

# Min Namgung

PH.D. STUDENT

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## Research Interest

Multimodal Region Representation Learning, Spatial AI, Data Mining

## Education

### University of Minnesota – Twin Cities

PH.D. student Computer Science and Engineering

- Advisor: Prof. Yao-Yi Chiang

Minneapolis, MN

Aug 2021 – Present

### Purdue University Fort Wayne

M.Sc. Computer Science

- Advisor: Prof. Jin Soung Yoo
- Thesis: Performance Comparison of Public Bike Demand Predictions: The Impact of Weather and Air Pollution
- Received graduate assistant scholarship (1-year)

Fort Wayne, IN

Aug 2019 - Dec 2020

### Purdue University Fort Wayne

B.Sc. Computer Science

- Advisor: Prof. Jin Soung Yoo
- Received chancellor's merit award scholarship (2-year)

Fort Wayne, IN

May 2019

## Honors & Awards

|         |                                                                                                     |                  |
|---------|-----------------------------------------------------------------------------------------------------|------------------|
| 2025    | <b>Travel Grant</b> , 25th KOCSEA (Korean Computer Scientists and Engineers Association in America) | Las Vegas, NV    |
| 2025    | <b>NSF Student Travel Grant</b> , ACM SIGSPATIAL                                                    | Minneapolis, MN  |
| 2025    | <b>The Best use of map</b> U-Spatial Mapping Prize                                                  | Minneapolis, MN  |
| 2024    | <b>NSF Student Travel Grant</b> , ACM SIGSPATIAL                                                    | Atlanta, GA      |
| 2023    | <b>NSF Student Travel Grant</b> , ACM SIGSPATIAL                                                    | Hamburg, Germany |
| 2023    | <b>First Place, Best Paper Award</b> , 2023 UCGIS                                                   | New Haven, CT    |
| 2023    | <b>Student Travel Award</b> , SIAM International Conference on Data Mining                          | Minneapolis, MN  |
| 2023    | <b>Best PC member</b> , The 32nd ACM Conference on Information and Knowledge Management (CIKM)      | Birmingham, UK   |
| 2022    | <b>NSF Student Travel Grant</b> , ACM SIGSPATIAL                                                    | Seattle, WA      |
| 2019    | <b>Graduate Assistant Scholarship (1-year)</b> , Purdue University Fort Wayne                       | Fort Wayne, IN   |
| 2017    | <b>Chancellor's Merit Award Scholarship (2-year)</b> , Purdue University Fort Wayne                 | Fort Wayne, IN   |
| 2019    | <b>Semester Honors' List</b> , Purdue University Fort Wayne                                         | Fort Wayne, IN   |
| 2018-19 | <b>Dean's List</b> , Purdue University Fort Wayne                                                   | Fort Wayne, IN   |

## Publications

- [C7] **Namgung, M.**, Chiang, Y.-Y., Omitaomu, F., (2025). Context-aware Multimodal Region Representation Learning for Urban Health Risk Prediction, **Accepted to the 3rd UrbanAI workshop at the 33rd ACM SIGSPATIAL' 25**
- [C6] **Namgung, M.**, Lee, JH., Lin, Y., Chiang, Y.-Y. (2025). Capturing Shared and Unique Information in Multimodal Region Representations for Urban Mobility Prediction, **Accepted to the 1st Urban Mobility Foundation Models workshop at the 33rd ACM SIGSPATIAL' 25**
- [C5] **Namgung, M.**, Lee, JH., Ding, F., Chiang, Y.-Y. (2025). Transit for All: Mapping Equitable Bike2Subway Connection using Region Representation Learning. arXiv preprint arXiv:2506.15113., **Accepted to the 33rd ACM SIGSPATIAL' 25**
- [C4] **Namgung, M.**, Lin, Y., Lee, JH., Chiang, Y.-Y. (2025) Less is More: Multimodal Region Representation via Pairwise Inter-view Learning., arXiv preprint arXiv:2505.18178
- [C3] Jeong, M., **Namgung, M.**, Kim, ZM., Kang, D., Chiang, Y.-Y., Hero, A., (2025) Anchors Aweigh! Sail for Optimal Unified Multi-Modal Representations. arXiv preprint arXiv:2410.02086
- [C2] Kim, J., Li, Z., Lin, Y., **Namgung, M.**, Jang, L., Chiang, Y.-Y. (2023) The mapKurator System: A Complete Pipeline for Extracting and Linking Text from Historical Maps. In *Proceedings of the 31st ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems*, Article 35, 1–4, Hamburg, Germany.

- [B1] 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.
- [C1] **Namgung, M.** and Chiang, Y.-Y. (2022). Incorporating spatial context for post-OCR in map images. In *Proceedings of the 5th ACM SIGSPATIAL International Workshop on AI for Geographic Knowledge Discovery*, pp. 14-17, Seattle, WA, USA.

