

# Woobin Im

🇰🇷 임우빈

Ph.D. candidate

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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, IEEEK, 2016*

## Patent

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- 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

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- 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