Wonseok Oh

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April 4, 2024

Research Interests

Computer Vision, Diffusion Model, Reinforcement Learning, Robotics

Education

University of Michigan Ann Arbor — Ann Arbor, Michigan
M.S. Electrical and Computer Engineering — *08/2023 -*

- Overall GPA : 4.0 / 4.0 (100 / 100)
- Ongoing : Advanced topics of computer vision, Action and Perception, Image processing
- Got an A+ on Principles of Machine Learning
- Got an A on Foundations of Computer Vision, Artificial Intelligence in Biomedicine

Korea University — Seoul, South Korea
B.S. Computer Science and Engineering — *03/2015 - 08/2023*

- Overall GPA : 4.07 / 4.5 (95.7 / 100)
- Got an A+ on 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 — Seoul, South Korea
B.Eng. Software Technology and Enterprise Program — *03/2015 - 02/2022*

- Major GPA : 4.15 / 4.5 (96.5 / 100)
- Military service: 09 2016 - 06 2018

Research and Work Experience

vaCANCY (Seed funding stage) — Seoul, South Korea
Chief Technology Officer — *03/2023 - 08/2023*

- Backend and infrastructure consulting
- Develop Recommendation systems for optimizing cloud costs

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
- Create new datasets and networks to increase detection rates (average precision) for datasets with people in difficult positions that existing networks cannot detect

Computer Vision Laboratory, Korea University — Seoul, South Korea
Research Intern — *09/2020 - 06/2021*

- **Depth estimation**: Implemented monocular depth estimation model using U-net architecture combined with depth network and pose network
- **3D reconstruction**: Reconstructed 2D image to 3D image through the use of SMPL and Transformer

Korea Army CBRN School — Jangseong, South Korea
Instructor sergeant — *09/2016 - 06/2018*

- Trained on how to cope with chemical and biological warfare
- Created and distributed educational content for new equipment such as educational videos, teaching materials, experimental manuals, etc

Conference & Journal Publications

Conference publications

- **Wonseok Oh** 2024. Cross-Domain Generalization: Enhancing Rare Disease Data Representation using Diffusion Model (under review)
- **Wonseok Oh** 2024. 3D GAN Inversion with 2D Encoder and 3D Cycle Pose Loss (under review)
- **Wonseok Oh* (project lead)** Advancements in GAN-based Image Translation: Introducing StyleGAN with Attention-based Encoding (SAE) *Korea Computer Congress 2023* (KCC 2023) **(oral)**
- **Wonseok Oh* (project lead)** Improving quality of pixel-wise transfer using Abortion method *Korea Computer Congress 2023* (KCC 2023) **(oral)**
- **Wonseok Oh**, Kangmin Bae, Yuseok Bae. 2021. Visualization Comparison of GAN for Reconstructing De-identified Image Dataset using Attention. *Korea Software Congress 2021* (KSC 2021) (domestic)

Journal publications

- **Wonseok Oh**, Kangmin Bae, Yuseok Bae. 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) (domestic)

Patents

- Kangmin Bae, **Wonseok Oh**, "Method and image processing system to generate training data" Us Patent, Korean Patent (2021) (Patent Appication)
- **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)

Awards and Scholarships

Capstone Excellence Award
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
Seoul City *2021*
Work-Study Scholarship
Korea University *2019*

Skills

Languages: English, Korean

Programming languages: Python, C/C++, Matlab, Kotlin

Documentation: Markdown, LaTeX

ML Tools: Pytorch, Tensorflow, Keras

Reviewer

CVPR (GCV), KSC, KCC

Extracurricular Activities

Korea University Computer Club Seoul, South Korea
Leader *Aug/2019 – present*

- 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
Regular Member *Sep/2020 – Feb/2022*

- Organized a science program for teenagers interested in experiments and engineering
- Explained the experiment methods and scientific background information to teenagers and provided assistance

Korea University Language Exchange Division Seoul, South Korea
Leader *Mar/2019 – Fed/2020*

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

References