Hyun-Bin Oh

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Last updated: Nov 25, 2026

RESEARCH INTERESTS

My research focuses on understanding and generation through **sound** and **vision**. I study how models connect *what we see* with *what we hear*, and how these connections help them understand and generate content consistent with a scene.

EXPERIENCE

Sony AI — Remote
Research Scientist Intern, Cinematic Technology Team — *Apr. 2026 – Oct. 2026*
- Hosts: Kazuki Shimada, Takashi Shibuya, and Yuki Mitsufuji

Sony AI — Tokyo, Japan
Research Scientist Intern, Deep Generative Modeling Team — *Jul. 2025 – Mar. 2026*
- Hosts: Yuhta Takida, Toshimitsu Uesaka, and Yuki Mitsufuji

POSTECH → KAIST — Pohang → Daejeon, Korea
Research Assistant (Advisor: Prof. Tae-Hyun Oh) — *Feb. 2022 – Present*

EDUCATION

POSTECH — Pohang, Korea
Integrated M.S./Ph.D. in Electrical Engineering (Advisor: Prof. Tae-Hyun Oh) — *Mar. 2022 – Feb. 2028 (Expected)*

Chung-Ang University — Seoul, Korea
B.S. in Physics & B.E. in Electrical Engineering (Dual Degree); Summa Cum Laude — *Mar. 2017 – Aug. 2021*

PUBLICATIONS

*" * " denotes equal contribution. " † " denotes co-corresponding authors.*

[14] **Audio-Visual Editorial Captioning for Unscripted Shows.**
Oh Hyun-Bin et al.
Under review

[13] **Audio-Visual Tracking Beyond the Line of Sight.**
Kyeongmin Kim, **Oh Hyun-Bin**, Junuk Cha, and Tae-Hyun Oh
Under review

[12] **Hear, Localize, and Reason: Spatially Aware Scene Understanding for Audio-visual LLMs.**
K. Sung-Bin, L. Jung-Mok, J. Jung, **Oh Hyun-Bin**, H. Ryu, D. Harwath, and T.-H. Oh
NeurIPS, 2026

[11] **Spatio-Temporal Audio Language Modeling for Dynamic Sound Sources.**
Oh Hyun-Bin, K. Shimada, Y. Takida, K. Sung-Bin, T. Uesaka, T. Shibuya, K. Lee, T.-H. Oh, and Y. Mitsufuji
EMNLP, 2026 (Main) [Project]
*Work done during an internship at Sony AI

[10] **CineHaptic: Context-Aware Real-Time Audiovisual-to-Haptic Rendering System for In-Vehicle 4D Cinematic Experiences.**
J. Kim, H. Kim, **Oh Hyun-Bin**, J. Kang†, T.-H. Oh†, and S. Choi†
UIST, 2026

[9] **Revisiting Learning-based Video Motion Magnification for Real-time Processing.**
H. Ha*, **Oh Hyun-Bin***, K. Jun-Seong, K. Byung-Ki, K. Sung-Bin, L.-T. Tran, J.-Y. Kim, S.-H. Bae, T.-H. Oh
TMLR, 2026 [Project]

[8] **Physics-Aware Deepfake Detection via Distance–Speech Consistency.**
K. Kyeongrae, K. Sung-Bin, **Oh Hyun-Bin**, and T.-H. Oh
INTERSPEECH, 2026 [Project]

[7] **PAVAS: Physics-Aware Video-to-Audio Synthesis.**
Oh Hyun-Bin, Y. Takida, T. Uesaka, T.-H. Oh, Y. Mitsufuji
CVPR, 2026 (**Oral presentation**) [Project]
*Work done during an internship at Sony AI
Media coverage: KBS News (Korean National Broadcaster), MBC News, and other local media.

