

Wonseok Oh

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RESEARCH INTERESTS

Computer Vision, Cross-modal Generation, 3D Multi-view Generation, Robotics

EDUCATION

University of Michigan

M.S. Electrical and Computer Engineering

Ann Arbor, Michigan

09/2023 - 04/2025 (expected)

- Overall GPA : 3.97 / 4.0

Course work: Principles of Machine Learning (A+), Public Welfare Responsibilities in Engineering (A+), Foundations of Computer Vision (A), Advanced Topics of Computer Vision (A), Action and Perception (A), Artificial Intelligence in Biomedicine (A)

Korea University

B.S. Computer Science and Engineering

Seoul, South Korea

03/2015 - 08/2023

- Overall GPA : 4.07 / 4.5 (95.7 / 100)

Course work (A+): Artificial Intelligence, Computer Programming, Natural Language Processing, Algorithm, Data Structure, Introduction to Convex Optimization, Theory of Computation, Discrete Mathematics, Mathematics for Computer Science, Computer Architecture, Special Lecture for Computer Science

Korea University

B.Eng. Software Technology and Enterprise Program, B.Eng. Chemical and Biological Engineering

Seoul, South Korea

03/2015 - 02/2022

- Major GPA of STE : 4.15 / 4.5 (96.5 / 100)

- Military service: 09/2016 - 06/2018

CONFERENCE & JOURNAL PUBLICATIONS

Conference publications

- Yiming Dou, **Wonseok Oh**, Yuqing Luo, Antonio Loquercio, and Andrew Owens. 2025. Hearing Hands: Generating Sounds from Physical Interactions in 3D Scenes. *Submitted to CVPR 2025* [\[Link\]](#)
- **Wonseok Oh** et al. 2024. From 2D Portraits to 3D Realities: Advancing GAN Inversion for Enhanced Image Synthesis. *CVPR 2024 2nd Workshop for Learning 3D with Multi-View Supervision (CVPRW 2024)* (oral) [\[Link\]](#)
- **Wonseok Oh** et al. 2023. Improving quality of pixel-wise transfer using Attention-based Encoding (SAE) and Abortion method. *Korea Computer Congress 2023 (KCC 2023)* (oral) [\[Link\]](#)
- **Wonseok Oh** et al. 2021. Visualization Comparison of GAN for Reconstructing De-identified Image Dataset using Attention. *Korea Software Congress 2021 (KSC 2021)* (Korean) [\[Link\]](#) [\[Patent\]](#)

Journal publications

- **Wonseok Oh** et al. 2021. RDID-GAN: Reconstructing a De-identified Image Dataset to Generate Effective Learning Data. *Journal of Korean Institute of Information Scientists and Engineers 2021 (JOK 2021)* (Korean) [\[Link\]](#) [\[Patent\]](#)

RESEARCH EXPERIENCE

Enhancing Multi-View Illusion Generation with Latent Diffusion Models and Image Processing

EECS556 Image processing (Instructor: Liyue shen) [\[Link\]](#)

- Improved the perception of multi-view optical illusions by combining latent diffusion models with traditional image processing techniques. Our approach generates high-quality images from limited data and provides diverse transformations, including rotations and flips, to enhance the details usually obscured in 2D images.

Robotic Adaptation Strategies: From Simulation to Real-World Execution with RMA

EECS598 Action and Perception (Instructor: Stella Yu) [\[Link\]](#)

- Enhanced and evaluated Rapid Motor Adaptation (RMA) for legged robots. Key components include fine-tuning RMA to better adapt to diverse terrains, comparing phase-1 and phase-2 adaptations, and methodically analyzing performance across a range of environmental challenges in the real world.

Multimodal with Latent Diffusion Models to Advance Multi-view Optical Illusion Generation

EECS542 Advanced topics of computer vision (Instructor: Andrew Owens) [\[Link\]](#) [\[Slide\]](#)

- Proposed a method that enhances latent diffusion models with multimodal inputs, including sound and text, to generate dynamic multi-view optical illusions. Demonstrate the feasibility of multimodal approaches in enhancing optical illusion generation, evidenced by superior CLIP scores.

Domain transfer of sketched facial image into realistic facial image to prevent crime

EECS598 Biomedical Imaging (Instructor: Liyue shen) [\[Link\]](#) [\[Slide\]](#)

- Improved forensic methods by generating detailed images of criminals from sketches using the pSp model. Then, refined these images by applying specific characteristics through InstructPix2Pix. Evaluated the approach with real sketches.

