JunHa Song

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Summary

I am Junha Song, an M.S. graduate from KAIST, advised by Prof. In So Kweon. I will be joining DAVIAN Lab this autumn as a Ph.D. student under the supervision of Prof. Jaegul Choo. I was a research engineer with industry-university scholarship at Hyundai Mobis in 2021-2022 and a research intern at Qualcomm AI Research in 2022. I invite you to explore my blog from which you find that I am a highly self-motivated researcher.

Research Interests

My research focuses on designing strong recognition models and developing efficient learning frameworks that utilize data at scale with minimal human supervision. Specifically, my interest lies in the following research topics:

- Strong recognition models
  - Image/Video Segmentation
  - Segmentation from Language Reference
- Efficient learning frameworks
  - Test-time adaptation
  - Federated learning using client feedback (like HFRL)

My ultimate goal is to develop AI that benefits all individuals, regardless of their socioeconomic status. I believe that AI has the potential to address many of the world's most pressing problems.

Research Experiences

Qualcomm AI Research *Jul 2022 - Dec 2022*
Research Intern
Mentor: Sungha Choi.

Hyundai Mobis *Mar 2021 - Jun 2022*
Research Engineer with industry-university scholarship
Project: Developing robust segmentation network with environment invariance

Publications

- EcoTTA: Memory-Efficient Continual Test-time Adaptation via Self-distilled Regularization
  Junha Song, Jungsoo Lee, In So Kweon, and Sungha Choi
  IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2023. [pdf]
- A Survey on Masked Autoencoder for Self-supervised Learning in Vision and Beyond
  Chaoning Zhang, Chenshuang Zhang, **Junha Song**, John Seon Keun Yi, and In So Kweon
  International Joint Conference on Artificial Intelligence (**IJCAI**) under review, 2023. [pdf]
- Cyclical Compound Domain Test-time Adaptation via Continual Domain-Matching Algorithm
  Junha Song, Kwanyong Park, Inkyu Shin, Sanghyun Woo, Chaoning Zhang, and In So Kweon
  IEEE Robotics and Automation Letters (**RA-L**) under review, 2023. [pdf]

Education

Korea Advanced Institute of Science and Technology (KAIST) *Feb 2021 - Feb 2023*
M.S. degree in the Division of Future Vehicle
Robotics and Computer Vision Lab advised by Prof. In So Kweon.
Grade: 3.9 / 4.3 (Percent: 95.56/100)

Kookmin University (Seoul, South Korea) *Feb 2015 - Feb 2021*
B.S. degree in IT and Automobile Engineering
Grade: 4.39 / 4.5 (Rank: 1/121, Major: 4.43/4.5, Percent: 98.7/100)
National Science and Engineering Scholarship (Full tuition for a BS.D. student)

Awards and Honors

- Best Master's Thesis Award, Korea Advanced Institute of Science and Technology (KAIST) (2023) [link]
- Lecture planning consultant, Fast Campus (2022)
- National Science and Engineering Scholarship (Full tuition for a BS.D. student), Korea Scholarship Foundation
- Future Transport Design Award and Honorable Judge Award, 'Vehicle monitoring over internet toward digital twins', Cloud Programming World Cup, Japan (2019) [link]
- Capstone Awards, Korean Society of Automotive Engineers (2019) [link]

Projects

- Development of real-time masking/unmasking system for personal video information for public services such as CCTV, Korea Ministry of Science and ICT (2021 - 2023) [article]
- Development of robust segmentation network with environment invariance, Hyundai Mobis (2021)
- Satellite image precision object detection, Korea Agency for Defense Development (ADD) (2020)
- Detection of Surrounding Vehicles using Deep Neural Network and Fusion of Panoramic Camera and Lidar Sensor, Korea Foundation for the Advancement of Science and Creativity (KORAC), Korea (2019)

Skills

Programming languages	Python | C++
Machine learning library	Pytorch | Tensorflow
Application development	Robot Operating System (ROS))
Sensor Utilization	Camera, RGB-D Camera, LIDAR, GPS/IMU

References

- **Prof. In So Kweon**
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  Professor, Electrical Engineering, KAIST
  Email: iskweon77@kaist.ac.kr
- **Dr. Sungha Choi**
  Relationship: Internship mentor at Qualcomm AI Research
  Senior Staff AI Researcher, Qualcomm
  Email: belle79@gmail.com