

Heeseung Yun (Updated: Nov. 2022)

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🌐 hs-yn.github.io

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EDUCATION

Seoul National University

Integrated M.S./Ph.D. in Computer Science and Engineering

Seoul, Republic of Korea

Mar. 2020 - Aug. 2025 (expected)

Seoul National University, College of Liberal Studies

B.S. in Computer Science and Engineering & Value Science Engineering

Seoul, Republic of Korea

Mar. 2015 - Feb. 2020

– College of Liberal Studies Valedictorian (Dean's award), Computer Science and Engineering Best Thesis Award

Technical University of Munich

Department of Informatics (Exchange Student)

Munich, Germany

Oct. 2018 - Mar. 2019

RESEARCH INTEREST

Multimodal representation learning, video understanding and geometric deep learning: Leveraging *multisensory omnidirectional perception* to bridge the gap between the pinhole world and the real world.

PUBLICATIONS

Peer-Reviewed Conferences

1. **Heeseung Yun**, Sehun Lee, Gunhee Kim. Panoramic Vision Transformer for Saliency Detection in 360° Videos, In *European Conference on Computer Vision (ECCV)*, 2022. [pdf | poster]
2. **Heeseung Yun**, Youngjae Yu, Wonsuk Yang, Kangil Lee, Gunhee Kim. Pano-AVQA: Grounded Audio-Visual Question Answering on 360° Videos. In *Proceedings of the IEEE/CVF International Conference on Computer Vision (ICCV)*, 2021. [pdf | poster]
3. Youngjae Yu*, Jiwan Chung*, **Heeseung Yun**, Jongseok Kim, Gunhee Kim. Transitional Adaptation of Pretrained Models for Visual Storytelling. In *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*, 2021. [pdf]
4. Youngjae Yu, Jongseok Kim, **Heeseung Yun**, Jiwan Chung, Gunhee Kim. Character Grounding and Re-Identification in Story of Videos and Text Descriptions. In *European Conference on Computer Vision (ECCV)*, 2020. [pdf]
5. Chih-Yuan Yang, **Heeseung Yun**, Srenivas Varadarajan, Jane Yung-jen Hsu. A Social Robot Generating Video Summaries of Seniors' Indoor Activities. In *ACM International Conference on Human-Computer Interaction with Mobile Devices and Services (MobileHCI)*, 2019. [pdf]

Preprints

1. Youngjae Yu*, Jiwan Chung*, **Heeseung Yun**, Jack Hessel, Jae sung Park, Ximing Lu, Rowan Zellers, Prithviraj Ammanabrolu, Ronan Le Bras, Gunhee Kim, Yejin Choi. Fusing Pre-trained Language Models with Multimodal Prompts through Reinforcement Learning. *Under Review*, 2022. [pdf]

Others (Patents, Thesis, etc.)

1. Method and System of Providing Interface for Visual Question Answering, KR¹⁰⁻²⁰²¹⁻⁰¹⁹²¹¹⁰. US (pending)
2. Economic Viability Analysis of Open Source Deep Learning Model - A Multivariate Real Option Approach, VSE Bachelor Thesis, 2020.
3. Character Aware Video Description Generation, CSE Bachelor Thesis, 2020.

HONORS & AWARDS

1st Place of DramaQA Challenge 2020

Valedictorian of College of Liberal Studies (Dean's Award)

Best Thesis Award of Dept. of Computer Science and Engineering

1st Place of Large Scale Movie Description Challenge 2019

National Scholarship for Science and Engineering

Award of Excellence for Summer Research Program

Merit-Based Full Scholarship

VTT Workshop @ ECCV, 2020

Seoul National University, 2020

Seoul National University, 2020

CLVL Workshop @ ICCV, 2019

Ministry of Science and ICT, 2017-2019

Intel-NTU Connected Context Computing Center, 2018

Seoul National University, 2017

* denotes equal contribution

EXPERIENCE

SK Hynix

Project Mentor (Part-time)

Seoul, Korea

Jun. 2021 - Nov. 2022

- o Advised 10+ private deep learning projects on semiconductor manufacturing to achieve significant improvement in KPI
- o Obtained insights into adapting AI/ML projects for industrial applications in a meaningful way

Vision and Learning Lab, Seoul National University

Graduate Research Assistant (Advisor: Prof. Gunhee Kim)

Seoul, Korea

Mar. 2020 -

- o Led projects on audio-visual reasoning, panoramic video understanding, and geometry-aware scene understanding and worked on visual storytelling & multimodal captioning
- o Published 4 papers and 1 patent and gained experience in leading research projects end-to-end while facilitating collaboration

Vision and Learning Lab, Seoul National University

Research Intern (Advisor: Prof. Gunhee Kim)

Seoul, Korea

Jun. 2019 - Feb. 2020

- o Worked on video question answering using graphical inference and large-scale movie description challenge
- o Strengthened knowledge on dealing with terabyte-scale multimodal datasets efficiently

Intel-NTU Connected Context Computing Center (NTU IoX Center)

Research Intern (Advisor: Dr. Chih-Yuan Yang)

Taipei, Taiwan

Jun. 2018 - Aug. 2018

- o Worked on controlling and interfacing social robot for the users-in-the-wild with docker server-client architecture
- o Gained experience in inter-process communication among different languages while minimizing latency

Co-design and Parallel Processing Laboratory, Seoul National University

Research Intern (UROF)

Seoul, Korea

Jul. 2017 - Sep. 2017

- o Implemented speech-to-script conversion program for service-oriented IoT platform
- o Learnt collaboration and programming conventions for large-scale projects using C#

ACADEMIC ACTIVITIES

Reviewer.....

CVPR (2023), ECCV (2022), TVCG (2022)

Teaching Assistant (Seoul National University).....

Computer Vision (M1522.001000)

Fall 2022

Probabilistic Graphical Models (M1522.001300)

Spring 2022

Dept. of Engineering ML Engineer Course (Computer Vision)

2021–2022

Samsung DS Course (Reinforcement Learning)

2020–2021

Discrete Mathematics (4190.101)

Spring 2020

Theory and Lab of IoT, AI and Big Data (M2177.004900)

Spring 2019 / Fall 2021

INVITED TALKS

Multimodal Grounding for Panoramic Video Understanding

SNU Graudate Seminar, August 2022

Grounded Audio-Visual Question Answering on 360° Videos

Hyundai AI Research Lab, Fall 2021

SELECTED PROJECTS

Discretizing Spheres with Local Patch-based Representation

2022

Navigating 3D Environment using Binaural Audio

2022

Hausdorff Distance Computation between Two Freeform Curves

2021

FedEx: Scalable and Secure System for User-Adaptive Deep Learning Training in Mobile Devices

2020

Household Appliance Taxonomy Derivation for Non-Intrusive Load Monitoring

2019

SleepBox: Respiratory Assistant Device to Alleviate Sleep Disorder

2019

Cointegration Pair Trading for Secondhand Market Price Prediction

2019

Misc.

- o Programming: **Linux, Python (PyTorch, TensorFlow)**, C, C++, C#, Java, Javascript
- o Languages: Korean (Native), English (Fluent), Chinese (Fair)