

Seong Hyeon Park

<https://shpark.org>

shpark@spa.hanyang.ac.kr

EDUCATION

- **Hanyang University** Seoul, Korea
M.S. in Electrical Engineering; GPA: 3.83/4.00 (Major: 4.00/4.00). *Feb. 2018 – Aug. 2020*
 - **Thesis:** *Deep Learning-based Prediction of Vehicle Trajectory using Multimodal Contexts.*
Advisor: Prof. Jun-Won Choi
- **Carnegie Mellon University** Pittsburgh, PA, USA
Intensive Program in Artificial Intelligence; GPA 4.00/4.00. *Aug. 2019 – Feb. 2020*
 - **Projects:** *Trajectory Forecasting and IoT Robot Development.*
- **Hanyang University** Seoul, Korea
B.S. in Electrical Engineering; summa cum laude; GPA 3.82/4.00 (Major: 3.88/4.00). *Mar. 2012 – Feb. 2018*

RESEARCH EXPERIENCES

- **Diverse Trajectory Forecasting using Multimodal Context** Carnegie Mellon University
Researcher *Aug. 2019 – Feb. 2020*
 - **Contributions:** The first author and the main designer of flow-based trajectory generator, distribution approximating schemes, and dataset pre-processing (Kalman smoothing). Participated in designing attention modules and diversity metrics.
 - **Publication:** [C2] in ECCV 2020.
 - **Award:** Honorable Mention [A1] at CVPR 2020 Argoverse motion forecasting competition.
- **Technology Innovation Program (Industrial Project)** Hanyang University
Researcher *Mar. 2018 – Jul. 2019*
 - **Project:** Development of deep learning-based future prediction and risk assessment technology considering inter-vehicular interaction in cut-in Scenario, funded by Ministry of Trade, Industry and Energy, Korea.
 - **Contributions:** Developed bounding box association, trajectory filtering, and imputation software for autonomous driving data. Designed neural network models for vehicle trajectory prediction.
 - **Patent:** [P1] registered Korean patent.
- **Seq2Seq Trajectory Prediction via Occupancy Grid Map** Hanyang University
Intern Researcher (Undergraduate) *Aug. 2017 – Feb. 2018*
 - **Contributions:** The first author and the main designer of network architectures, spatial embedding for occupancy grid mapping, and beam-search decoding scheme for prediction. Participated in data processing for radar signals.
 - **Publication:** [C3] in IEEE IV 2018 Oral Session (140+ citations).

PUBLICATIONS

- [C1] ByeongDo Kim, **Seong Hyeon Park**, Seokhwan Lee, Elbek Khoshimjonov, Dongsuk Kum, Junsoo Kim, Jeong Soo Kim and Jun-Won Choi. “LaPred: Lane-Aware Prediction of Multi-Modal Future Trajectories of Dynamic Agents”. IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2021.
- [C2] **Seong Hyeon Park**, Gyubok Lee, Minseok Kang, Jimin Seo, Manoj Bhat, Ashwin Jadhav, Jonathan Francis, Paul Liang and Louis-Philippe Morency. “Diverse and Admissible Trajectory Forecasting through Multimodal Context Understanding”. European Conference on Computer Vision (ECCV), 2020. [arXiv]
- [C3] **Seong Hyeon Park**, Byeongdo Kim, Chang Mook Kang, Chung Choo Chung and Jun-Won Choi. “Sequence-to-Sequence Prediction of Vehicle Trajectory via LSTM Encoder-Decoder Architecture”. IEEE Intelligent Vehicles Symposium (IV), 2018. (*Oral Session*) [arXiv]
- [PP1] Jin Hyeok Yoo, **Seong Hyeon Park** and Jun-Won Choi. “ScarfNet: Multi-scale Features with Deeply Fused and Redistributed Semantics for Enhanced Object Detection”, 2019. [arXiv]

PATENT

- [P1] **Seong Hyeon Park**, ByeongDo Kim and Jun-Won Choi. “Vehicle Trajectory Prediction Technique via Modularized Recurrent Neural Network Architecture.”, Korea patent 1019515950000, 2019. [Details]

PROFESSIONAL ACTIVITIES

- **Journals Reviewing [Publons]**: IEEE Transactions on Intelligent Transportation Systems, IEEE Transactions on Big Data, Elsevier Neurocomputing

MISCELLANEOUS EXPERIENCES

- **IoT and Machine Learning: Delivery Robot Competition** Carnegie Mellon University
Participant *Dec. 2019 – Feb. 2020*
 - **Project**: A course project to develop control system and delivery management software for IoT robots.
 - **Contributions**: Developed perception, PID control, and route tracking codes.
 - **Achievement**: 2nd place at the final competition.
- **Enhanced Object Detection** Hanyang University
Researcher *Nov. 2018 – Dec. 2018*
 - **Contributions**: Participated in designing an architecture for feature processing network [PP1].
- **Undergraduate Research Opportunity** Hanyang University
Intern Researcher *Jan. 2017 - Feb. 2018*
 - **Trajectory Prediction**: Described in *Research Experiences*.
 - **SW Development**: Developed a visualization software for an occupancy grid map and vehicle motion representations.
 - **Voice Enhancement**: Voice enhancement using statistical filtering algorithms.

WORK EXPERIENCES

- **Motion Forecasting for Autonomous Vehicles** Hanyang University Research Institute
Researcher *Oct. 2020 – Current*
 - **Research**: Developing multi-lane context processing algorithms for efficient motion forecasting. [C1] in CVPR 2021.
- **Military Service** US Army
Sergeant (KATUSA program) *Jul. 2013 – Apr. 2015*
 - **Specialty**: Served Military Police in the 188th MP CO, 94th MP BN, US Army.
 - **Career**: Graduated Warrior Leader Course at the Eighth Army Wightman Noncommissioned Officer Academy. [Diploma]

AWARDS AND SCHOLARSHIPS

- [A1] Honorable Mention (Argoverse Motion Forecasting Challenge), 2020. [Video]
[A2] Academic Excellence Award (Hanyang University), 2018.
[S1] \$20,000, Kwanjeong Educational Foundation, 2018 – 2020.
[S2] 70% tuition waiver, Hanyang Graduate School, 2018 – 2020.
[S3] \$6,545, BK21 (Korean Government), 2018.
[S4] \$9,091, Korea Semiconductor Industry Association, 2017.
[S5] \$1,818, Hanyang Alumni Association (Department of Electrical Engineering), 2017.