
INTEREST

Comics Creation using Human-Centered AI.

Diffusion-based Image Generation, UX Design for AI-assisted Creativity Tools.

EDUCATION

03/2020 – Present	Ulsan National Institute of Science and Technology (UNIST) B.S. expected, <i>Industrial Engineering</i> and <i>Design</i> (double major) • Talent Award of Korea (2024) • Presidential Science Scholarship (2023 – Present)	Ulsan, Korea
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WORK EXPERIENCE

01/2025 – 08/2025	LionRocket <i>MLOps Engineer – Alternative Military Service</i> • Implemented image-to-video pipeline with Wan 2.1 to generate short-form animations from webtoon images • Implemented GAN-based Super-Resolution model to adjust comic line art thickness • Deployed a YOLO + Diffusion pipeline for automatic speech balloon detection and removal	Seoul, Korea
09/2023 – 11/2024	thingsflow <i>Machine Learning Scientist – Alternative Military Service</i>	Seoul, Korea
05/2023 – 08/2023	<i>Machine Learning Scientist Intern</i> (Mentors: Dr. Joonhee Kim, Prof. Jooyeon Kim, Jeff Oh) • Developed and launched Hellobot Pet AI Profile Generator – Implemented pet anthropomorphic image generator using Diffusers library – Improved photorealistic pet images with LoRA fine-tuning method – Improved pet anthropomorphic image quality with depth-image-based ControlNet, pipeline that bridges two fine-tuned SDXL model – Contributed \$150K in revenue and 25K in sales in 4 months • Demonstrated Project at AI Graduate School Symposium – Implemented cover and illustration generator of Web Novel Episode 1 Generator – Movie-to-Webtoon Project: Generated webtoon using ‘Barbie’ movie trailer	

RESEARCH EXPERIENCE

12/2021 – 03/2024	UNIST Expressive Computing Lab (EXPC) <i>Undergrad Researcher</i> (Advisor: Prof. Kyungho Lee) • xDiffusers: Explored Tangible User Interfaces (TUI) using ball-jointed dolls, investigating interactive design applications (2023 – 2024) • Led user research-driven UX/UI improvements for a diffusion-based anime-style image generation service, optimizing usability and workflow efficiency (2023) • Print.ly: Applied style-transfer in LG Household & Health Care’s mini tattoo printer (2022) • bbb Korea: Processed data for multilingual voice-to-text conversion app (2021 – 2022) • Conducted research on improving comic line art to improve pen pressure (2021 – 2022)	Ulsan, Korea
11/2020 – 12/2021	UNIST Service Engineering and Knowledge Discovery Lab <i>Undergrad Research Collaborator</i> (Advisor: Prof. Chiehyeon Lim) • UNIST AI Graduate School Creative Independent Project: Cat Arthritis Detection (2020) • Campus Patent Universiade: Smart Refrigerator (2020), Accident Prevention (2021)	Ulsan, Korea

EXTRACURRICULAR ACTIVITIES

- 09/2020 – Present **HeXA**, UNIST Computer Programming and Information Security Club
President (08/2022 – 07/2023), *Executive Board Member* (03/2021 – 06/2024)
- Hosted NEXUS 2023 (CSE Alumni Homecoming Event; 6 Lecturers and 70 Participants)
 - Selected as member of Hyundai Mobis Outstanding SW Club and received funding
- 01/2021 – Present **brAIns**, UNIST AI Research Club
Co-president (03/2022 – 08/2023)
- Paper Review: Implemented Style-Transfer and GAN with MNIST image using PyTorch
 - Implemented prediction and visualization code with Titanic dataset using TensorFlow
- 06/2024 – Present **AttentionX**, AI Research Group and Startup Accelerator
- Developed Korean text-rich Visual Question Answering (VQA) benchmark for evaluating Vision-Language Models (VLM), contributing to research publications [u.1]
 - Created AI-based Computer Animation: LUCiD

PUBLICATIONS

* denotes equal contribution

CONFERENCE

- [c.1] Kim, S., Ko, T., Kwon, Y., Lee, K. (2023).
Designing Interfaces for Text-To-Image Prompt Engineering with Stable Diffusion Models: A Human-AI Interaction
IASDR 2023. 13 pages. 56.4% acceptance rate (241/427).

