Jiyoung Lee

PH.D. CANDIDATE · YONSEI UNIVERSITY

Digital Image Media Laboratory, C129, The 3rd Engineering Building, Yonsei-ro 50, Seodaemun-Gu, Seoul, Rep. of KOREA

☐ (+82) 10-2413-9335 | ✉ easy00@yonsei.ac.kr | ⌂ https://easy00.github.io/ | Ⓢ leejy0924

Summary

Research Interest	Computer vision, affective computing, machine learning
Current Focus	Visual reasoning, meta-learning, audio-visual scene analysis, video understanding

Education

Yonsei University *Seoul, S.Korea*

PH.D. CANDIDATE IN SCHOOL OF ELECTRICAL AND ELECTRONIC ENGINEERING *Mar. 2016 - Present*

- Working with Prof. Kwanghoon Sohn.

Yonsei University *Seoul, S.Korea*

B.S. IN SCHOOL OF ELECTRICAL AND ELECTRONIC ENGINEERING *Mar. 2012 - Feb. 2016*

Experience

Microsoft Research *Redmond, USA*

RESEARCH INTERN CANDIDATE *April. 2020 - Present*

- HUE: Human Understanding and Empathy Group.
- Working with Dr. Daniel McDuff and Dr. Yale Song.

Publication

International Journal

"Multi-modal Recurrent Attention Networks for Facial Expression Recognition"

JIYOUNG LEE, Sunok Kim, Seungryong Kim, and Kwanghoon Sohn *May. 2020*

- IEEE Transaction on Image Processing (**TIP**). vol. 29, pp. 6977–6991 (Impact Factor: **9.34**)

"Learning Discriminative Action Tubelets for Weakly-supervised Action Detection"

JIYOUNG LEE, Seungryong Kim, Sunok Kim, and Kwanghoon Sohn *Jul. 2020*

- IEEE Transaction on Image Processing (**TIP**). (Under Review)

International Conference

"CausalCity: Complex Simulations with Agency for Causal Discovery and Reasoning"

Daniel McDuff, Yale Song, JIYOUNG LEE, Vibhav Vineet, Sai Vemprala, Hadi Salman, Shuang Ma, Kwanghoon Sohn, and Ashish Kapoor *Feb. 2021*

- International Conference on Machine Learning (**ICML**). (Under Review)

"Self-balanced Learning for Domain Generalization"

Jin Kim, JIYOUNG LEE, Jungin Park, Dongbo Min, and Kwanghoon Sohn *Jan. 2021*

- IEEE International Conference on Image Processing (**ICIP**). (Under Review)

"Looking into Your Speech: Learning Cross-modal Affinity for Audio-visual Speech Separation"

JIYOUNG LEE*, Soo-Whan Chung*, Sunok Kim, Hong-Goo Gang, and Kwanghoon Sohn (* INDICATES EQUAL CONTRIBUTION.) *Nov. 2020*

- IEEE/CVF Conference on Computer Vision and Pattern Recognition (**CVPR**). (Under Review)

"Wide and Narrow: Video Prediction from Context and Motion"

Jaehoon Cho, JIYOUNG LEE, Changjae Oh, and Kwanghoon Sohn *Nov. 2020*

- IEEE/CVF Conference on Computer Vision and Pattern Recognition (**CVPR**). (Under Review)

"Bridge to Answer: Structure-aware Graph Interaction Network for Video Question Answering"

Jungin Park, JIYOUNG LEE, and Kwanghoon Sohn *Nov. 2020*

- IEEE/CVF Conference on Computer Vision and Pattern Recognition (**CVPR**). (Under Review)

"SumGraph: Video Summarization via Recursive Graph Modeling"
JUNGIN PARK*, **JIYOUNG LEE***, IG-JAE KIM, AND KWANGHOON SOHN (* INDICATES EQUAL CONTRIBUTION.)   *Aug. 2020*
- European Conference on Computer Vision (**ECCV**)

"Context-Aware Emotion Recognition Networks"
JIYOUNG LEE, SEUNGRYONG KIM, SUNOK KIM, JUNGIN PARK, AND KWANGHOON SOHN   *Oct. 2019*
- IEEE International Conference on Computer Vision (**ICCV**) (**25%** acceptance rate)

"Video Summarization by Learning Relationships between Action and Scene"
JUNGIN PARK, **JIYOUNG LEE**, SANGRYUL JEON, AND KWANGHOON SOHN   *Oct. 2019*
- IEEE International Conference on Computer Vision Workshop (**ICCVW**)

"Graph Regularization Network with Semantic Affinity for Weakly-supervised Temporal Action Localization"
JUNGIN PARK, **JIYOUNG LEE**, SANGRYUL JEON, SEUNGRYONG KIM, AND KWANGHOON SOHN   *Sep. 2019*
- IEEE International Conference on Image Processing (**ICIP**)

"Audio-Visual Attention Networks for Emotion Recognition"
JIYOUNG LEE, SUNOK KIM, SEUNGRYONG KIM, AND KWANGHOON SOHN   *Oct. 2018*
- ACM Multimedia Workshop- Workshop on Audio-Visual Scene Understanding for Immersive Multimedia (**MMW**)

