Pilhyeon Lee

PH.D. STUDENT · YONSEI UNIVERSITY

D810, The 4th Engineering Building, Yonsei-ro 50, Seoul, South Korea

(+82) 10-2908-9564 | lph1114@yonsei.ac.kr | pilhyeon.github.io/ | Pilhyeon | Pilhyeon Lee

Summary

Research Interest How to learn from lacking data/labels in the real world

Current Focus Video Understanding, Weakly-supervised Learning

Education

Yonsei University *Seoul, South Korea*

PH.D IN COMPUTER SCIENCE *Mar. 2018 - Present*

- Supervised by Prof. Hyeran Byun

Chung-Ang University *Seoul, South Korea*

B.S. IN COMPUTER SCIENCE AND ENGINEERING *Mar. 2014 - Feb. 2018*

- Honors: Magna cum laude (GPA: 4.18/4.5)

Experience

Microsoft Research Asia *Beijing, China*

RESEARCH INTERN *Dec. 2019 - Jun. 2020*

- Working with Dr. Jinglu Wang and Dr. Yan Lu in the Media Computing Group

Publication

INTERNATIONAL CONFERENCE

Continuous Face Aging Generative Adversarial Networks

Seogkyu Jeon, **Pilhyeon Lee**, Kibeom Hong, Hyeran Byun *Jun. 2021*

- IEEE International Conference on Acoustics, Speech and Signal Processing (**ICASSP**)

Learning Subject-independent Representation for EEG-based Drowsy Driving Detection

Sunhee Hwang, **Pilhyeon Lee**, Sungho Park, Hyeran Byun *Feb. 2021*

- The 9th International Winter Conference on Brain-Computer Interface (**BCI**)
- Oral Presentation

Weakly-supervised Temporal Action Localization by Uncertainty Modeling

Pilhyeon Lee, Jinglu Wang, Yan Lu, Hyeran Byun *Feb. 2021*

- The 35th AAAI Conference on Artificial Intelligence (**AAAI**)

Exploiting Transferable Knowledge for Fairness-aware Image Classification

Sunhee Hwang*, Sungho Park*, **Pilhyeon Lee***, Seogkyu Jeon, Dohyung Kim, Hyeran Byun *Nov. 2020*

- The 15th Asian Conference on Computer Vision (**ACCV**)
- (* Equal contributions)

Background Suppression Network for Weakly-supervised Temporal Action Localization

Pilhyeon Lee, Youngjung Uh, Hyeran Byun *Feb. 2020*

- The 34th AAAI Conference on Artificial Intelligence (**AAAI**)
- Spotlight Presentation (20.6 % acceptance rate)

DOMESTIC JOURNAL / CONFERENCE

Conference: 3 papers (in Korean)

Project

Study on Audio, Video, 3d Map and Activation Map Generation System using Deep Generative Model *Yonsei Univ.*

FUNDED BY INSTITUTE OF INFORMATION & COMMUNICATION TECHNOLOGY (IITP) *Jul. 2019 - Dec. 2020*

- Developed a method to generate more precise temporal class activation map from untrimmed videos.

Fundamental Study of Vision Algorithms for Comprehensive and Thorough Understanding of Videos

Yonsei Univ.

Funded by Ministry of Science, ICT and Future Planning — *Aug. 2017 - Dec. 2020*

- Developed a new framework for weakly-supervised temporal action localization.
- This work was summarized in a paper and accepted to AAAI 2020.

Development of Long-range and Multi-person Tracking Method

Yonsei Univ.

Funded by Samsung Electronics Co., Ltd. — *May. 2020 - Nov. 2020*

- Developed a framework for action recognition based on pose and RGB streams.

Background Modeling for Weakly-supervised Temporal Action Localization

Microsoft Research Asia

Funded by Institute of Information & Communication Technology (IITP) — *Dec. 2019 - Jun. 2020*

- Proposed a new background modeling approach to overcome the difficulty in rejecting background frames for weakly-supervised temporal action localization.
- This work was summarized in a paper and accepted to AAAI 2021.

Deep Learning based Object Detection for Image Analysis

Yonsei Univ.

Funded by Samsung Electronics Co., Ltd. — *May. 2018 - Dec. 2018*

- Built an object detection benchmark containing unusual factory scenes and reproduced the state-of-the-art object detection methods.

Inter-cultural Korean Music Discovery based on Pluralistic Music Emotion

Chung-Ang Univ.

Funded by Ministry of Science, ICT and Future Planning — *Jun. 2017 - Feb. 2018*

- Assisted research on improving classification performance on multi-label data via instance selection algorithm.

Patent

Method and Device for Extracting Video Feature

Hyeran Byun, Jewook Lee, **Pilhyeon Lee**, Kibeom Hong — *Nov. 2020*

- Korea patent (applied), No. 10-2020-0153515

Apparatus and Method for Detecting Action Frame Based on Weakly-supervised Learning through Background Modeling via Uncertainty Estimation

Hyeran Byun, **Pilhyeon Lee**, Jewook Lee — *Sep. 2020*

- Korea patent (applied), No. 10-2020-0122806

Method and Apparatus for Detecting Action Frame Based on Weakly-supervised Learning through Background Frame Suppression

Hyeran Byun, **Pilhyeon Lee** — *Nov. 2019*

- PCT patent (applied), No. PCT/KR2020/012645
- Korea patent (registered), No. 10-2201353

Framework for Generating an Image Reconstructing Brain Activity of a Subject

Hyeran Byun, Kibeom Hong, Sunhee Hwang, Gui-Young Son, Jewook Lee, **Pilhyeon Lee**, Sungho Park, Minsong Ki — *Sep. 2018*

- Korea patent (registered), No. 10-2089014

Honors & Awards

2020	**Best Paper Award**, The Joint Conference of Microsoft and Korean Artificial Intelligence Association	*South Korea*
2018	**Graduation Honors Award**, Chung-Ang University	*South Korea*
2015 - 2018	**Academic Excellence Scholarship**, Chung-Ang University	*South Korea*

Presentation

Weakly-supervised Action Localization by Uncertainty Modeling

- AAAI talk, 2021.

Background Suppression Network for Weakly-supervised Temporal Action Localization

- Korean Conference on Computer Vision (KCCV), 2020.
- AAAI Spotlight talk, 2020.

Professional Activity

Reviewers

- IEEE Trans. on Pattern Analysis and Machine Intelligence (**TPAMI**)
- IEEE Trans. on Neural Networks and Learning Systems (**TNNLS**)
- Pattern Recognition (**PR**)