Min Namgung

namgu007@umn.edu ⋄ Ph.D. Candidate
https://minnamgung.github.io/

RESEARCH INTERESTS

Multi-modal representation learning, Open-vocabulary semantic segmentation, Spatial AI

EDUCATION

University of Minnesota – Twin Cities Aug. 2021 – Expected 2027 Dec.
Ph.D. candidate, Computer Science and Engineering
Advisor: Prof. Yao-Yi Chiang

Purdue University Fort Wayne Aug. 2019 – Dec. 2020
M.Sc. in Computer Science
Advisor: Prof. Jin Soung Yoo
Thesis: Performance Comparison of Public Bike Demand Predictions: The Impact of Weather and Air Pollution

Purdue University Fort Wayne May 2019
B.Sc. in Computer Science
Advisor: Prof. Jin Soung Yoo

APPOINTMENT

Research Intern, Oak Ridge National Lab June – Dec. 2025
- Topic: Multi-modal region representation learning for urban health

Research Intern, Oak Ridge National Lab June – Aug. 2024

AWARDS & HONORS

First Place, Best Poster Award, 25th KOCSEA 2025
The Best Use of Map ($ 100), U-Spatial Mapping Prize, 2025
First Place, Best Paper Award, UCGIS 2023
Best PC Member, 32nd ACM CIKM 2023
Semester Honors' List, Purdue University Fort Wayne 2019
Dean's List, Purdue University Fort Wayne 2018–2019

GRANTS & SCHOLARSHIPS

NSF Student Travel Grant, ACM SIGSPATIAL 2022–2026
Student Travel Award, SIAM International Conference on Data Mining 2023
Graduate Assistant Scholarship (1 year), Purdue University Fort Wayne 2019
Chancellor's Merit Award Scholarship (2 years), Purdue University Fort Wayne 2017

PUBLICATIONS

Conferences

[C3] **Min Namgung**, JangHyeon Lee, Yao-Yi Chiang
"GELATTO: Geospatial relation-aware soft target learning for multimodal region representation"
ACM SIGSPATIAL, 2026

[C2] **Min Namgung**, JangHyeon Lee, Fangyi Ding, Yao-Yi Chiang
"Transit for All: Mapping Equitable Bike2Subway Connection using Region Representation Learning"
ACM SIGSPATIAL, 2025

[C1] Jina Kim, Zekun Li, Yijun Lin, **Min Namgung**, Leeje Jang, Yao-Yi Chiang
"The mapKurator System: A Complete Pipeline for Extracting and Linking Text from Historical Maps"
ACM SIGSPATIAL, 2023

Workshops

[W3] **Min Namgung**, Yao-Yi Chiang, Olufemi A. Omitaomu
"Context-aware Multimodal Region Representation Learning for Urban Health Risk Prediction"
ACM SIGSPATIAL (UrbanAI), 2025

[W2] **Min Namgung**, JangHyeon Lee, Yijun Lin, Yao-Yi Chiang
"Capturing Shared and Unique Information in Multimodal Region Representations for Urban Mobility Prediction"
ACM SIGSPATIAL, Urban Mobility Foundation Models (UMFM), 2025

[W1] **Min Namgung** and Yao-Yi Chiang
"Incorporating spatial context for post-OCR in map images"
ACM SIGSPATIAL (GeoAI), 2022

Book Chapters

[B1] Yao-Yi Chiang, Muhao Chen, Weiwei Duan, Jina Kim, Craig A. Knoblock, Stefan Leyk, Zekun Li, Yijun Lin, **Min Namgung**, Basel Shbita, Johannes H. Uhl
"GeoAI for the Digitization of Historical Maps"
Handbook of Geospatial Artificial Intelligence, pp. 217–247, CRC Press, 2023

Posters

[P1] **Min Namgung**, Yao-Yi Chiang
"Incorporating Prior Knowledge to Forecast Fine-Grained Cloud-Top Temperature"
UCGIS, 2022

PREPRINTS & MANUSCRIPTS

[A6] **Min Namgung**, Yijun Lin, Yao-Yi Chiang
"Open-Vocabulary Remote Sensing Segmentation"
Under review, 2027

[A5] **Min Namgung**, JangHyeon Lee, Yao-Yi Chiang, Emma Nichols, Samer Atshan, Jennifer A. Ailshire, Anushikha Dhankhar, Jinkook Lee
"Evaluating Contextual and Spatial Bias in Machine Learning for Urban Analytics"
Under review, Transactions in GIS, 2027

[A4] Samer Atshan, **Min Namgung**, JangHyeon Lee, Anushikha Dhankhar, Pranali Khobragade, Aidan Cole, Jennifer A. Ailshire, Sara D. Adar, Yao-Yi Chiang, Jinkook Lee, Emma Nichols
"Validating machine learning-derived built environment measures from Google Street View in four Indian Cities"
Under review, International Journal of Health Geographics (IJHG), 2027

