

# Sumin Han

🏠 [smhanlab.com](http://smhanlab.com) 🌐 [github.com/SuminHan](https://github.com/SuminHan) ✉ [suminkaist@gmail.com](mailto:suminkaist@gmail.com)

## EDUCATION

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<b>Korea Advanced Institute of Science and Technology</b> <i>Integrated MS. and Ph.D. in Computer Science</i>	Mar. 2018 – Feb. 2025
<b>University of California, Santa Cruz</b> <i>Summer School</i>	Jun. 2015 – July. 2015
<b>Korea Advanced Institute of Science and Technology</b> <i>Bachelor of Science in Computer Science</i>	Mar. 2013 – Feb. 2018
<b>University of Toronto</b> <i>Summer Camp</i>	Jun. 2011 – July. 2011
<b>Korea Science Academy of KAIST</b> <i>Highschool</i>	Mar. 2009 – Feb. 2013

## PH.D. THESIS

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Enhancing Spatiotemporal Traffic Forecasting Models with Insights from Urban Human Activity  
도시 인간 활동 이해를 반영한 시공간 교통 예보 모델의 개선

## EXPERIENCE

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<b>Satrec Initiative Co., Ltd.</b> <i>Engineering Intern – Parallel Computing Framework Design [Check Report]</i>	Jul. 2017 – Aug. 2017
<b>Law&amp;Company (LawTalk)</b> <i>Fullstack Software Engineer</i>	Mar. 2014 – Jun. 2014

## SKILLS

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C/C++, Java, Python (Tensorflow/Pytorch), Parallel Computing (MPI, CUDA), Web (Node.js, PHP, SQL, MongoDB), App (Android)

## PUBLICATIONS

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### INTERNATIONAL

- [1] Sumin Han, Yeji Lee, Jisun An, and Dongman Lee. “Urban Vibrancy Embedding and Application on Traffic Prediction”. In: *ArXiv*. 2025.
- [2] Sumin Han, Jisun An, and Dongman Lee. “Spatio-Temporal Road Traffic Prediction using Real-time Regional Knowledge”. In: *ArXiv* (2024).
- [3] Sumin Han, Jisun An, Youngjun Park, Suji Kim, Kitae Jang, and Dongman Lee. “Multiple Area Feature-aware Spatio-temporal Public Transit Prediction”. In: *ArXiv* (2024).
- [4] Youngjun Park and Sumin Han. “Enhancing Population Predictions in Developing Area through Building Construction Data”. In: *Association of European Schools Of Planning (AESOP)* (2024).
- [5] Sumin Han, Youngjun Park, Minji Lee, Jisun An, and Dongman Lee. “Enhancing Spatiotemporal Traffic Prediction through Urban Human Activity Analysis”. In: *Proceedings of the 32nd ACM International Conference on Information and Knowledge Management (CIKM '23)*. 2023.

- [6] Youngjun Park, Sumin Han, Jisun An, and Dongman Lee. “Encoding Urban Trajectory as a Sentence: Deep Learning Insights for Human Mobility Pattern”. In: *Association of Collegiate Schools of Planning (ACSP)* (2023).
- [7] Sumin Han, Dasom Hong, and Dongman Lee. “Exploring commercial gentrification using Instagram data”. In: *2020 IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining (ASONAM)*. IEEE. 2020, pp. 557–564.
- [8] Sumin Han, Kinam Park, and Dongman Lee. “Discovering Daily POI Exploitation Using LTE Cell Tower Access Traces in Urban Environment”. In: *International Conference on Social Informatics (SocInfo)*. Springer. 2020, pp. 81–94.
- [9] Dongmin Kim, Sumin Han, Heesuk Son, and Dongman Lee. “Human Activity Recognition Using Semi-supervised Multi-modal DEC for Instagram Data”. In: *Advances in Knowledge Discovery and Data Mining: 24th Pacific-Asia Conference, PAKDD 2020, Singapore, May 11–14, 2020, Proceedings, Part I 24*. Springer. 2020, pp. 869–880.