Generate Domain Knowledge Diffusion Models employing the Schrödinger Bridge

EECS598 Biomedical Imaging (Instructor: Liyue shen) [\[Link\]](#)

- By maintaining domain integrity using a domain phase loss method, high-fidelity images for medical imbalance datasets were made. The approach overcomes prior knowledge loss when transferring between domains, outperforming existing models in unpaired image-to-image translation.

Learning Accurate and Parsimonious Point Cloud Representations from Images

EECS453 Principles of Machine Learning (Instructor: Qing Qu) [\[Link\]](#) [\[Slide\]](#)

- Combined the strengths of volumetric neural rendering and deep multi-view stereo, using neural 3D point clouds and features to efficiently model a radiance field, improving both efficiency and visual quality.

WORK EXPERIENCE

Owens Laboratory, University of Michigan

Ann Arbor, United States

Research Assistant

05/2024 - present

- Led a project on cross-modal generation components, accumulating the most extensive hand motion video dataset to date and rendering synthetic videos via 3D scene reconstruction.
- Generated sounds corresponding to interactions with arbitrary objects within a 3D space, demonstrating unique expertise in generating audio via hand gestures.

Qing Laboratory, University of Michigan

Ann Arbor, United States

Research Assistant

09/2024 - present

- Analyzed the impact of model architecture on generated images and explored methods to improve generation quality by leveraging these structural biases.

vaCANCY (Seed funding stage)

Seoul, South Korea

Chief Technology Officer

03/2023 - 08/2023

- Develop Recommendation systems for optimizing cloud costs, backend, and infrastructure consulting.
- [Won the 1st prize](#) in Insiders (biggest start-up society in Korea) demoday.
- Selected as one of the top 300 young start-ups in Korea.

Electronics & Telecommunications Research Institute (ETRI)

Daejeon, South Korea

Research Intern @Visual Intelligence Research Section

07-08/2021, 01-02/2022, 07-08/2022

- Participated in the DeepView project and developed a new network RDID-GAN for reconstructing unidentified image datasets.
- Created new datasets and networks to increase detection rates (average precision) for datasets with people in difficult positions that existing networks cannot detect.

Korea Army Chemical Biological Radiological and Nuclear School

Jangseong, South Korea

Instructor Sergeant

09/2016 - 06/2018

- Instructed trainees on how to cope with chemical and biological warfare.
- Developed educational contents (videos, experiment manuals, materials, etc.) on chemical and biological warfare.

SERVICES

Reviewer: ICLR 2025, CPAL 2025, CVPR 2024 Generative Models for Computer Vision Workshop, CVPR 2024 AI City Challenge, ECCV 2024 Out Of Distribution Generalization in Computer Vision, ECCV 2024 AI for Visual Arts Workshop

AWARDS AND SCHOLARSHIPS

Rackham Conference Travel Grant

University of Michigan

2024

2022 Capstone Design/Independent Study Competition - 2nd Place

Korea University

2022

Semester High Honors

Korea University

2022

Excellent Mentor Award

Korea University

2022

National Work Scholarships (Government)

Korea University

2022

Special Scholarship for Leaders

Korea University

2020, 2021, 2022

The Volunteer Service Award

The Seoul Metropolitan Government

2021

Work-Study Scholarship

Korea University

2019

PATENTS

- Kangmin Bae and **Wonseok Oh**, “Method and image processing system to generate training data” Korean Patent Registration No. 1020230152400, (2023, Published)
- **Wonseok Oh**, “Dual Tube Wheel” Korean Patent Registration No. 1020110004742, (2011, Granted)
- **Wonseok Oh**, “Mask that make used Hanji” Korean Patent Registration No. 1020100035593, (2010, Granted)

EXTRACURRICULAR ACTIVITIES

Korea University Computer Club

Seoul, South Korea

Leader

08/2019 - 08/2023

- Established a club network and created an official club website for schedule management of various sessions.
- Opened and managed algorithm sessions for club members to develop their coding abilities and improve data structure implementing skills.

Korea University Innovation Center for Engineering Education

Seoul, South Korea

Member

09/2020 - 02/2022

- Organized a science program for high school students interested in science and engineering.
- Explained the experiment methods and scientific background information to the students.

Korea University Language Exchange Division

Seoul, South Korea

Leader

03/2019 - 02/2020

- Managed language clubs at Korea University and organized a weekly language exchange program.
- Made a Korean reading class for foreign students interested in Korean media and K-pop.

SKILLS

Languages: English, Korean

Programming languages: Python (Pytorch, TensorFlow, Keras), C/C++, Matlab, Kotlin

Documentation: Markdown, \LaTeX

REFERENCES

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Liyue Shen

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