## Posters

- [P1] **M. Namgung**, Chiang, Y.-Y. (2022) Incorporating Prior Knowledge to Forecast Fine-Grained Cloud-Top Temperature. *The 2022 University Consortium for Geographic Information Science Symposium*, Syracuse, NY, USA

## Invited Talks

- [T5] **Namgung, M.** (October 2024), "Multimodal Learning in Geospatial Application", *Electronics and Telecommunications Research Institute (ETRI)*, Pangyo, South Korea
- [T4] Ailshire, J., Chiang, Y.-Y., **Namgung, M.**, Nichols, E., (August 2024), "Measuring neighborhood attributes: Machine learning approaches and development of an audit tool for assessment of model performance", *LASI-DAD Project Meeting*, Banff, Canada
- [T3] **Namgung, M.**, Chen, T., Chiang, Y.-Y., Ailshire, J., (July 2023), "Multimodal Artificial Intelligence to Enhance Environmental Data Integration", *LASI-DAD Project Meeting*, Amsterdam, Netherlands
- [T2] **Namgung, M.**, (June 2023), "Representation Learning of Regions using Unevenly Distributed, Incomplete Multi-Modal Data.", *2023 UCGIS*, New Haven, CT, USA
- [T1] **Namgung, M.**, (February 2023), "A pathway to become computer science Ph.D. student", *Thomas Jefferson High School for Science and Technology*, Alexandria, VA

## Work Experience

|           |                                                                                |                 |
|-----------|--------------------------------------------------------------------------------|-----------------|
| 2025-now. | <b>Oak Ridge National Lab</b> Research Intern (June-Dec)                       | Knoxville, TN   |
| 2024      | <b>Oak Ridge National Lab</b> Research Intern (June-August)                    | Knoxville, TN   |
| 2018-19   | <b>Parkview Health</b> , Back-end Developer (Capstone project)                 | Purdue Univ. FW |
| 2018-19   | <b>Purdue Indiana Manufacturing Competitiveness Center</b> , Software Engineer | Purdue Univ. FW |

## Teaching Experience

|           |                                                                                   |                    |
|-----------|-----------------------------------------------------------------------------------|--------------------|
| Fall 2024 | <b>CSCI5523: Intro to Data Mining</b> , TA                                        | Univ. of Minnesota |
| Fall 2022 | <b>CSCI4707: Practice of Database System</b> , TA                                 | Univ. of Minnesota |
| Sep 2022  | <b>CSCI1913: Introduction to Algorithms, Data Structures and Development</b> , TA | Univ. of Minnesota |
| Fall 2021 | <b>CSCI1933: Introduction to Algorithms and Data Structures</b> , TA              | Univ. of Minnesota |
| Fall 2020 | <b>CS364: Introduction to Database Systems</b> , TA                               | Purdue Univ. FW    |
| Sep 2020  | <b>CS161: Introduction to Computer Science II</b> , TA                            | Purdue Univ. FW    |
| Fall 2019 | <b>CS160: Introduction to Computer Science I</b> , TA                             | Purdue Univ. FW    |
| May 2018  | <b>CS112: Computer Science for Everyone</b> , Undergraduate TA (For 3-semesters)  | Purdue Univ. FW    |

## Professional Services & Outreach

### PROFESSIONAL SERVICES

- 2025 **UrbanAI' workshop SIGSPATIAL** Student Organizer
- 2025 **GeoAI' workshop SIGSPATIAL** Reviewer
- 2025 **SIGSPATIAL** Reviewer
- 2024 **International Journal of Geographical Information Science** Reviewer
- 2024 **The Web Conference (WWW)**, Reviewer
- 2021-23 **ACM International Conference on Advances in Geographic Information Systems**, Reviewer
- 2022-24 **International Workshop on Health Intelligence on AAAI**, Reviewer
- 2022 **Conference on Information and Knowledge Management**, Reviewer

### OUTREACH

|         |                                                                                          |                |
|---------|------------------------------------------------------------------------------------------|----------------|
| 2022-25 | <b>Spatial Women networking event for underrepresented groups</b> , organizer            | ACM SIGSPATIAL |
| 2023    | <b>Spatial Women networking event for underrepresented groups</b> , organizer            | SIAM SDM       |
| 2022    | <b>Workshop on leveraging LLMs for Learning Geo-Entity Representation</b> , co-organizer | UCGIS          |

### LEADERSHIP ACTIVITIES

|           |                                                                                          |                    |
|-----------|------------------------------------------------------------------------------------------|--------------------|
| 2022-now. | <b>Spatial Women</b> General Chair                                                       |                    |
| 2022-24   | <b>Computer Science Inclusivity, Diversity, Equity, and Advocacy (CS-IDEA)</b> Committee | Univ. of Minnesota |
| 2022-23   | <b>Computer Science Graduate Student Association (CSGSA)</b> President                   | Univ. of Minnesota |
| 2021-22   | <b>Computer Science Graduate Student Association (CSGSA)</b> Vice-president              | Univ. of Minnesota |
| 2017-18   | <b>Club Seoul</b> President                                                              | Purdue univ. FW    |

### MEDIA COVERAGE

|      |                                                                                                                                                          |                    |
|------|----------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|
| 2023 | The David Rumsey Map Center e-newsletter (April 2023). “AI Advancements in Map Studies.” [Link]                                                          | Stanford Univ.     |
| 2022 | Olivia Hultgren, UMN CSE News Page (October 2022). “University of Minnesota’s Knowledge Computing Lab turns location data into time-saving tools” [Link] | Univ. of Minnesota |

### Technical Skills\_\_\_\_\_

|                    |                                                    |
|--------------------|----------------------------------------------------|
| <b>Programming</b> | PyTorch, Python, PostgreSQL, SQL, PySpark, Java, R |
| <b>Tools</b>       | QGIS, Elasticsearch, ArcGIS pro                    |

### References\_\_\_\_\_

**Prof. Yao-Yi Chiang (Email: yaoyi@umn.edu)**  
 Ph.D. Advisor, Associate Professor  
 Department of Computer Science and Engineering at University of Minnesota

**Prof. Adolfo S. Coronado (Email: coronado@pfw.edu)**  
 Chair of Computer Science and Associate  
 Department of Computer Science and Engineering at Purdue University Fort Wayne

**Prof. Jin Soung Yoo (Email: yooj@pfw.edu)**  
 M.Sc. Advisor, Professor  
 Department of Computer Science and Engineering at Purdue University Fort Wayne