## DOMESTIC

- [1] Ahmad Elmoursi, Sumin Han, Hyungchan Bae, Youngjun Park, Nguyen Thanh Tung, and Dongman Lee. “Enhancing Geospatial Recommendations through Natural Language Processing with Large Language Models”. In: *한국정보과학회 학술발표논문집* (2024).
- [2] Youngjun Park, Sumin Han, Doyoon Park, Hyeongchan Bae, Nguyen Thanh Tung, and Dongman Lee. “Integrative Geospatial Visualization for Urban Mobility Analysis”. In: *한국정보과학회 학술발표논문집* (2024).
- [3] Thanh Long Cao, Sumin Han, and Dongman Lee. “Applying Scene Graphs for Improving Multi-modal Supervised Learning based Human Activity Recognition on Instagram Posts”. In: *한국정보과학회 학술발표논문집* (2022), pp. 855–857.
- [4] Changhui Kim, Sumin Han, and Dongman Lee. “Inference of Station-unit Placeness through a Subway Ridership Pattern”. In: *한국정보과학회 학술발표논문집* (2022), pp. 1794–1796.
- [5] Zofia Marciniak, Sumin Han, and Dongman Lee. “Understanding the impact of the Weather on Human Mobility via LTE Access Traces in Seoul Districts”. In: *한국 HCI 학회 학술대회* (2021), pp. 615–618.
- [6] 김수빈, 한수민, and 이동만. “서울시의 토지 이용에 따른 도로의 차량 속도의 상관관계 분석”. In: *한국정보과학회 학술발표논문집* (2021), pp. 119–121.
- [7] 안정미, 한수민, and 이동만. “인스타그램 데이터를 활용한 장소성 분석 및 시각화”. In: *한국 HCI 학회 학술대회* (2020), pp. 929–933.
- [8] 정종구, 한수민, and 이동만. “인스타그램에서 나타나는 인간 활동 패턴의 연간 변화 분석”. In: *한국 HCI 학회 학술대회* (2020), pp. 723–726.
- [9] 한수민 and 김명호. “베이지안 개인화 순위 방법 기반 대용량 이종 네트워크에서의 효율적인 랜덤 워크 순위 계산”. In: *2018 한국소프트웨어종합학술대회*. 한국정보과학회. 2018.

## GITHUB PORTFOLIO

**(2025) World Knowledge Adaption Network (WKA-Net)** <https://github.com/SuminHan/WKA-Net/>

**(2023) Urban Activity based Traffic Prediction – UAGCRNTF**

<https://github.com/SuminHan/Traffic-UAGCRNTF>

**(2023) Real Estate Appraisal with POI and Areal Embedding – AMMASI**

<https://github.com/SuminHan/AMMASI>

**(2022) Multi-Feature Traffic Prediction – ST-MFGCRN**

<https://github.com/SuminHan/ST-MFGCRN>

**(2017) Transmitter Hunting (Tom and Jerry Simulation)**

<https://github.com/SuminHan/Tom-and-Jerry-Simulation>

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AWARDS

**(2024) KAIST Global Enterpreneuership Summer School – 1st Prize in Pitching Competition** – VisaMate: Easy Visa Solution for Immigrants in South Korea, pitching at Plug and Play in Silicon Valley.

**(2023) Korea Land and Housing Corporation – Best Award for Hwaseong City Analysis Task by Korea Land and Housing Corporation** – Proposed a deep learning model for predicting population based on building usage area, and evaluated its performance against baseline models like Lasso and Elastic Net.

**(2022) KAIST Outstanding Teaching Assistant Award – CS101 Introduction to Programming**

**(2022) KCC2022 Excellent Paper Award – Honorable Mention** – Changhui Kim, Sumin Han, and Dongman Lee. “Inference of Station-unit Placeness through a Subway Ridership Pattern.

**(2017) KAIST Dept. of Humanities and Social Sciences Best Paper Award – Honorable Mention** – “Speaker Recognition in the Transcript Using Keywords” <https://github.com/SuminHan/NLP-SpongeBob>.

**(2016) Excellence Award in the Super-computing Competition organized by KISTI** – Parallelization of given Sequential code using MPI (Message Passing Interface) technology.

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FUNDED PROJECTS

**NRF RS-2024-00356597** | Development of Large Language Model-based Multimodal Urban Spatiotemporal Shift Prediction Software, 90M KRW/year (2024.6 – 2026.5)

**NRF-2022M3J6A1063021** | Data Science Industry and Society Demand Oriented Human Resource Development. Urban data sharing platform, <https://deepurban.kaist.ac.kr/>, 30M KRW (2022.10 – 2023.2)

**IITP No. 2019-0-01126** | Starlab – Self-Learning based Autonomic IoT Edge Computing, 300M KRW/year (2019.3 – 2026.12)

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PATENTS

1. 이동만, 한수민, 박영준, “신경망모델을 이용한 주택가치 추정방법 및 장치 (METHOD AND DEVICE FOR ESTIMATING HOUSE VALUE USING NEURAL NETWORK MODEL)”, Application No.: 10-2024-0108083 (2024-08-13)
2. Dongman Lee, Sumin Han, “다중지역특징 인식 시공간 대중교통 예측 시스템 및 그 방법 (System And Method For Predicting Multi-Local Feature Recognition Spatio-Temporal Public Transport)”, Application No.: 10-2023-0055885 (2023-04-28)
3. Dongman Lee, Sumin Han, “도시 환경에서 LTE 셀 타워 액세스 트레이스를 이용한 일일 POI 이용 발견 방법 (Method of Discovering Daily POI Exploitation Using LTE Cell Tower Access Traces in Urban Environment)”, Application No.: 10-2021-0047046 (2021-04-12), Registration No.: 10-25947500000 (2023-10-24)
4. Dongman Lee, Dongmin Kim, Sumin Han, Heesuk Son, “소셜 미디어 데이터에 대한 준 지도 멀티 모달 딥 임베디드 클러스터링을 이용한 인간 활동 인식 방법 (Method for Human Activity Recognition Using Semi-supervised Multi-modal Deep Embedded Clustering for Social Media Data)”, Application No.: 10-2021-0009319 (2021-01-22), Registration No.: 10-25149200000 (2023-03-23)