Seonuk Kim (김선욱)

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Contents

EDUCATION

03/2020 – 08/2027 *(Expected)*	**Ulsan National Institute of Science and Technology (UNIST)**, Ulsan, Korea B.S. expected in Industrial Engineering B.S. expected in Design
(09/2023 – 08/2025)	Academic leave for alternative military service
(03/2022 – 02/2023)	Academic leave for health reasons
(12/2021 – 01/2022)	**Korea Advanced Institute of Science and Technology (KAIST)**, Daejeon, Korea Cross-Registration, Pre-Law Studies (3 credits)
(12/2020 – 01/2021)	**Seoul National University**, Seoul, Korea Cross-Registration, Psychology (3 credits)
06/2019 – 01/2020 *(Gap Year)*	**Baron Academy of Manga and Webtoon**, Busan, Korea Full-Time Specialized Training (Non-Degree) Mentored by Professional Webtoonists
03/2015 – 01/2019	**Busan Science High School**, Busan, Korea Specialized STEM high school for academically gifted students
(09/2015 – 08/2016)	Academic leave for health reasons

RESEARCH INTERESTS

- Comics Creation using Human-Centered AI
- Diffusion-based Image Generation
- UX Design for AI-assisted Creativity Tools

WORK EXPERIENCE

01/2025 – 08/2025	**LionRocket**, Seoul, Korea AI webtoon startup specializing in generative AI technology for comic creation MLOps Engineer – Alternative Military Service • Activities: [p.20], [p.21], [p.23], [p.24]
05/2023 – 11/2024	**thingsflow**, Seoul, Korea AI content creation startup, subsidiary of KRAFTON
(09/2023 – 11/2024)	ML Scientist – Alternative Military Service
(05/2023 – 08/2023)	ML Scientist Intern (Mentors: Dr. Joonhee Kim, Prof. Jooyeon Kim, Jeff Oh) • Activities: [p.11], [p.12], [p.14], [p.15], [p.16]

RESEARCH EXPERIENCE

12/2021 – 03/2024	**UNIST Expressive Computing Lab (EXPC)**, Ulsan, Korea
	Human-AI interaction design and emerging media arts research lab
	Undergraduate Researcher (Advisor: Prof. Kyungho Lee)
	• Activities: [p.5], [p.6], [p.7], [p.9]
11/2020 – 12/2021	**UNIST Service Engineering and Knowledge Discovery Lab**, Ulsan, Korea
	Data science research for real-world service impacts in industry and society
	Undergraduate Research Collaborator (Advisor: Prof. Chiehyeon Lim)
	• Activities: [p.1], [p.2], [p.3]

PUBLICATIONS

* denotes equal contribution

Conference

[c.1]   <u>Seonuk Kim</u>, Taeyoung Ko, Yousang Kwon, Kyungho Lee.
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]   Yousang Kwon, <u>Seonuk Kim</u>, Taeyoung Ko, Juhyeok Yoon, Kyungho Lee.
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]   Yousang Kwon, Jonghoon Byun, <u>Seonuk Kim</u>, Taeyoung Ko, Juhyeok Yoon, Kyungho Lee.
Representing the Timbre of Traditional Musical Instruments Based On Contemporary Instrumental Samples Using DDSP
HCIK 2024: HCI KOREA Conference.

[d.2]   <u>Seonuk Kim</u>, Yousang Kwon, Kyungho Lee.
#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]   <u>Seonuk Kim</u>, Kyungho Lee.
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] Taebaek Hwang, Minseo Kim, Gisang Lee, <u>Seonuk Kim</u>, Hyujun Eun.
KRETA: A Benchmark for Korean Reading and Reasoning in Text-Rich VQA Attuned to Diverse Visual Contexts
Under Review in EMNLP 2025.

Honors and Awards

Scholarships

2024 – 27 **Presidential Science Scholarship**, President and Science and ICT Minister of Korea
60 scholarship recipients selected nationwide. $5,500 per semester.

2020 – 23 Academic Performance Scholarship, UNIST
Merit-based full scholarship including monthly academic stipend.

Awards

2025 Second Place, The 4th UNIST-KAIST-POSTECH AI & Data Science Competition [p.19]
62 teams, 237 participants. Team Leader and Presenter. $1,500 as award.

2024 *Winner*, **Talent Award of Korea**, Deputy Prime Minister and Education Minister of Korea
Most prestigious award in South Korea. 50 college students and adults selected nationwide.

Third Place, The 3rd POSTECH-UNIST-KAIST Data Science Competition [p.13]
46 teams, 172 participants. Team Leader and Presenter. $1,500 as award.

2023 Second Place, The 2nd KAIST-POSTECH-UNIST Data Science Competition [p.8]
43 teams, 177 participants. Team Leader and Presenter.
$1,500 + MakinaRocks internship opportunity as award.

Ambassador Certificate, Consulate-General of Japan in Busan

JENESYS 2022 Certificate, Ministry of Foreign Affairs of Japan
Official invitation by Japan's Ministry of Foreign Affairs (Tokyo, Miyagi, Iwate).

2022 Best Student Paper Honorable Mention, The Korea Society of Design Science [p.5]
Top 39% among 54 submissions. Research on AI-assisted comic creation.

Excellence Prize, The 9th IEEE Quiz Contest for undergraduates
Literature search and analysis-based competition organized by IEEE and KITIS.

Fourth Place, The 1st UNIST-POSTECH-KAIST Data Science Competition [p.4]
38 teams, 144 participants. Team Leader and Q&A Responder. $800 as award.

