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 Inhwan Jung

Honors & Awards

2024 **Best Overall Map, 2024 U-Spatial Mapping Prize**, U-Spatial, University of Minnesota. **Kim, J.,** Chiang, Y.-Y. City Harmony: Exploring Shared Urban Characteristics.

2023 **First Place, ACM SIGSPATIAL Student Research Competition (Graduate**), 2023 ACM SIGSPATIAL Conference, Hamburg, Germany. **Kim, J.,** Chiang, Y.-Y. Towards Learning of Spatial Triad from Online Text.

2023 **First Place, ACM SIGSPATIAL Student Research Competition (Undergraduate),** 2023 ACM SIGSPATIAL Conference, Hamburg, Germany. Olson, R. M., **Kim, J.,** Chiang, Y.-Y. An Automatic Approach to Finding Geographic Name Changes on Historical Maps.

2023 **First Place, Best Poster Award**, 2023 SIAM International Conference on Data Mining, Minneapolis, MN, USA. **Kim, J**. Generating Meaningful Representations from Multimodal Spatial Data Describing Human-Environmental Interactions.

2022 **First Place, Student Poster Competition**, University Consortium for Geographic Information Science Symposium, Syracuse, NY, USA. **Kim, J**. Generating Geospatial Linked Data from Text Labels on Maps.

2021 **Second Place, Best Achievement Award in Global Training Program**, Ministry of Science and ICT Government, Republic of 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**, Department of Computer Engineering, Hansung University. An MQTT based Real Time LBS System Design for Vehicles and Pedestrians

2017 **Second Place**, **15th Embedded Software Contest**, Electronics and Telecommunications Research Institute (ETRI). Drone Streaming Solution Using Raspberry PI 3

2024   **AAG Student Travel Grant**, 2024 American Association of Geographers Annual Meeting (AAG), Honolulu, HI, USA

2023   **NSF Student Travel Grant**, 2023 ACM SIGSPATIAL Conference, Hamburg, Germany

2023   **NSF Student Travel Grant**, 2023 SIAM International Conference on Data Mining, Minneapolis, MN, USA

2022   **NSF Student Travel Grant**, 2022 ACM SIGSPATIAL Conference, Seattle, WA, USA

2021   **NRF of Korea Grant**, 2021 The Global Young Scientists Summit (GYSS) (Online Attendance)

2020   **Scholarship**, Intensive Artificial Intelligence Program in Carnegie Mellon University, Institute for Information and Communications Technology Promotion (IITP) under the Ministry of Science and ICT, Republic of Korea

2019 – 2020   **Graduate Program Scholarship**, Sungkyunkwan University, Republic of Korea

Fall 2017, 2018 **Academic Excellence Scholarship**, Department of Computer Engineering, Hansung University, Republic of Korea

Research Projects

2023 –   Research Assistant (*in Charge of UMN TA2*), **ROMULUS and REMUS, Two Systems for Building Mega-City.** Intelligence Intelligence Advanced Research Projects Activity (IARPA)

2023 – 2024   Research Assistant (*in Charge of UMN TA2*), **AI for Map Geolocation and Extraction to Find Critical Minerals.** Defense Advanced Research Projects Agency (DARPA)

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

Hu, H., **Kim, J.**, Zhou, J., Kirsanova, S., Lee, J., Chiang, Y.-Y. (November 2024). Context-aware Trajectory Anomaly Detection. In Proceedings of the 1st ACM SIGSPATIAL International Workshop on Geospatial Anomaly Detection (GeoAnomalies '24), 12–15.

Olson, R. M., **Kim, J.**, Chiang, Y.-Y. (November 2024). Automatic Search of Multiword Place Names on Historical Maps. In Proceedings of the 3rd ACM SIGSPATIAL International Workshop on Searching and Mining Large Collections of Geospatial Data (GeoSearch '24), 9–12.

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)

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., 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.

Li, Z., **Kim, J.**, Chiang, Y.-Y., Chen, M. (December 2022). SpaBERT: A Pretrained Language Model from Geographic Data for Geo-Entity Representation. In *Findings of the Association for Computational Linguistics: Empirical Methods in Natural Language Processing (EMNLP)*, pp. 2757-2769, Abu Dhabi, United Arab Emirates.

