Chanho Ahn

CONTACT INFORMATION

Staff Researcher
Samsung AI Center (formerly SAIT)
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EDUCATION

Ph.D. in Electrical Engineering and Computer Science Mar. 2016 - Feb. 2022
- Seoul National University, Seoul, Korea
- Advisor: Prof. Songhwai Oh

B.S. in Electrical Engineering and Computer Science Mar. 2011 - Feb. 2016
- Seoul National University, Seoul, Korea

WORK EXPERIENCE

Samsung AI Center
- Staff Engineer Jan. 2025 - Present
- Research Area: Vision Language Model, Agent AI

Samsung Advanced Institute of Technology (SAIT)
- Staff Researcher Mar. 2022 - Dec. 2024
- Research Area: Vision Foundation Model, Diffusion, Industrial AI

Robot Learning Laboratory, SNU
- Graduate Researcher Mar. 2016 - Feb. 2022
- Research Area: Deep Learning Architecture, Continual Learning

PROJECT

Visual Inspection on semi-conductor chips 2022 - Present
- Project Participant
- Industrial AI: learning with noisy labels, domain adaptation, uncertainty measure, de-bias learning, diffusion model, vision-language model

Development of Vision Foundation Model 2024
- Project Lead
- Developing vision foundation model for capturing fine properties from images

Development of Cloud Robot Intelligence Augmentation, Sharing and Framework Technology to Integrate and Enhance the Intelligence of Multiple Robots (MSIT/IITP) 2021
- Project Participant
- Deep learning architecture including dynamic inference paths to deal with multiple robot tasks

[SW Star Lab] Robot Learning: Efficient, Safe, and Socially-Acceptable Machine Learning (MSIT/IITP) 2019-2021
- Project Lead 2019-2020
- Efficient deep learning architecture for anytime prediction in robot domain
- Continual learning in a robot domain

Brain-Inspired AI with Human-Like Intelligence (MSIT/IITP) 2019-2021
- Project Participant
- Dynamic deep learning architecture for continual learning

Realistic 4D Reconstruction of Dynamic Objects (MSIT) 2017-2020
- Project Participant
- Matching algorithm between rigid partial object parts at different moments

On-the-Fly Machine Learning for Evolving Intelligent CPSs (ICT/NRF) 2017-2018
- Project Lead
- Efficient deep learning architecture for anytime prediction

Publications

Byungjai Kim, **Chanho Ahn**, Wissam J. Baddar, Kikyung Kim, Huijin Lee, Saehyun Ahn, Seungju Han, Sungjoo Suh, and Eunho Yang, "Test-Time Ensemble via Linear Mode Connectivity: A Path to Better Adaptation," in *the International Conference on Learning Representations (ICLR)*, 2025

Chanho Ahn, Kikyung Kim, Ji-won Baek, Jongin Lim, and Seungju Han, "Sample-wise Label Confidence Incorporation for Learning with Noisy Labels," in *Proc. of the IEEE International Conference on Computer Vision (ICCV)*, 2023

Hyundong Jin, Gyeong-hyeon Kim, **Chanho Ahn**, and Eunwoo Kim, "Growing a Brain with Sparsity-inducing Generation for Continual Learning," in *Proc. of the IEEE International Conference on Computer Vision (ICCV)*, 2023

Jongin Lim, Youngdong Kim, Byungjai Kim, **Chanho Ahn**, Jinwoo Shin, Eunho Yang, and Seungju Han, "Biasadv: Bias-adversarial augmentation for model debiasing," in *Proc. of the IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2023

Chanho Ahn, Eunwoo Kim, and Songhwai Oh, "Incremental Learning with Adaptive Model Search and a Nominal Loss Model," *IEEE Access*, vol. 10, pp. 16052-16062, Feb. 2022

Eunwoo Kim, **Chanho Ahn**, and Songhwai Oh, "Auto-VirtualNet: Cost-Adaptive Dynamic Architecture Search for Multi-task Learning", *Neurocomputing*, vol. 442, pp. 116-124, Jun. 2021

Seunggyu Chang, **Chanho Ahn**, Minsik Lee, and Songhwai Oh, "Graph-Matching-Based Correspondence Search for Nonrigid Point Cloud Registration", *Computer Vision and Image Understanding*, vol. 192, Mar. 2020

Chanho Ahn, Eunwoo Kim, and Songhwai Oh, "Deep Elastic Networks with Model Selection for Multi-Task Learning," in *Proc. of the IEEE International Conference on Computer Vision (ICCV)*, 2019

Eunwoo Kim, **Chanho Ahn**, Philip H.S. Torr, and Songhwai Oh, "Deep Virtual Networks for Memory Efficieny Inference of Multiple Tasks," in *Proc. of the IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2019

Chanho Ahn, and Songhwai Oh, "Self-Ensemble Model for Memory Efficiency using Nested Structure," in *Proc. of the Joint Conference on Communications and Information (JCCI)*, 2019

Eunwoo Kim, **Chanho Ahn**, and Songhwai Oh, "NestedNet: Learning Nested Sparse Structures in Deep Neural Networks," in *Proc. of the IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2018 **(Spotlight)**

Chanho Ahn, Eunwoo Kim, and Songhwai Oh, "Fast Multiple Graph Matching via Alternating Optimization," in *Communications of the Korean Institute of Information Scientists and Engineer*, 2016

Patent

System, apparatus, and method with image classification 2025
- Method to build a dynamic block architecture for learning and inference
- Inject inductive bias or not automatically based on the dataset

Method and apparatus with AI model performance measuring using perturbation 2025
- *strategic IP for core technology*
- Method to measure uncertainties using adaptive weight perturbations
- Uncertainty measure for training dataset

Method and device with object classification 2024
- Method for domain adaptation via multiple model snaps
- Measure consistency by feed-forwarding multiple models

Method and apparatus with machine learning 2024
- Method to detect noisy labels in the training dataset
- Measure label confidence via alleviated loss function

Apparatus for training neural networks and operating 2020
- Method to construct network architecture for anytime inference
- Hierarchical structure at inference phase

Pending patents
- Method for dynamic usage of multiple foundation models 2025
- Anomaly detection method with industrial legacy 2025
- Efficient method for training vision foundation model 2024
- Method for choosing proper foundation model 2024
- Hyper-parameter tuning method for adaptation 2024

Awards and Honors

Awards and Scholarships
- SEC Annual Awards, **Gold Medal** at Samsung 2023
- **Great Paper Award**, Hyundai Motors and SNU AI Consortium 2019
- **Great Paper Presentation Award,** Korean Institute of Information Scientists and Engineer 2017
- Korean Mathematical Olympiad **Silver Medal** 2010, 2009

- Brain Korea 21 Plus Scholarship 2020, 2019, 2017
- Scholarships Granted by College 2018
- Lecture & Research Scholarship 2016

Certification
- Associate Architecture at Samsung 2025
- Best Reviewer at Samsung 2023
- Pro SW programmer at Samsung 2022

Professional Services

Peer Reviewer for Conference
- CVPR, ICML, NeruIPS, ICCV, ECCV 2019 - Present

Peer Reviewer for Journal
- Transactions on Neural Networks and Learning Systems
- Neurocomputing

Review Coordinator

- Samsung HumanTech Paper Award 2024, 2025

Technical Consultant & SW Developer

- Automatic Coding Assistant Algorithm, helloALGO 2021
- Detecting Emergent Circumstance Algorithm, Firstmile 2021