SEUNGHYEON SEO

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EDUCATION

Seoul National University, Seoul, Korea   Mar. 2021 ~ Feb. 2026 (expected)
Ph.D. Student in Artificial Intelligence

Seoul National University, Seoul, Korea   Mar. 2014 ~ Feb. 2021
B.A. in Agricultural Economics

Institut d'Études Politiques de Paris (Sciences Po), Paris, France   Jan. 2019 ~ Jun. 2019
Exchange Student Program (Economics)

Myungduk Foreign Language High School, Seoul, Korea   Mar. 2010 ~ Feb. 2013
French Major

RESEARCH INTERESTS

Deep Learning, Computer Vision, Neural Rendering, Human Pose Estimation, Object Detection

RESEARCH EXPERIENCE

@ Machine Intelligence and Pattern Analysis Laboratory (MIPAL), Seoul, Korea   Mar. 2021 ~ Present
Graduate Student Researcher

Seunghyeon Seo, Yeonjin Chang, Nojun Kwak, "FlipNeRF: Flipped Reflection Rays for Few-shot Novel View Synthesis" – Under Review.

Seunghyeon Seo, Donghoon Han*, Yeonjin Chang*, Nojun Kwak, "MixNeRF: Modeling a Ray with Mixture Density for Novel View Synthesis from Sparse Inputs", IEEE/CVF Conference on Computer Vision and Pattern Recognition 2023 (**CVPR 2023**), Jun. 2023.

Seunghyeon Seo, Jaeyoung Yoo, Jihye Hwang, Nojun Kwak, "MDPose: Real-Time Multi-Person Pose Estimation via Mixture Density Model" – Under Review.

Jaeyoung Yoo*, Hojun Lee*, **Seunghyeon Seo**, Inseop Chung, Nojun Kwak, "End-to-End Multi-Object Detection with a Regularized Mixture Model" – Under Review.

Jongmok Kim, Jooyoung Jang, **Seunghyeon Seo**, Jisoo Jeong, Jongkeun Na, Nojun Kwak, "MUM: Mix Image Tiles and UnMix Feature Tiles for Semi-Supervised Object Detection", IEEE/CVF Conference on Computer Vision and Pattern Recognition 2022 (**CVPR 2022**), Jun. 2022.

Kyuewang Lee*, Inseop Chung*, Daeho Um, Jaeseok Choi, Yeji Song, **Seunghyeon Seo**, Nojun Kwak, Jin

Young Choi, "Multi-modal Object Detection, Tracking, and Action Classification for Unmanned Outdoor Surveillance Robots", The 21st International Conference on Control, Automation and Systems (**ICCAS 2021**), Oct. 2021.

WORK EXPERIENCE

ThinkforBL Consulting Group, Seoul, Korea | Laboratory Assistant Researcher   Jun. 2020 ~ Nov. 2020
- Analysis on effect of behavior of non-pregnant sows on the swine productivity by detecting and classifying postures (lying, standing, and sitting), using Darkflow.
- Visualization of behavior and footsteps of cows by drawing trace and heatmap, using Darkflow and SORT algorithm.
- Classification of hydroponic crops' weight change patterns into 7 categories, using CNN-LSTM model.
- Implementation of recommender system, using item-based collaborative filtering.
- Construction of REST API considering clients' needs, using Django REST framework.

Committee on World Food Security (CFS) in Headquarters of Food and Agriculture Organization of the United Nations (FAO), Rome, Italy | Intern   Sep. 2019 ~ Feb. 2020
Research and report on datasets that are relevant to the proposed CFS workstream on <Data Collection and Analysis Tools> including:
- identifying the barriers impeding quality data collection, analysis, and use in decision-making.
- identifying specific high priority gaps in data production and analysis not covered by ongoing initiatives.
- highlighting the benefits of using data and the opportunity costs of not using data for decisions.
- illustrating initiatives that have encouraged evidence-based decisions in agriculture and food security across the public, private, and academic sectors as well as approaches that have not worked.
- providing insights into how to ensure data collection and its utilization give voice to the people most affected by policies stemming from that data, including farmers and other food producers.

Agricultural Information System Laboratory, Seoul National University | Intern   Jul. 2018 ~ Sep. 2018
Provided support for research including:
- contributing to crawling work for unstructured data (e.g. news articles about agricultural issues), using Python.
- Analyzing auctioning price data of carrot wholesale markets, using R.
- Studying research papers in the field of agriculture.

PROJECTS

Artificial Intelligence Research about Cross-Modal Dialogue Modeling for One-on-One Multi-Modal Interactions
Funded by Ministry of Science and ICT of Korea | Assistant Researcher   May. 2022 ~ Present
- Object Detection

Development of Real-Time Multi-Camera Object Tracking and Identification Technology
Funded by Electronics and Telecommunications Research Institute | Project Manager   Jun. 2021 ~ Dec. 2021
- Multi-Object Tracking

Development of Multimodal Sensor-Based Intelligent Systems for Outdoor Surveillance Robots
Funded by Ministry of Science and ICT of Korea | Assistant Researcher   Jan. 2021 ~ Aug. 2021

-   Object Detection

GAN-based Image Purification for Camouflaged Object Detection
Final project for the lecture "Machine Learning for Visual Understanding"   Mar. 2021 ~ Jun. 2021
-   Camouflaged Object Detection, Generative Adversarial Network

OTHER EXPERIENCE

Reviewer for CVPR 2023, ICCV 2023

Jecheon International Music & Film Festival | Volunteer   Aug. 2017
Accompanied *Mr. Etienne Comar*, the director of film *Django* (2017), as an interpreter and schedule manager during the festival

KATUSA (Mandatory Military Service) | Administrative Specialist   Apr. 2015 ~ Jan. 2017
-   Worked as a mediator between the ROK Army and the US Army
-   Wrote reports on suspicious activities, civil gatherings, and accidents involving military personnel all around the peninsula, using MS Word, Excel, and Access
-   Participated in several meetings with officers from ROK and US Army, as an interpreter

CERTIFICATES AND AWARDS

TOEIC / ETS   May. 2020
Score 985 / 990

DELF / Alliance Française   Dec. 2018
Level B1

Entrepreneurship Competition Utilizing Agricultural Data / EPIS   Sep. 2018
3rd Place as a Team, Agdata Lab (Service Development Field)

TOEFL / ETS   May. 2018
Score 100 / 120

Department of the Army, USA   Jan. 2017
The Army Achievement Medal

SCHOLARSHIPS

AI Fellowship (Fully Funded)   Mar. 2021 ~ Present
Seoul National University

Overseas Agriculture Sector Intern Scholarship   Sep. 2019 ~ Dec. 2019
Ministry of Agriculture, Food and Rural Affairs

Foundation Scholarship (Fully Funded)   Aug. 2019
Dongwon (Seoul National University Foundation)

Exchange Student Scholarship   Jan. 2019

Mirae Asset Park Hyeon Joo Foundation

Merit-Based Scholarship   Sep. 2017 ~ Sep. 2018
Seoul National University

SKILLS

Language
Korean, English (Advanced), French (Intermediate)

Programming Languages
Python, R, C++ (basic)

Programming Frameworks
JAX, PyTorch, Tensorflow

REFERENCE

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Program in Intelligent Systems,
Department of Transdisciplinary Studies,
Seoul National University, Republic of Korea
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