"Learning to Detect, Associate, and Recognize Human Actions and Surrounding Scenes in Untrimmed Videos"
JUNGIN PARK, SANGRYUL JEON, SEUNGRYONG KIM, **JIYOUNG LEE**, SUNOK KIM, AND KWANGHOON SOHN   *Oct. 2018*
- ACM Multimedia Workshop- The 1st Workshop and Challenge on Comprehensive Vidoe Understanding in the Wild (**MMW**)

"Spatiotemporal Attention Based Deep Neural Networks for Emotion Recognition"
JIYOUNG LEE, SUNOK KIM, SEUNGRYONG KIM, AND KWANGHOON SOHN   *Apr. 2018*
- IEEE International Conference on Acoustics, Speech and Signal Processing (**ICASSP**)

"Automatic 2D-to-3D Conversion using Multi-scale Deep Neural Network"
JIYOUNG LEE, HYUNGJOO JUNG, YOUNGJUNG KIM, AND KWANGHOON SOHN   *Sep. 2017*
- IEEE International Conference on Image Processing (**ICIP**)

Patent

"Audio-Video Matching Area Detection Apparatus and Method"
JIYOUNG LEE, AND KWANGHOON SOHN   *Jul. 2019*
- Korea patent, 10-2019-0090937

"Apparatus and Method for Recognizing Activity and Detecting Activity Area in Video"
JIYOUNG LEE, AND KWANGHOON SOHN   *Mar. 2019*
- Korea patent, 10-2019-0034501

"Emotion Recognition Apparatus and Method Based on Spatiotemporal Attention"
JIYOUNG LEE, AND KWANGHOON SOHN   *May. 2018*
- Korea patent, 10-2018-0053306

Research Experiences

To create AI systems that act appropriately and effectively in novel situations that occur in open worlds
S.Korea
FUNDED BY INSTITUTE OF INFORMATION & COMMUNICATION TECHNOLOGY   *Mar. 2020 – Present*
- Developed an algorithm for domain generalization using meta-learning.

Deep Identification and Tracking of Missing Person in Heterogeneous CCTV
S.Korea
FUNDED BY MINISTRY OF SCIENCE, NATIONAL RESEARCH FOUNDATION   *Sep. 2018 – Present*
- Developed an algorithm for pedestrian detection.

Intelligent Virtual Reality: Deep Audio-Visual Representation Learning for Multimedia Perception and Reproduction
S.Korea
FUNDED BY INSTITUTE OF INFORMATION & COMMUNICATION TECHNOLOGY.   *Sep. 2017 – Aug.2019*
- Developed an algorithm using audio-visual data.

Fundamental Study of Vision Algorithms for Comprehensive and Through Understanding of Videos *S.Korea*

FUNDED BY MINISTRY OF SCIENCE, ICT AND FUTURE PLANNING. *Sep. 2017 - Dec. 2020*

- Developed an algorithm for scene understanding untrimmed videos.

Development of the High-Precision AR & VR Contents Based on Smart-Car Sensors *S.Korea*

FUNDED BY INSTITUTE OF INFORMATION & COMMUNICATION TECHNOLOGY *Jan. 2017 – Dec. 2017*

- Developed an algorithm for dense stereo matching in outdoor environments.

Emotional Intelligence Technology to Infer Human Emotion and Carry on Dialogue Accordingly *S.Korea*

FUNDED BY INSTITUTE OF INFORMATION & COMMUNICATION TECHNOLOGY. *Sep. 2017 - Jun. 2018*

- Developed an algorithm for inferring human emotion from multi-spectral images.

High Quality 2D-to-Multiview Contents Generation from Large-Scale RGB+D Database *S.Korea*

FUNDED BY INSTITUTE OF INFORMATION & COMMUNICATION TECHNOLOGY. *Mar. 2016 – Aug. 2017*

- Developed an algorithm for inferring high-quality depth from a single 2-D image.

Yonsei University, Dept. of Electrical and Electronic Engineering *S.Korea*

TEACHING ASSISTANT. *Mar. 2016 – Feb. 2017*

- Digital signal processing, Electrical and electronic engineering experiments: fundamentals.

Professional Activities

Reviewers

IEEE ACCESS, IEEE TRANSACTIONS ON IMAGE PROCESSING

Media Coverage

"A deep learning technique for context-aware emotion recognition."

TECHXPLORE *Aug. 2019*

Talks

"Comprehensive Video Understanding: from Recognition to Reasoning."

MICROSOFT RESEARCH AI BREAKTHROUGHS *Sep. 2020*

Honors & Awards

2019	**3rd Award**, CoVieW 2019 (IEEE ICCV Challenge)	*CoVieW'19*
2016	**Finalist & Award**, University Startup 300	*Ministry of Education, S.Korea*
2015	**Silver Prize**, Yonsei Creative Design Challenge	*Yonsei University*
2015	**Award**, Campus Reboot Startup Camp	*Ministry of Education, S.Korea*

Skills

Programming	Python, C/C++, JAVA, Ruby, Lua, MATLAB, OpenCV, LaTeX, Linux
Deep learning	PyTorch, Tensorflow, Caffe, Torch
Web	Django, Ruby on Rails, HTML5, CSS, Javascript
Languages	Korean, English