

Yumin Suh

[Google Scholar Profile](#)

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I am a researcher at NEC Laboratories America. My current research focuses on efficient models (multi-task models and dynamic networks) and learning visual representation that interacts with language.

Education

Seoul National University

Postdoc

Apr. 2019 – Nov. 2019

Advisors: [Bohyung Han](#), [Kyoung Mu Lee](#)

Seoul National University

Ph.D., Electrical and Computer Engineering

Mar. 2014 – Feb 2019

Advisor: [Kyoung Mu Lee](#)

Seoul National University

M.S., Electrical Engineering and Computer Science

Mar. 2011 – Feb. 2013

Advisor: [Kyoung Mu Lee](#)

Seoul National University

B.S., Electrical Engineering

Mar. 2007 – Feb. 2011

Experience

NEC Laboratories America | Media Analytics department

Researcher

December 2019 – Present

San Jose, CA

- Developed a unified model that performs multiple tasks for rich human analysis. Trained models using data collected/annotated/pseudo-labeled from various sources for tasks including person re-identification, attribute recognition, pose estimation, and part segmentation. Efficient model deployment using TensorRT.
- Developed a domain-specific multi-modal LLM for human analysis

Microsoft Research Asia

Research Intern

September 2016 – June 2017

Mentors: [Jingdong Wang](#), [Tao Mei](#)

- Developed a visual representation for person re-identification ([Publication](#) cited 500+ times)

Inria | WILLOW team

Research Intern

December 2014 – May 2015

Mentors: [Minsu Cho](#), [Jean Ponce](#)

Workshop Organization

1st OmniLabel workshop at CVPR 2023 [[Workshop](#)][[Benchmark](#)][[Challenge](#)]

Organizers: Samuel Schuler, Vijay Kumar B G, [Yumin Suh](#), Golnaz Ghiasi, Long Zhao,

Qi Yu, Dimitris N. Metaxas

CVPR 2023

- Workshop to promote research on **language-based vision perception** system beyond simple category names
- New **dataset** and **benchmark** for language-based detection

Projects

Generating Enhanced Negatives for Training Language-Based Object Detectors

Shiyu Zhao, Long Zhao, Zhixing Zhang, Vijay Kumar BG, [Yumin Suh](#), Dimitris N Metaxas,

Manmohan Chandraker, Samuel Schuler

arXiv 2023

Improving Pseudo Labels for Open-Vocabulary Object Detection

Shiyu Zhao, Samuel Schuler, Long Zhao, Zhixing Zhang, Vijay Kumar BG, [Yumin Suh](#),

Manmohan Chandraker, Dimitris N Metaxas

arXiv 2023

Papers

Efficient Controllable Multi-Task Architectures

Abhishek Aich, Samuel Schuler, Amit K. Roy-Chowdhury, Manmohan Chandraker, [Yumin Suh](#)

ICCV 2023

- *Dynamic multi-task model* that users can precisely control the compute budget and task importance for *efficiency*

OmniLabel: A Challenging Benchmark for Language-Based Object Detection

Samuel Schuler, Vijay Kumar B G, [Yumin Suh](#), Konstantinos M. Dafnis*, Zhixing Zhang*,

Shiyu Zhao*, Dimitris Metaxas (* equal technical contribution, alphabetic order)

ICCV 2023 (Oral)

- New *dataset and benchmark* for *language-based detection*. Hosted the Omnlabel workshop in CVPR 2023