Kim, J., Bae, K., Park, E., del Pobil, A. P. (November 2019). Who will Subscribe to My Streaming Channel?: The Case of Twitch. In *Companion Publication of the 2019 Conference on Computer Supported Cooperative Work and Social Computing* (CSCW), pp. 247-251, Austin, TX, USA.

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. (March 2024) Understanding Spatial Triad with Locality Representation through Online Texts. *GeoAI and Deep Learning Symposium: Emerging Geo-Big Data Applications in Human Mobility Analysis II: Characterization of Place and Patterns of Life, American Association of Geographers Annual Meeting 2024*, Honolulu, HI, USA

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

Kim, J., Jang, L., 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, Department of Applied Artificial Intelligence, Sungkyunkwan University, Seoul, Republic of Korea

2024　　**Kim, J.**, Navigating the Path to Graduate Studies & Towards Learning Meaningful Representations from Multimodal Spatial Data, College of IT Engineering, Hansung University, Seoul, Republic of Korea

2024　　**Kim, J.**, Towards Learning Meaningful Representations from Multimodal Spatial Data, Department of Computer Science and Engineering, Pusan National University, Busan, Republic of Korea

2024   **Kim, J.**, Towards Learning Meaningful Representations from Multimodal Spatial Data, Graduate School of Management of Technology, Pukyong National University, Busan, Republic of Korea

2023   **Kim, J.**, Broadening Perspectives on AI Applications, Department of Applied Artificial Intelligence, 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

Jun. – Aug. 2024	Applied Scientist Intern, Amazon, Seattle, WA, USA
	Mentors: Burak Uzkent, Keval Doshi **Team Lead:** Archit Singhal
Mar. – Jun. 2021	AI Scientist Intern, RAONDATA, Seoul, Republic of Korea
Jun. – Aug. 2018	Undergraduate Summer Research Intern, Electronics and Telecommunications Research Institute (ETRI), Daejeon, Republic of Korea
	Mentor: Donghun Lee

Teaching

Teaching Assistant

University of Minnesota

Fall 2024	CSCI 5523 – Introduction to Data Mining
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

2025	Arrangement Committee, American Association of Geographers Annual Meeting (AAG), Detroit, MI, USA
2024 –	DEI Committee, ACM International Conference on Advances in Geographic Information Systems (SIGSPATIAL)
2022 –	Organizer and Webmaster, Spatial Women https://spatialwomen.github.io/
2024	DEI Co-Chair, ACM International Conference on Advances in Geographic Information Systems (SIGSPATIAL), Atlanta, GA, USA
2023	Co-Organizer, Workshop on Leveraging Language Models for Learning Geo-Entity Representation. University Consortium for Geographic Information Science Symposium (UCGIS), New Haven, CT, US

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 (UCGIS), Syracuse, NY, USA
2022	Program Co-Organizer, AAG Symposium on GeoAI and Deep Learning for Geospatial Research: GeoAI for Cartography and Mapping, American Association of Geographers Annual Meeting (AAG), Denver, CO, USA
2023	Chair, Doctoral Forum Career Panel, SIAM International Conference on Data Mining (SDM), Minneapolis, MN, USA
2023	Proceedings Chair, SIAM International Conference on Data Mining (SDM), Minneapolis, MN, USA
2022	Program Committee, Demo Track, ACM International Conference on Information and Knowledge Management (CIKM), Atlanta, GA, USA

Academic Reviews

Conferences

2021 – 2024	ACM International Conference on Advances in Geographic Information Systems (SIGSPATIAL)
2022	International Workshop on Health Intelligence (W3PHIAI) @ AAAI
2022	International Conference of AI in Medicine (AIME)
2022	Conference on Information and Knowledge Management (CIKM)

Journals

Scientific Reports

Behaviour & Information Technology

International Journal of Human-Computer Interaction

IEEE Transactions on Cognitive and Developmental Systems

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

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