of Applied Artificial Intelligence, Sungkyunkwan University, Republic of Korea

**Kitae Hwang, Ph.D.** (e-mail: calafk@hansung.ac.kr)

Professor, Department of Computer Engineering, Hansung University, Republic of Korea