[6] **Perceptually Accurate 3D Talking Head Generation: New Definitions, Speech-Mesh Representation, and Evaluation Metrics.**
C.-Y. Lee*, **Oh Hyun-Bin***, H. EunGi, K. Sung-Bin, S. Nam, T.-H. Oh
CVPR, 2025 (**Highlight**; top 3.7%; all reviewers: Strong Accept, 5/5) [Project]

[5] **AVHBench: A Cross-Modal Hallucination Evaluation for Audio-Visual Large Language Models.**
K. Sung-Bin*, **Oh Hyun-Bin***, J. Lee, A. Senocak, J. Chung and T.-H. Oh
ICLR, 2025 [Project]

[4] **Learning-based Axial Video Motion Magnification.**
K. Byung-Ki, **Oh Hyun-Bin**, K. Jun-Seong, H. Ha, and T.-H. Oh
ECCV, 2024 [Project]

[3] **Enhancing Speech-Driven 3D Facial Animation with Audio-Visual Guidance from Lip Reading Expert.**
H. EunGi*, **Oh Hyun-Bin***, K. Sung-Bin, C. Etcheberry, S. Nam, J. Ju, and T.-H. Oh
INTERSPEECH, 2024 [Project]

[2] **MultiTalk: Enhancing 3D Talking Head Generation Across Languages with Multilingual Video Dataset.**
K. Sung-Bin*, C.-Y. Lee*, G. Son*, **Oh Hyun-Bin**, J. Ju, S. Nam, and T.-H. Oh
INTERSPEECH, 2024 [Project]

[1] **Uni-DVPS: Unified Model for Depth-Aware Video Panoptic Segmentation.**
K. Ji-Yeon, **Oh Hyun-Bin**, K. Byung-Ki, D. Kim, Y. Kwon, and T.-H. Oh
IEEE Robotics and Automation Letters (RA-L), Jul. 2024 (**Oral presentation in IROS 2024**) [Project]
(**Best Paper Award** from the Asian Federation of Computer Vision (AFCV))

HONORS AND AWARDS

Top Reviewer, NeurIPS, 2026.

Selected Participant, International Computer Vision Summer School (ICVSS), 2025.

Best Paper Award, Silver Prize, IPIU, 2025.

Best Paper Award, KRoC, 2024.

Best Paper Award, Encouragement, IPIU, 2023.

Summa Cum Laude, Chung-Ang University, 2021.

Department Honors Scholarship (ranked 1st in the department), Chung-Ang University, 2021.

Science Scholarship, Suwon Municipal Scholarship Foundation, 2018.

Department Honors Scholarship (ranked 1st in the department), Chung-Ang University, 2017.

PATENT

Method and Apparatus for Magnifying Axial Motion of Video 2024
- United States, P2024258-02-US (Application)
- Republic of Korea, 10-2024-0140333 (Application)

ACADEMIC SERVICES

Journal Reviewer

- International Journal of Computer Vision (IJCV), Pattern Recognition (PR)
- IEEE Transactions on Visualization and Computer Graphics (TVCG)
- IEEE Transactions on Image Processing (TIP)

Conference Reviewer

- CVPR, NeurIPS, SIGGRAPH Asia, ACCV

Teaching Experience

- NAVER Boostcamp AI Tech Computer Vision Track (5th, 6th)
- [EECE454] Introduction to Machine Learning, POSTECH

Deep Learning Seminar

- KAIST AMILab seminar [YouTube]
- POSTECH EE-group deep learning seminar

TECHNICAL SKILLS

Programming: Python, C/C++, MATLAB, JavaScript, HTML/CSS, LaTeX

Frameworks: PyTorch, NumPy, OpenCV, Git

Languages: Korean (native), English (fluent), Japanese (intermediate)

REFERENCES

Dr. Tae-Hyun Oh, Professor, KAIST

- Relationship: Ph.D. advisor

Dr. Yuki Mitsufuji, VP of AI Research, Sony AI / Visiting Research Professor, New York University

- Relationship: Host and collaborator at Sony AI