Seong Jae Park

AI Researcher | Machine Learning and Signal Processing
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Career Summary

- M.S. in Electrical Engineering (Medical Imaging and AI); B.S. in Mathematics with a double major in Electrical Engineering.
- Around six years of AI/ML experience spanning medical signal research, e-commerce, advertising, and game analytics.
- Research in ECG classification and detection, compressed-sensing MRI, transfer learning, and model generalization; peer-reviewed papers and patents.
- Python, PyTorch, TensorFlow, time-series and multimodal modeling, RAG, AI agents, and deployment of machine learning systems.

Aug. 2025 ~ Present	**Supercent Co., Ltd.** *Data Scientist / Data Science Team Lead, Data Group*	Korea
Aug. 2023 ~ Aug. 2025	**Mercury Project Co., Ltd.** *Manager, SaaS Division*	Korea
Mar. 2023 ~ Aug. 2023	**Suprema A.I.** *Research Engineer, AI Core*	Gyeonggi
Feb. 2021 ~ Feb. 2023	**HUINNO Co., Ltd.** *AI Researcher, AI Team*	Seoul
Mar. 2019 ~ Feb. 2021	**Kwangwoon University** Department of Electrical Engineering Thesis: Blended-transfer learning for compressed-sensing cardiac CINE MRI Advisor: Chang-Beom Ahn *M.S. in Electrical Engineering*	Seoul

Mar. 2014 ~ **Kwangwoon University** Seoul
Feb. 2019 Department of Mathematics
Thesis: Myocardial image segmentation using CNN
Advisor: Jong-woo Lee
B.S. in Mathematics; Double Major in Electrical Engineering

Project

- **Multimodal Creative AI Agent** - Supercent (Jan. 2026 - present). Designed multi-agent workflows for image, video, and playable-ad production; built audio source separation/mixing, SFX transformation, subtitle and voice translation tools; integrated RAG, evaluation loops, and GCP microservices.
- **ROAS Forecasting** - Supercent (Apr. - May 2026). Developed MMP-based 120-day ROAS forecasting models across campaigns, countries, and operating systems to support user acquisition optimization.
- **Real-time Retention Prediction** - Supercent (Sep. - Dec. 2025). Trained LightGBM/XGBoost on game logs; achieved an online F1-score of 0.79; automated ETL, training, deployment, and A/B test integration.
- **Large Behavior Model and Customer Segmentation** - Mercury Project (Jan. 2024 - Aug. 2025). Developed a Transformer-based customer behavior model using sequence tokenization and multi-task learning; applied LoRA, active learning, and HDBSCAN (silhouette score >= 0.6).
- **Customer Identity Resolution** - Mercury Project (2024 - 2025). Built incremental clustering and feature-specific matching across fragmented user data; removed up to 5.2% duplicate accounts and linked up to 16.8% of non-member/store-order data.
- **Recommendation and Marketing Optimization** - Mercury Project (2024 - 2025). Developed Two-Tower/NeuMF recommenders (NDCG@10: 0.43), multimodal category classification (80-91% accuracy), forecasting ensembles, and bandit-based campaign optimization.
- **Diffusion-based Ad Image Generation** - Mercury Project (Aug. - Dec. 2023). Built object detection/segmentation, ControlNet-guided synthesis, inpainting, and ComfyUI-based image generation workflows.
- **Real-time Face Recognition Application** - Suprema A.I. (Mar. - Aug. 2023). Implemented a Flutter application across mobile, desktop, and web, integrating face recognition SDKs and RTSP/CCTV streaming.
- **ECG Arrhythmia Classification** - HUINNO (Feb. - Dec. 2021). Researched generalization across heterogeneous ECG datasets using representation learning, mix-up augmentation, asymmetric loss, and knowledge distillation; PhysioNet Challenge 2021 award.
- **ECG Beat Detection and Classification** - HUINNO (Oct. 2021 - Aug. 2022). Combined CNN segmentation and regression for R-peak detection, achieving 99.5% beat detection and 95% abnormal beat classification accuracy; patent and EMBC publication.
- **ECG Waveform Captioning and AI Infrastructure** - HUINNO (Sep. 2022 - Feb. 2023). Developed multi-kernel CNN/Transformer ECG summaries (70% accuracy, BLEU 60), and shared inference, model-versioning, and labeling utilities.
- **MRI and CT Image Reconstruction** - Kwangwoon University / Genoray (2018 - 2020). Studied low-dose dental CT restoration and compressed-sensing cardiac MRI reconstruction, transfer learning, and model compression.