[A3] Shilong Xiang, JangHyeon Lee, **Min Namgung**, Yao-Yi Chiang
"WalkCLIP: Multimodal Learning for Urban Walkability Prediction"
arXiv:2511.21947, 2026

[A2] **Min Namgung**, Yijun Lin, JangHyeon Lee, Yao-Yi Chiang
"Less is More: Multimodal Region Representation via Pairwise Inter-view Learning"
arXiv:2505.18178, 2025

[A1] Minoh Jeong, Zae Myung Kim, **Min Namgung**, Dongyeop Kang, Yao-Yi Chiang, Alfred Hero
"Anchors Aweigh! Sail for Optimal Unified Multi-Modal Representations"
arXiv:2410.02086, 2025

TEACHING

TA, University of Minnesota – Twin Cities

CSCI 5523: Intro to Data Mining	Fall 2026; Spring 2026
CSCI 5523: Intro to Data Mining	Spring 2025; Fall 2024
CSCI 4707: Practice of Database System	Fall 2022
CSCI 1913: Introduction to Algorithms, Data Structures and Development	Fall 2022
CSCI 1933: Introduction to Algorithms and Data Structures	Fall 2021

TA, Purdue University Fort Wayne

CS 364: Introduction to Database Systems	Fall 2020
CS 161: Introduction to Computer Science II	Fall 2020
CS 160: Introduction to Computer Science I	Fall 2019
CS 112: Computer Science for Everyone	Spring 2018

STUDENT ADVISING

David Feng: Awarded UROP grant — CS B.S. @ UMN – present

PRESENTATION

[T10] **Namgung, M.** (Nov. 2025). "One Representation, Many Tasks: Learning Shared and Unique Region Semantics." *KOCSEA*.

[T9] **Namgung, M.** (Oct. 2024). "Multimodal Learning in Geospatial Application." *Electronics and Telecommunications Research Institute (ETRI)*.

[T8] Ailshire, J., Chiang, Y.-Y., **Namgung, M.**, Nichols, E. (Aug. 2024). "Measuring neighborhood attributes: Machine learning approaches and development of an audit tool for assessment of model performance." *LASI–DAD Project Meeting*.

[T7] **Namgung, M.**, Chen, T., Chiang, Y.-Y., Ailshire, J. (July 2023). "Multimodal Artificial Intelligence to Enhance Environmental Data Integration." *LASI–DAD Project Meeting*.

[T6] **Namgung, M.** (June 2023). "Representation Learning of Regions using Unevenly Distributed, Incomplete Multi-Modal Data." *UCGIS*.

[T5] 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*.

[T4] 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." *AAG*.

[T3] 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." *AAG*.

[T2] **Namgung, M.** (Feb. 2023). "A pathway to become computer science Ph.D. student." *Thomas Jefferson High School for Science and Technology*.

[T1] 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*.

SERVICE

Organizer

- UrbanAI workshop at ACM SIGSPATIAL 2025–2026
- UCGIS workshop on leveraging LLMs for Learning Geo-Entity Representation 2022

Program Committee

- Association for the Advancement of Artificial Intelligence (AAAI) 2026
- ACM SIGSPATIAL-GeoAI workshop 2025
- ACM SIGSPATIAL 2025–2026; 2021–2023
- ACM The Web Conference (WWW) 2024
- ACM International Conference on Information and Knowledge Management (CIKM) 2022
- International Journal of Geographical Information Science (IJGIS) 2024
- AAAI-W3PHIAI 2022–2024

Leadership Activities

- **General Chair**, Spatial Women 2022–present
- **Committee**, CS-IDEA, UMN 2022–2024
- **President**, Korean Computer Science Graduate Student Association, UMN 2022–2023
- **Vice-President**, Korean Computer Science Graduate Student Association, UMN 2021–2022
- **President**, Club Seoul, PFW 2017–2018

MEDIA COVERAGE

The David Rumsey Map Center e-newsletter (April 2023), Stanford University. "AI Advancements in Map Studies." [Link] 2023

Olivia Hultgren, UMN CSE News (October 2022). "University of Minnesota's Knowledge Computing Lab turns location data into time-saving tools." [Link] 2022

TECHNICAL SKILLS

Programming: PyTorch, Python, PostgreSQL, SQL, PySpark, Java, R
Tools: QGIS, Elasticsearch, ArcGIS Pro

REFERENCES

Prof. Yao-Yi Chiang ⋄ yaoyi@umn.edu
Ph.D. Advisor, Professor
Department of Computer Science and Engineering, University of Minnesota

Prof. Adolfo S. Coronado ⋄ coronado@pfw.edu
Chair of Computer Science and Associate
Department of Computer Science and Engineering, Purdue University Fort Wayne

Prof. Jin Soung Yoo ⋄ yooj@pfw.edu
M.Sc. Advisor, Professor
Department of Computer Science and Engineering, Purdue University Fort Wayne