SEONUK KIM / 김선욱

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INTEREST

Content Create with Human-Centered AI. Diffusion-based Image Generation. Computer Vision. Interface Design. Improving UX/UI of AI-assisted Support Tools

EDUCATION

03/2020 – Present **Ulsan National Institute of Science and Technology (UNIST)** Ulsan, Korea
B.S. in progress, *Industrial Engineering* and *Design* (double major)
- **Presidential Science Scholarship**, Korea Student Aid Foundation (2023 – Present)
- Merit-based Scholarship (2020 – 2023)

PROFESSIONAL EXPERIENCE

thingsflow Seoul, Korea

09/2023 – Present *Machine Learning Scientist – Alternative Military Service*
05/2023 – 08/2023 *Machine Learning Scientist Intern* (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)** Ulsan, Korea
Research Assistant (Advisor: Prof. Kyungho Lee)
- 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)

11/2020 – 12/2021 **UNIST Service Engineering and Knowledge Discovery Lab** Ulsan, Korea
Researcher (Advisor: Prof. Chiehyeon Lim)
- UNIST AI Graduate School Creative Independent Project: Cat Arthritis Detection (2020)
- Campus Patent Universiade: Smart Refrigerator (2020), Accident Prevention (2021)

EXTRACURRICULAR ACTIVITIES

09/2020 – Present **HeXA**, UNIST Development 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 Artificial Intelligence 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
- Implementing real-time 3D surface inference interface (Collaborator: Adam Lee) [github]
- 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% accaptance 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 NovelAI'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

AWARDS

2024 *Third Place*, The 3rd POSTECH-UNIST-UNIST Data Science Competition
2023 *Second Place*, The 2nd KAIST-POSTECH-UNIST Data Science Competition
2022 *Best Student Paper Honorable Mention*, The Korea Society of Design Science
      Excellence Prize, The 9th IEEE Quiz Contest for undergraduates
      Fourth Place, The 1st UNIST-POSTECH-KAIST Data Science Competition
2021 *Second Place*, Lee Soo-hyun 20th Memorial Book Review Essay Contest
2020 *Samsung Electronics Vice-chairman Prize*, Campus Patent Universiade

TEACHING

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

ADDITIONAL INFORMATION

02/2024 – Present *Podcaster*, SideB Comics Social Club, Seoul Webtoon Academy   Seoul, Korea
08/2022 – 02/2023 *Ambassador and Exchange Student*, Consulate-General of Japan in Busan   Japan
12/2021 – 01/2022 *Cross-registration*, Korea Advanced Institute of Science and Technology   Daejeon, Korea
12/2020 – 01/2021 *Cross-registration*, Seoul National University   Seoul, Korea
06/2019 – 01/2020 *Comic Artist Class*, Baron Academy of Manga and Webtoon   Busan, Korea