Confidence and Dispersity Speak: Characterizing Prediction Matrix for Unsupervised Accuracy Estimation	
Weijian Deng, Yumin Suh , Stephen Gould, Liang Zheng	ICML 2023
Split to Learn: Gradient Split for Multi-Task Human Image Analysis	
Weijian Deng, Yumin Suh , Xiang Yu, Masoud Faraki, Liang Zheng, Manmohan Chandraker	WACV 2023
Learning Semantic Segmentation from Multiple Datasets with Label Shifts	
Dongwan Kim, Yi-Hsuan Tsai, Yumin Suh , Masoud Faraki, Sparsh Garg, Manmohan Chandraker, Bohyung Han	ECCV 2022
<ul style="list-style-type: none"> A training scheme to leverage <i>multiple datasets</i> with different label spaces for <i>domain generalization</i> 	
Controllable Dynamic Multi-Task Architectures	
Dripta S. Raychaudhuri, Yumin Suh , Samuel Schuster, Xiang Yu, Masoud Faraki, Amit K. Roy-Chowdhury, Manmohan Chandraker	CVPR 2022 (Oral)
<ul style="list-style-type: none"> <i>Dynamic multi-task model</i> that users can control the compute budget and task importance for <i>efficiency</i> 	
On Generalizing Beyond Domains in Cross-Domain Continual Learning	
Christian Simon, Masoud Faraki, Yi-Hsuan Tsai, Xiang Yu, Samuel Schuster, Yumin Suh , Mehrtash Harandi, Manmohan Chandraker	CVPR 2022
Cross-Domain Similarity Learning for Face Recognition in Unseen Domain	
Masoud Faraki, Xiang Yu, Yi-Hsuan Tsai, Yumin Suh , Manmohan Chandraker	CVPR 2021
Learning to Optimize Domain Specific Normalization for Domain Generalization	
Seonguk Seo, Yumin Suh , Dongwan Kim, Geeho Kim, Jongwoo Han, Bohyung Han	ECCV 2020
Stochastic Class-based Hard Example Mining for Deep Metric Learning	
Yumin Suh , Bohyung Han, Wonsik Kim, Kyoung Mu Lee	CVPR 2019
<ul style="list-style-type: none"> <i>Hard example mining</i> for deep <i>metric learning</i>, applied to <i>image retrieval</i> 	
Part-Aligned Bilinear Representations for Person Re-identification	
Yumin Suh , Jingdong Wang, Siyu Tang, Tao Mei, Kyoung Mu Lee	ECCV 2018
<ul style="list-style-type: none"> <i>Representation learning</i> for <i>person re-identification</i> and <i>image retrieval</i> 	
Appearance Dependent Inter-Part Relationship for Human Pose Estimation	
Yumin Suh and Kyoung Mu Lee	APSIPA 2016
Discrete Tabu Search for Graph Matching	
Kamil Adamczewski, Yumin Suh , Kyoung Mu Lee	ICCV 2015
Subgraph Matching Using Compactness Prior For Robust Feature Correspondence	
Yumin Suh , Kamil Adamczewski, Kyoung Mu Lee	CVPR 2015
Graph Matching via Sequential Monte Carlo	
Yumin Suh , Minsu Cho, Kyoung Mu Lee	ECCV 2012

Honors and Awards

Business Contribution Award, NEC Laboratories America	2023
<ul style="list-style-type: none"> Aiming to realize human digital twins: Image analysis technology that efficiently senses the real world (Press release, August 2023) NEC develops high-speed, high-precision technology to search for specific persons based on ambiguous appearance attribute information by analyzing camera images (Press release, May 2023) 	
Outstanding Reviewer, CVPR 2023	2023
Outstanding Reviewer, ICML 2020	2023
3rd Place Award, VisDA-2019	2019
<ul style="list-style-type: none"> <i>Visual Domain Adaptation Challenge, TASK-CV Workshop in ICCV 2019</i> with Dongwan Kim, Geeho Kim, Seonguk Seo, Bohyung Han, Taeho Lee, Jongwoo Han, Hyejeong Jeon 	
Doctoral Colloquium, KCCV 2019	2019
Doctoral Colloquium, CVPR 2019	2019
3rd Place Award, SFMI Machine Learning Challenge 2017	2017
<ul style="list-style-type: none"> <i>Challenge on the road sign letter recognition from road view images</i>, Samsung Fire & Marine Insurance, Korea with Jihong Kang and Sungyong Baik 	
Graduated with honors (Summa cum laude)	2011

Invited Talks

Elastic AI for multiple tasks

- Company-wide talk May 2022
- Lomin Inc. Feburary 2022
- Guest lecture in “Moonshot project”, Korea University June 2022

Multi-task learning and domain generalization

- Australian National University October 2021

Learning local matching for person re-identification

- Young Research Highlight, Summer Annual Conference of IEIE June 2021

Academic Services

Area Chair

- CVPR (2024)
- ACCV (2022)

Senior Program Committee

- AAAI (2022)
- IJCAI (2021)

Program Committee

- CVPR, ICCV, ICLR, ICML (2023)
- CVPR, ECCV, ICLR, ICML, IJCAI, NeurIPS (2022)
- AAAI, CVPR, ICCV, ICLR, ICML, NeurIPS, WACV (2021)
- AAAI, ACCV, CVPR, ECCV, ICPR, ICML (2020)
- CVPR, ICCV (2019)
- MM (2017)

Journal Reviewer

- TPAMI, TIP, TMM, TCSVT, CVIU, MMSJ, AOAS

Student volunteer

- ACCV 2012, MM 2018

Mentoring

Youngmin Oh (Yonsei University)	2023
Dongwan Kim (Seoul National University)	2023
Abhishek Aich (University of California, Riverside)	2022
Dripta Raychaudhuri (University of California, Riverside)	2021
Weijian Deng (Australian National University)	2020