http://donghwanjang.github.io

# DONG-HWAN JANG

jh01120@snu.ac.kr

## EDUCATION

**Carnegie Mellon University** — **Pittsburgh, U.S.** — **2022 Fall**
- Visiting Scholar. AI related project-focused intensive program *fully funded by Korean Government*

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

**Seoul National University** — **Seoul, Korea** — **2013 – 2019**
- Department of Liberal Studies **Summa Cum Laude (1st out of 35)**
  - B.S. in Department of Electrical and Computer Engineering
  - B.S. in Technology Management

**Korea Science Academy of KAIST** — **Busan, Korea** — **2010 – 2012**

## PUBLICATIONS

- **Dong-Hwan Jang**, Sangdoo Yun, and Dongyoon Han. "Model Stock: All We Need is just a few Fine-Tuned Models," *Under Review*.
- Taehoon Kim, **Dong-Hwan Jang**, and Bohyung Han. "Merge and Bound: Direct Manipulations on Weights for Class Incremental Learning," *Under Review*.
- **Dong-Hwan Jang**, Sanghyeok Chu, Joonhyuk Kim, and Bohyung Han. "Pooling Revisited: Your Receptive Field is Suboptimal," *CVPR* 2022.
- 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)

## TECHNICAL EXPERIENCES

**Academic Projects**
- **DynOPool - Pooling Revisited: Your Receptive Field is Suboptimal** challenges conventional neural network design methodologies, introducing a novel pooling layer.
  - Focused on optimizing the network structure in a differentiable way to minimize inductive bias.
  - Resulted in a significant publication (detailed in the Publications section).
- **Implicit Neural Representation for Motion Deblur** employs spatially-variant motion deblur based on Implicit Neural Representation.
  - A spatially-variant deblurring network takes deformed features and their offsets as inputs.
  - It shows superior performance to the state-of-the-art methods on the restoration of downsampled and motion-blurred images.
  - *U.S. Patent Application Number: 17/973,809 (in progress)*
- **Model Stock: A Novel Weight Merging Method for Fine-tuning Pretrained Models** introduces a powerful approach to improve model performance by merging weights from different random seeds.
  - Unveils geometric patterns of fine-tuned models residing on a thin shell. Utilizing this discovery, we developed a novel weight merging method that markedly enhances model robustness and performance.
  - Offers groundbreaking insights into the fine-tuned weight merging process, shedding light on a previously underexplored aspect of model optimization.
  - Currently expanding this method to encompass weights fine-tuned under various configurations, broadening its applicability and potential impact.

**Personal Project**
- **Dataset for COVID-19 (DS4C):** Created the world's 3rd most impactful COVID-19 dataset with fine-grained patient-level data and policy-level data [Kaggle]
  - The dataset is used by researchers from all over the world to study the impact of policies on COVID-19 spread..
  - Interview article about NeurIPS workshop paper with AITimes [Korean] [English (auto-translated)]

## INVITED TALKS

**Korean Conference on Computer Vision** — **Seoul, Korea** — **2022**

- 20 minutes oral presentation (top 23.5% among published papers) on CVPR paper “Pooling Revisited: Your Receptive Field is Suboptimal” presented by prof. Bohyung Han

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

## Scholarships & Award

**Government Scholarship for Overseas Study** **Korea Government** **2023 – 2024**
- Awarded a prestigious scholarship intended for international Ph.D. programs, recognizing top 64 candidates across all majors in South Korea. (Note: Scholarship was not utilized due to non-admittance into the program.)

**OnDream Global Scholarship Award** **Hyundai Chung Mong-Koo Foundation** **2022**
- Award Prize - around *USD 2,350*
- For the paper “Pooling Revisited: Your Receptive Field is Suboptimal” at CVPR 2022

**OnDream Future Technology Scholarship** **Hyundai Chung Mong-Koo Foundation** **2021 – 2022**
- Covers full tuition & financial support.

**National Scholarship for Science and Engineering** **Korea Student Aid Foundation** **2015 – 2016**
- Covers full tuition.

## Employment

**Research Scientist** **Mind’s Lab, Korea** **2019**
- Low-level vision research including:
  - Weakly-supervised segmentation based on inpainting.
  - Colorization of grayscale images using spatially-adaptive denormalization.
- Business trip to Alberta Machine Intelligence Institute (Amii), Canada for a month (May 2019).
- Fulfills South Korean military service duty.

**Software Engineer** **TNC Technology, Korea** **2017–2018**
- Developed a Java-based payment gateway server for the company’s clients.
- Fulfills South Korean military service duty.

## 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)

## Extracurricular Activities

- NeurIPS 2022, 2023 reviewer, CVPR 2023 reviewer
- Deepest: Seoul National University’s AI club (2019 – 2020)