WORKSHOP AND POSTERS

- [w.1] Kwon, Y., Kim, S., Ko, T., Yoon, J., Lee, K. (2023).
Representing the Timbre of Traditional Musical Instruments Based On Contemporary Instrumental Samples Using DDSP
UIST 2023 Adjunct Poster.

DOMESTIC CONFERENCE AND JOURNAL (IN KOREAN)

- [d.3] Kwon, Y., Byun, J., Kim, S., Ko, T., Yoon, J., Lee, K. (2024).
Representing the Timbre of Traditional Musical Instruments Based On Contemporary Instrumental Samples Using DDSP
HCIK 2024: HCI KOREA Conference.
- [d.2] Kim, S., Kwon, Y., Lee, K. (2023).
#taggenerator: How an Online Community Designs an Interface for Text Prompt Inputs Using a Novel AI's Diffusion Model
HCIK 2023: HCI KOREA Conference.
- [d.1] Kim, S., Lee, K. (2022).
A Study on the Use of AI as Creative Support Tool for Line Drawing in Manga Production
KSDS 2022: 2022 Korea Society of Design Science Spring Conference.
Best Student Paper Honorable Mention (3-tier Award)

UNPUBLISHED MANUSCRIPTS

- [u.1] Hwang, T., Kim, M., Lee, G., Kim, S., Eun, H. (2025).
KRETA: A Benchmark for Korean Reading and Reasoning in Text-Rich VQA Attuned to Diverse Visual Contexts
Under Review

AWARDS

2025	<i>Second Place, The 4th UNIST-KAIST-POSTECH AI & Data Science Competition</i>
2024	Winner, Talent Award of Korea , Deputy Prime Minister and Education Minister of Korea <i>Third Place, The 3rd POSTECH-UNIST-KAIST Data Science Competition</i>
2023	Winner, Presidential Science Scholarship , President and Science and ICT Minister of Korea <i>Second Place, The 2nd KAIST-POSTECH-UNIST Data Science Competition</i>
2022	<i>Best Student Paper Honorable Mention</i> , The Korea Society of Design Science <i>Excellence Prize, The 9th IEEE Quiz Contest for undergraduates</i> <i>Fourth Place, The 1st UNIST-POSTECH-KAIST Data Science Competition</i>
2021	<i>Second Place, Lee Soo-hyun 20th Memorial Book Review Essay Contest</i>
2020	<i>Samsung Electronics Vice-chairman Prize, Campus Patent Universiade</i>

TEACHING

01/2024 – 06/2024	<i>Tutor, Motgol Library Mentoring with Self-directed Learning to middle school students</i>
03/2023 – 06/2023	<i>Teaching Assistant, ITP107 Intro. to AI Programming I, UNIST (Instructor: Michael Burrell)</i>
12/2022 – 02/2023	<i>Tutor, NAVER 1784 School Revolution, Taught SW⊙AI to elementary school students</i>
05/2022 – 12/2022	<i>Head Tutor, Ulju The Dream Campus, Taught Python to middle school students</i>
09/2021 – 12/2021	<i>Head Tutor, Ulju The Dream Campus, Taught 3D printing and robot to middle school students</i>

ADDITIONAL INFORMATION

02/2024 – Present	<i>Podcast Collaborator, SideB Comics Social Club, Seoul Webtoon Academy</i>	Seoul, Korea
08/2022 – 02/2023	<i>Ambassador and Exchange Student, Consulate-General of Japan in Busan</i>	Japan
12/2021 – 01/2022	<i>Cross-registration, Korea Advanced Institute of Science and Technology</i>	Daejeon, Korea
12/2020 – 01/2021	<i>Cross-registration, Seoul National University</i>	Seoul, Korea
06/2019 – 01/2020	<i>Comic Artist Class, Baron Academy of Manga and Webtoon</i>	Busan, Korea
2018	<i>Finalist, Talent Award of Korea, Deputy Prime Minister and Education Minister of Korea</i>	

REFERENCES

Kyungho Lee, Associate Professor at Department of Design, UNIST

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Advisor during projects

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Jooyeon Kim, Assistant Professor at Graduate School of Artificial Intelligence, UNIST

Advisor during academic and industrial experience

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