Woobin Im

🇰🇷 임우빈
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About

I'm a Ph.D. candidate at KAIST, South Korea. My research is focused on solving **computer vision** problems using **machine learning**. I am especially interested in **motion**, so I have been working on video-related topics.

Research interests: video, optical flow, spacetime, dynamic NeRF, generative models.

Award

- Naver Ph.D Fellowship Award, 2022.
- Finalist at Qualcomm Innovation Fellowship Korea (QIFK), 2020.
- Outstanding Teaching Assistant Award (우수조교상), KAIST, 2019.

Education

- **KAIST, Ph.D., Computer Science** **2018-current**
  - Advisor: Professor Sung-Eui Yoon
- **KAIST, M.S., Computer Science** **2016-2018**
  - Advisor: Professor Hyun Seung Yang
- **Yonsei University, B.S., Computer Science** **2012-2016**

Work

- **CLOVA, NAVER Cloud Corp. (internship)** **2023.02-2023.08**

Service

- **SGVR KAIST Website (Skill: web frontend, Wordpress, PHP)** **2018-current**
- **GPU Cluster (Skill: Docker, Kubernetes, Grafana)** **2023-current**

Publication

- **Multi-resolution distillation for self-supervised monocular depth estimation**
  Sebin Lee, **Woobin Im**, and Sung-Eui Yoon
  Pattern Recognition Letters, 2023

- **Diffusion Probabilistic Models for Scene-Scale 3D Categorical Data**
  Jumin Lee, **Woobin Im**, Sebin Lee, and Sung-Eui Yoon
  Workshop on Image Processing and Image Understanding (IPIU), 2023
  Best Paper Award [arxiv] [github]

- **Scenario Generation by Action Scene-Graph Prediction**
  Woobin Im, Woo Jae Kim, and Sung-Eui Yoon
  Korea Software Congress (KSC), 2022
  [web] [paper]

- **Semi-Supervised Learning of Optical Flow by Flow Supervisor**
  Woobin Im, Sebin Lee, and Sung-Eui Yoon
  European Conference on Computer Vision (ECCV), 2022
  [web] [arxiv] [github]

- **In-N-Out: Towards Good Initialization for Inpainting and Outpainting**
  Changho Jo, **Woobin Im**, and Sung-Eui Yoon
  British Machine Vision Conference (BMVC), 2021
  [web] [arxiv] [github]

- **Self-Supervised Visual Odometry via Frame Interpolation**
  Sebin Lee, **Woobin Im**, and Sung-Eui Yoon
  Korea Robotics Society Annual Conference (KRoC), 2021
  [paper]

- **Unsupervised Learning of Optical Flow with Deep Feature Similarity**
  Woobin Im, Tae-Kyun Kim, and Sung-Eui Yoon
  European Conference on Computer Vision (ECCV), 2020
  [web] [paper] [github]

- **Combined Center Dispersion Loss Function for Deep Facial Expression Recognition**
  Abhilasha Nanda, **Woobin Im**, Key-Sun Choi, and Hyun Seung Yang
  Pattern Recognition Letters, 2020
  [paper]

- **Two-stream Spatiotemporal Feature for Video QA Task**
  Chiwan Song, **Woobin Im**, and Sung-Eui Yoon
  https://arxiv.org/abs/1907.05006, 2019
  [arxiv]

- **Acoustic Material Estimation with Convolutional Neural Network**
  Doheon Lee, Inkyu An, **Woobin Im**, and Sung-Eui Yoon
  Korea Robotics Society Annual Conference (KRoC), 2019
  [paper]

- **An Application of Convolutional-LSTM Network and Video QA**
  Chiwan Song, **Woobin Im**, and Sung-Eui Yoon
  Korea Computer Congress (KCC), 2018
  [paper]

- **Scale-Varying Triplet Ranking with Classification Loss for Facial Age Estimation**
  Woobin Im, Sungeun Hong, Sung-Eui Yoon, and Hyun S. Yang
  Asian Conference on Computer Vision (ACCV), 2018
  [web] [paper] [github]

- **CBVMR: Content-Based Video-Music Retrieval Using Soft Intra-Modal Structure Constraint**
  Sungeun Hong, **Woobin Im**, and Hyun S. Yang
  Proceedings of the ACM international conference on Multimedia Retrieval (ICMR), 2018
  [paper] [video]

- **D3: Recognizing dynamic scenes with deep dual descriptor based on key frames and key segments**
  Sungeun Hong, Jongbin Ryu, **Woobin Im**, and Hyun S. Yang
  Neurocomputing, 2018
  [paper]

- **SSPP-DAN: Deep Domain Adaptation Network for Face Recognition with Single Sample Per Person**
  Sungeun Hong, **Woobin Im**, Jongbin Ryu, and Hyun S. Yang
  International Conference on Image Processing (ICIP'17), IEEE, 2017
  Oral [paper]

- **Convolutional Texture Networks based on Histogram Pooling**
  Jongbin Ryu, Sungeun Hong, **Woobin Im**, and Hyun S. Yang

- **Image-text multi-modal representation learning by adversarial backpropagation**
  Gwangbeen Park and **Woobin Im**
  arXiv preprint arXiv:1612.08354, 2016

- **Deep CNN-based Person Identification using Facial and Clothing Features**
  Sungeun Hong, **Woobin Im**, Junwoo Park, and Hyun S. Yang
  Jun 2016, Summer General Conference '16, IEEK, 2016

Patent

- 트리플릿 기반의 손실함수를 활용한 순서가 있는 분류문제를 위한 딥러닝 모델 학습 방법 및 장치 (Using Triplet-based Loss for Training Ordinal Classification Deep Models)
  [US App] [KR App]
- 부분 이미지 기반 객체 판별 방법 및 장치 (Partial Face Based Person Identification Across Poses)
  [KR]
- 도메인 적응 기반 객체 인식 모델 제공 장치 및 방법 (APPARATUS AND METHOD FOR PROVIDING OBJECT RECOGNITION MODEL BASED ON DOMAIN ADAPTATION)
  [KR App]
- 광학 흐름 추정을 위한 딥 유사도 기반 비지도 학습의 컴퓨터 시스템 및 그의 방법 (COMPUTER SYSTEM OF UNSUPERVISED LEARNING WITH DEEP SIMILARITY FOR OPTICAL FLOW ESTIMATION AND METHOD THEREOF)
  [KR] [US App]

Experience

- Teaching Assistants
  - GSAG-KAIST Research and Education Program, 1/2019-2/2019
  - CS206: Data Structure (Spring 2019), 3/2019-6/2019
  - CS688: Web-Scale Image Retrieval (Fall 2018), 9/2018-12/2018
  - CS101: Introduction to Programming, 9/2016-12/2017, 9/2018-12/2018
- Undergraduate Research Assistant
  - DB Lab, Yonsei University, 1/2014-2/2014