SEGWANG KIM

SW engineer / data analyst at Immersive SW Group, Samsung Electronics MX Divison
ksk5693@snu.ac.kr, Github, Homepage, Google Scholar

My goal is to develop innovative products at the intersection of mathematics and computer science, bridging theory and practical solutions to make a meaningful impact on society.

EDUCATION

Doctor of Philosophy   Mar 2016 - Fall 2022
Department of Electrical and Computer Engineering, Seoul National Univ.   Seoul, Korea
Advisor: *Kyomin Jung*

Bachelor of Science (Cum Laude)   Mar 2012 - Feb 2016
College of Liberal Studies, Seoul National Univ.   Seoul, Korea
Major: Mathematics, Minor: Statistics

PUBLICATIONS

Conference Proceedings

- Dongryeol Lee*, **Segwang Kim***, Minwoo Lee, Hwanhee Lee, Joonsuk Park, Sang-Woo Lee, Kyomin Jung, Asking Clarification Questions to Handle Ambiguity in Open-Domain QA, Findings of the Association for Computational Linguistics: EMNLP 2023 (Findings of EMNLP) - Dec 2023, Singapore, Singapore [code, poster, slides]

- Kangil Lee, **Segwang Kim**, Kyomin Jung, Weakly Supervised Semantic Parsing with Execution-based Spurious Program Filtering, The 2023 Conference on Empirical Methods in Natural Language Processing: EMNLP 2023 (EMNLP) - Dec 2023, Singapore [poster, slides]

- **Segwang Kim**, Hyoungwook Nam, Joonyoung Kim, and Kyomin Jung, Neural Sequence-to-grid Module for Learning Symbolic Rules, AAAI Conference on Artificial Intelligence (AAAI) - 2021, A Virtual Conference [code, poster, slides]

- Hyoungwook Nam, **Segwang Kim**, Kyomin Jung, Number Sequence Prediction Problems for Evaluating Computational Powers of Neural Networks, AAAI Conference on Artificial Intelligence (AAAI, Oral), Jan 2019, Honolulu, Hawaii, USA [poster, slides]

Journals

- Taegwan Kang, **Segwang Kim**, Hyeongu Yun, Hwanhee Lee, and Kyomin Jung, Gated Relational Encoder-Decoder Model for Target-Oriented Opinion Word Extraction, IEEE Access 2022

- **Segwang Kim**, Joonyoung Kim, and Kyomin Jung, [Compositional Generalization via Parsing Tree Annotation](#), IEEE ACCESS 2021 [[code](#)]

WORK EXPERIENCE

Software Engineer – Extended Reality   Sep2022–Present
Immersive SW Group, Mobile eXperience Division, Samsung Electronics   Suwon, Korea

- **Calibration: Online / Factory Data Analysis**, Jul 2024–Present
    - Designed and conducted accuracy/repeatability evaluation for multi-camera/IMU-online-calibration.
    - Diagnosed calibration failures via statistical analysis of factory datasets.
    - Built 3D sensitivity analysis simulations.
    - Verified calibration accuracy by modifying OpenCV camera model at source-level.
    - Visualized multi-sensor extrinsics.
- **SLAM**, Sep 2022–Jun 2024
    - Enhanced automated pipelines to evaluate on-device SLAM performance for XR hardware.
    - Boosted reliability of Samsung robotics libraries by producing detailed documentation and comprehensive unit-test suites.

PROJECTS

Moohan — Samsung × Google XR Commercialization   2022 -

I am **primary liaison** to Google's XR calibration SW team, owning calibration service with online calibration features. I have conducted analyses (online-calibration KPIs, factory calibration failure forensics) that informed critical decisions: ThirdEye improvement, calibration-station repair, and multi-IMU-online-calibration launch. I have translated complex concepts such as world-lock and sensor alignment into intuitive visualizations and plain-language docs for Samsung stakeholders.

Improving Reliability of Large-scale Language Models   2021 - 2023
                                                                                    NAVER

In collaboration with NAVER's language research team, I worked on enhancing the reliability of open-domain QA systems for handling ambiguous user queries. Our efforts resulted in the publication of a top-tier Natural Language Processing conference [paper](#).

Developing Deep Learning Architecture for Logical Inference   2019 - 2021
Samsung Research Funding & Incubation Center for Future Technology

I spearheaded a research project aimed at designing novel architectures and learning methods to imbue deep learning models with logical inference abilities. Our work led to the publication of papers, including one in a top-tier AI conference paper.

Developing Automatic Temperature System   2018 - 2019
Dasan DNG

I led the development of a smart thermostat system, bridging the gap between customer requirements and developer plans.

Rumor Detection on NAVER Blog Spaces   2017 - 2018
NAVER

I proposed a machine learning approach for detecting malicious rumors on social media. Our method, based on XGBoost-based tree boosting, provides insights into which word combinations in a post contribute to its classification as a rumor.

Improving Japanese-Korean Neural Machine Translation Models   2016 - 2017
NAVER

To address out-of-vocabulary issues in machine translation, I implemented a method from a published paper. This approach covers N^2 words with $2N$ subwords using graph optimization techniques.

HONORS AND AWARDS

AI Specialist   Sep 2022
Mobile eXperience division, Samsung Electronics   Suwon, Korea

SNU AIIS Spring Retreat Best Poster Award (**3rd place**)   April 2021
Artificial Intelligence Institute Seoul (AIIS) National University   Seoul, Korea

INTERNSHIPS

Undergraduate Research Internship   Summer 2014
Numerical Computing and Image Analysis Lab, Seoul National Univ.   Seoul, Korea
Driven Cavity Problem with 5th WENO Method - Implemented a numerical solution of Navier-Stokes equations to describe fluid dynamics in a 2D rectangle with obstacles using C++.
Advisor: *Myeongju Kang*

PROGRAMMING SKILLS

- C++: OpenCV, Robotics Library

- Python: pandas, pyquaternion, scipy, PyTorch, TensorFlow

- Bash

- MATLAB

CORE COMPETENCE

- Strong mathematical foundation, e.g., state estimation, SO(3) Lie algebra, statistics, applied to computer vision and XR.

- Fast, detail-oriented learner who seeks deep understanding.

- Clear, concise technical writing with mathematical rigor.

EXTRACURRICULAR ACTIVITIES

Sports

Soccer	Spring 2012 -

- 1st place, SNU President's Cup Soccer Tournament — Spring 2015
- 1st place, SNU President's Cup Soccer Tournament — Spring 2013

Swimming	Summer 2016 -
Tennis	Summer 2017 -

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