Publications

- **S.J. Park**, J.H. Yoon, C.B. Ahn, "Compressed-sensing cardiac CINE MRI using neural network with transfer learning," Journal of Institute of Korean Electrical and Electronic Engineering, 23(4), 2019.
- **S.J. Park**, C.B. Ahn, "Blended-transfer learning for compressed-sensing cardiac CINE MRI," Investigative Magnetic Resonance Imaging, 25(1), 2021. DOI: 10.13104/imri.2021.25.1.10.
- **S.J. Park**, C.G. Lim, C.B. Ahn, "Network slimming for compressed-sensing cardiac CINE MRI," Electronics Letters. DOI: 10.1049/ell2.12084.
- C.G. Lim, **S.J. Park**, C.B. Ahn, "Tile-net for compressed-sensing cardiovascular CINE MRI," Magnetic Resonance Imaging. DOI: 10.1016/j.mri.2021.09.001.
- H. Han, **S.J. Park**, et al., "Improving generalization performance of electrocardiogram classification models," Physiological Measurement, 2023. DOI: 10.1088/1361-6579/acb30f.
- **S.J. Park**, H. Han, et al., "Towards high generalization performance on electrocardiogram classification," Computing in Cardiology (CinC), 2021. DOI: 10.23919/CinC53138.2021.9662737.
- J. Jang, **S.J. Park**, et al., "CNN-based two step R peak detection method: Combining segmentation and regression," IEEE EMBC, 2022. DOI: 10.1109/EMBC48229.2022.9871227.
- K. Ha, **S.J. Park**, et al., "A SimSiam-based Generalized Model Training Technique for Classification of ECG from Heterogeneous Devices," BigComp, 2023.
- S. Chon, K. Ha, **S.J. Park**, et al., "An ECG Beat Classification Method using Multi-kernel ResNet with Transformer," BigComp, 2023.
- "Transfer learning for compressed-sensing cardiac CINE MRI," IKEEE, 2019 (conference presentation).
- "Compressed-sensing cardiac CINE MRI using neural network with transfer learning," ISMRM, 2020 (conference abstract).

Patents

- Chang-Beom Ahn, Seong Jae Park, "SYSTEM AND METHOD OF GENERATING MAGNETIC RESONANCE IMAGE USING DEEP ARTIFICIAL NEURAL NETWORK" (Korea, Application No. 10-2020-0008807).
- Jaeseong Jang, Seong Jae Park et al., "METHOD, SYSTEM AND NON-TRANSITORY COMPUTER-READABLE RECORDING MEDIUM FOR DETECTING AND CLASSIFYING BEAT IN ELECTROCARDIOGRAM SIGNAL" (Korea, Application No. 10-2020-0084605).
- "통신 시스템에서 트리맵 인터페이스를 이용한 이커머스 고객 그룹의 시각화 및 캠페인 실행을 지원하기 위한 방법 및 장치" (Korea, Application No. 10-2025-0059584).
- "METHOD AND APPARATUS FOR GENERATING USER BEHAVIOR EMBEDDING VECTOR" (Korea, Application No. 10-2025-0100051).

Awards and Honors

- Best Poster Award, Korean Society for Imaging Science and Technology (KSIST), 2019.
- Best Poster Award, International Congress on Magnetic Resonance Imaging (ICMRI), 2020.
- 1st Prize, 3-lead and 4-lead ECG classification, PhysioNet Challenge, 2021.
- 2nd Prize, 2-lead, 6-lead, and 12-lead ECG classification, PhysioNet Challenge, 2021.

Portfolio

- github.com/zae-park/zae-labeler
- github.com/zae-park/zae-engine
- zae-park.github.io