Google Scholar
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Dong-Hwan Jang

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Research Interests

Multimodal machine learning, 3D understanding, and generative AI, with a focus on robust and adaptive visual systems that bridge 3D/4D vision and generative modeling. I am particularly interested in building physics-grounded visual representations for controllable and consistent video generation, extending prior work on model robustness and efficient fine-tuning of large vision models.

Education

University of Illinois Urbana-Champaign **2025 – Present**
- Ph.D. Student in Computer Science. *Advisor: Ismini Lourentzou*

Carnegie Mellon University **Fall 2022**
- Visiting Scholar in an AI-related project-focused intensive program, fully funded by the Korean Government.

Seoul National University **2020 – 2023**
- M.S. in the Department of Electrical and Computer Engineering. *Advisor: Bohyung Han*

Seoul National University **2013 – 2019**
- Department of Liberal Studies, ***Summa Cum Laude (Ranked 1st in class)***
  - B.S. in the Department of Electrical and Computer Engineering
  - B.S. in Technology Management

Publications

[1] **Dong-Hwan Jang**, Sangdoo Yun, and Dongyoon Han. "Model Stock: All We Need is just a few Fine-Tuned Models," *ECCV 2024 (**Oral**; Top 2.3% among submitted papers*). [link]

[2] Onkar K. Susladkar, **Dong-Hwan Jang**, Adheesh S. Juvekar, Tushar Prakash, Ayush Barik, Ritish Shrirao, and Ismini Lourentzou. "RewardFlow: Generate Images by Optimizing What You Reward," *CVPR* 2026.

[3] Onkar K. Susladkar, Tushar Prakash, Kiet A. Nguyen, Adheesh S. Juvekar, **Dong-Hwan Jang**, Inderjit S. Dhillon, and Ismini Lourentzou. "PyraTok: Language-Aligned Pyramidal Tokenizer for Video Understanding and Generation," *CVPR* 2026.

[4] Taehoon Kim, **Dong-Hwan Jang**, and Bohyung Han. "Merge and Bound: Direct Manipulations on Weights for Class Incremental Learning," *CVPR Workshop on Continual Learning in Computer Vision, 2024*. [link]

[5] **Dong-Hwan Jang**, Sanghyeok Chu, Joonhyuk Kim, and Bohyung Han. "Pooling Revisited: Your Receptive Field is Suboptimal," *CVPR* 2022. [link]

[6] Jimi Kim*, Seojin Jang*, Woncheol Lee*, Joong Kun Lee*, and **Dong-Hwan Jang***. "DS4C Patient Policy Province Dataset: a Comprehensive COVID-19 Dataset for Causal and Epidemiological Analysis," *NeurIPS Workshop* 2020. (* indicates equal contributions) [link]

Technical Experiences

Academic & Industrial Projects
- **RewardFlow: Controllable Image Editing (CVPR 2026):** Developed an inversion-free, reward-guided Langevin dynamics framework for diffusion-based image editing. Designed prompt- and region-aware rewards that steer the stochastic dynamics toward controllable, spatially consistent edits without requiring latent inversion or extra fine-tuning.
- **Anomaly Detection in Semiconductor Manufacturing:** Developed a wafer defect detection framework using semi-supervised learning and distribution-shift modeling, substantially reducing false positives.
- **Model Stock: Weight Merging Method for Fine-tuning (ECCV 2024 Oral):** Proposed a weight-averaging approach revealing geometric consistency in fine-tuned models, improving robustness and generalization across configurations.
- **DynOPool – Pooling Revisited (CVPR 2022):** Developed a differentiable pooling layer that optimizes receptive fields, minimizing inductive bias in CNN architectures.
- **Implicit Neural Representation for Motion Deblur:** Designed a spatially-variant deblurring network using implicit representations, outperforming state-of-the-art methods on degraded images. *(U.S. Patent Application No. 17/973,809)*

Personal Project
- **Dataset for COVID-19 (DS4C):** Curated a large-scale, fine-grained epidemiological dataset (top-3 most impactful on Kaggle) with detailed patient- and policy-level signals, widely used in ML modeling, forecasting, and policy analysis.

Work Experience

Research Engineer — **Samsung AI Center, Korea** — **Jan 2024 – Aug 2025**
- Built an anomaly detection framework for wafer inspection via distribution-shift and semi-supervised learning, improving reliability and reducing false positives.
- Researched fine-tuning methods for semiconductor manufacturing and deployed results to production systems.

Research Intern — **NAVER AI Cloud, Korea** — **Jul 2023 – Dec 2023**
- Researched robust fine-tuning via weight merging and proposed a novel method, *Model Stock*.
- Advised by Dongyoon Han and Sangdoo Yun.

Research Scientist — **Mind's Lab, Korea** — **Feb 2019 – Sep 2019**
- Conducted low-level vision research including weakly supervised segmentation and spatially adaptive colorization.
- Fulfilled South Korean military service duty.

Software Engineer — **TNC Technology, Korea** — **Oct 2016 – Feb 2019**
- Developed a Java-based payment gateway server for corporate clients.
- Fulfilled South Korean military service duty.

Scholarships & Awards

Study Abroad Scholarship — **Kwanjeong Educational Foundation** — **2025 – 2029**
- Prestigious scholarship providing USD 25,000 per year to support overseas Ph.D. study at UIUC.

Government Scholarship for Overseas Study — **Korea Government** — **2023 – 2024**
- Awarded a competitive scholarship for international Ph.D. programs, recognizing 56 top candidates across all disciplines in South Korea.

OnDream Global Scholarship Award — **Hyundai Chung Mong-Koo Foundation** — **2022**
- Received an award for the paper "Pooling Revisited: Your Receptive Field is Suboptimal" presented at CVPR 2022.

OnDream Future Technology Scholarship — **Hyundai Chung Mong-Koo Foundation** — **2021 – 2022**
- Full tuition and financial support for graduate studies.

National Scholarship for Science and Engineering — **Korea Student Aid Foundation** — **2015 – 2016**
- Full tuition coverage for outstanding academic performance.

Invited Talks

Korean Conference on Computer Vision — **Seoul, Korea** — **2022**
- 20-minute oral presentation on CVPR paper "Pooling Revisited: Your Receptive Field is Suboptimal"

Databricks Invited Talk — **San Francisco, U.S. (remote)** — **2020**
- One-hour invited talk on "The Complexities around COVID-19 Data" invited as DS4C team [link]

Teaching Experiences

- Teaching Assistant for *430.329: Introduction to Algorithms* at Seoul National University (Fall 2020)
- Teaching Assistant for *Samsung AI Expert Course* at Seoul National University (July 2019)
- Teaching Assistant for *Hyundai Motors AI Expert Course* at Seoul National University (Jan 2019)