Seong Hyeon Park

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EDUCATION

Hanyang University — Seoul, Korea
M.S. in Electrical Engineering; GPA: 4.25/4.50. — *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 4.0/4.0. — *Aug. 2019 – Feb. 2020*

- ○ **Courses**: *Machine Learning for Text Mining (11-741/11-641/11-441), Computer Vision (16-385), etc.*
- ○ **Projects**: *Trajectory Forecasting (publication @ ECCV) and Delivery Robot (2nd place @ final comptetion)*

Hanyang University — Seoul, Korea
B.S. in Electrical Engineering; summa cum laude; GPA 4.11/4.50. — *Mar. 2012 – Feb. 2018*

FEATURED RESEARCH EXPERIENCES

Diverse Trajectory Forecasting using Multimodal Context — Carnegie Mellon University
Team Leader — *Aug. 2019 – Feb. 2020*

- ○ **Contributions**: The lead researcher and the first author [C1]. Mainly designed flow-based trajectory generator for motion forecasting modules, distribution approximating schemes and dataset pre-processing (Kalman smoothing). Participated in designing attention modules and diversity metrics.
- ○ **Publication**: [C1] at ECCV 2020.
- ○ **Award**: Honorable Mention at CVPR 2020 Argoverse motion forecasting competition.

Technology Innovation Program (Korean National 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; Ministry of Trade, Industry and Energy.
- ○ **Contributions**: Developed codes for bounding box association, trajectory generation, filtering and imputation with KODAS autonomous driving dataset. Developed neural network models for vehicle trajectory prediction.
- ○ **Patent**: [P1] registered Korean patent.

Seq2Seq Trajectory Prediction via Occupancy Grid Map — Hanyang University
Researcher — *Nov. 2017 – Apr. 2018*

- ○ **Contributions**: The first author [C2]. Designed network architectures, trajectory embedding on occupancy grid map, and beam-search decoding for multiple trajectories prediction. Participated in data processing of radar detection source.
- ○ **Publication**: [C2] at IEEE IV 2018 Oral Session (Cited 100+ times).

PUBLICATIONS

[C1] 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." In ECCV 2020. [arXiv]

[C2] 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." In IEEE IV (Oral Session), 2018. **(100+ citations)** [arXiv]

[PP1] Jin Hyeok Yoo, Seong Hyeon Park, Jun Won Choi. "ScarfNet: Multi-scale Features with Deeply Fused and Redistributed Semantics for Enhanced Object Detection." [arXiv]

PATENTS

[P1] Seong Hyeon Park, ByeongDo Kim and Jun Won Choi. "Vehicle Trajectory Prediction Technique via Modularized Recurrent Neural Network Architecture." Korean patent 2019. (DOI 10.8080/1020180057025)

Professional Activities

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

Miscellaneous Research Experiences

- **IoT and Machine Learning: Delivery Robot**   Carnegie Mellon University
  Researcher   *Dec. 2019 – Feb. 2020*

  - **Contributions**: Developed perception, control and tracking algorithms and codes.
  - **Award**: 2nd place at final competition.

- **Enhanced Object Detection**   Hanyang University
  Researcher   *Nov. 2018 – Dec. 2018*

  - **Contributions**: Participated in architecture designs.

- **Undergraduate Projects**   Hanyang University
  Undergraduate Intern   *Dec. 2016 - Feb. 2018*

  - **Radar Processing**: Developed a visualization code for the vehicle radar sequence.
  - **Voice Enhancement**: Voice enhancement using statistical filtering algorithms.

Work Experiences

- **Efficient Motion Forecasting using Lane Contexts**   Hanyang University Research Institute
  Research Scientist   *Current*

  - **Contributions**: Studying efficient motion forecasting models for autonomous vehicles using lane contexts.

- **Inventory Management**   Hanyang University Press
  Staff   *Mar. 2015 – Aug. 2015*

- **Military Service**   US Army
  Sergeant (Korean Augmentation To the United States Army)   *Jul. 2013 – Apr. 2015*

  - **Military Police**: Served as military police in the 188th MP CO, 94th MP BN, US Army.
  - **Leadership**: Graduated Warrior Leader Course (WLC) at the Eighth Army Wightman Noncommissioned Officer Academy.

Awards and Scholarships

[A1] Honorable Mention (Argoverse Motion Forecasting Challenge), 2020.

[A2] Academic Excellence Award (Hanyang University), 2018.

[S1] Kwanjeong Educational Foundation, 2018 – 2020.

[S2] BK21 (Korean Government), 2018.

[S3] Korea Semiconductor Industry Association, 2017.

[S4] Hanyang Alumni Association (Department of Electrical Engineering), 2017.