2021 Second Place, Lee Soo-hyun 20th Memorial Book Review Essay Contest
32 undergraduate participants. JENESYS selection and Japan invitation.

2020 Samsung Electronics Vice-chairman Prize, Campus Patent Universiade [p.1]
Team Leader and Presenter. Digital healthcare refrigerator project. $2,300 as award.

Challenges

PROJECTS

[p.14] Hellobot Pet AI Profile Generator (10/2023 – 04/2024)

Commercial pet anthropomorphic image generator using Stable Diffusion XL, LoRA fine-tuning, and ControlNet enhancement.

[p.13] LG Electronics Parts Demand Forecasting (10/2023 – 01/2024)

Ensemble models including LightGBM, XGBoost, CatBoost, Random Forest, Extra Tree, and K-Nearest Neighbor with Soft Voting, Weighted Voting, and Stacking approaches. Auto ARIMA for time-series forecasting and inventory optimization.

[p.12] Web Novel Episode 1 Generator (05/2023 – 08/2023)

Cover and illustration generator for web novel episodes using Stable Diffusion and LoRA fine-tuning with character consistency.

[p.11] Movie Trailer to Webtoon Conversion (05/2023 – 08/2023)

Movie trailer to webtoon conversion using LoRA and ControlNet. Created webtoon adaptation of Barbie movie trailer and demonstrated at AI Graduate School Symposium.

[p.10] NEXUS: CSE Alumni Homecoming Event (03/2023)

Event planning and management for Computer Science and Engineering Major Alumni Homecoming. Coordinated 6 lecturers and 70 participants.

[p.9] xDiffusers: Ball-Jointed Doll Tangible User Interface (03/2023 – 11/2023)

Tangible User Interface with ControlNet-based Stable Diffusion. Real-time webcam capture and pose estimation pipeline. Secured UNIST AI Challenge Program grant funding of $ 3,000.

[p.8] Hana Bank Customer Targeting Strategy (10/2022 – 01/2023) [news]

CNN ensemble models for customer business probability prediction and advertising strategy optimization. Simulated Annealing for decision-making and bounce rate analysis for customer engagement.

[p.7] Diffusion Model Interface Design Research (10/2022 – 10/2023)

User research-driven UX/UI improvements for diffusion-based image generation including NovelAI interface analysis and prompt engineering workflows.

[p.6] Print.ly: Style Transfer Integration (01/2022 – 05/2022) [news]

Style transfer pipeline development for LG Household & Health Care's mini tattoo printer using SOTA models.

[p.5] AI-Assisted Comic Line Art Enhancement Research (12/2021 – 05/2022)

Research on comic line art quality improvement using deep learning models. Analog sketch to digital art conversion pipeline.

[p.4] KNOC Shale Gas Production Optimization (10/2021 – 01/2022) [news]

AutoML PyCaret for prediction and binary integer programming for optimization.

[p.3] Industrial Safety AI System Patent Commercialization (04/2021 – 10/2021)

ETRI patent commercialization for motion-based accident prevention using CCTV and patrol robots. Market research and business strategy development using PESTEL, SWOT analysis.

[p.2]   Cat Movement Analysis with IMU Sensors (11/2020 – 11/2021)

Cat movement measurement device using 9-axis IMU sensor for arthritis prediction. Time-series data collection and behavioral analysis. Secured AI Graduate School Creative Independent Project grant funding of $ 3,800.

[p.1]   Smart Healthcare Refrigerator Development (04/2020 – 11/2020) [news]

Smart refrigerator platform for health management and trainer communication.

ARTWORKS

Literature

[b.1]   Swings and Blossoms [book]
In *The Moment when the Star is Born*. egowriting. 2021. pp.133-166.
Short stories written by different people including the disabled.

Comics and Webtoons

[t.2]   Academic Leave Letter from Science High School [instagram]
Instagram webtoon series. since 2025.
Personal narrative about health struggles and academic decisions during high school.

[t.1]   Barbie Webtoon [post]
AI-generated webtoon adaptation of Barbie movie trailer. 2023.
Created using Stable Diffusion, LoRA, and ControlNet for consistent character design.

Animation and Digital Art

[a.2]   LUCiD: AI Animation Trailer [YouTube]
AI-generated animation trailer using Luma AI Dream Machine. 2024.
Images created with Stable Diffusion XL, videos with Luma AI, music with Suno AI.
Synopsis about two children's quest to find the legendary World Tree in a lightless era.

[a.1]   Byte: AI Animate Digital Comic [YouTube]
AI-generated digital comic about memory and AI consciousness. 2024.
Created using Stable Diffusion XL and I2VGen-XL within six hours.
Commemorative piece exploring humanity's future amidst AI transformation.

Essays

[e.2]   Snow Flowers, Poetry of Life and Connection [essay]
JENESYS outstanding essay. 2023.
Reflected on disaster preparedness tourism through Northeast Japan earthquake sites and shared insights on Korea-Japan friendship inspired by Lee Soo-hyun bridge-building spirit.

[e.1]   Expansion
Second Place, Lee Soo-hyun 20th Memorial Book Review Essay Contest. 2021.
Wrote about Korea-Japan cultural and scientific exchange beyond political controversies, drawing on Lee Soo-hyun spirit as a model for cross-cultural understanding.

TEACHING

Teaching Assistant

03/2023 – 06/2023   ITP107: Introduction to AI Programming I (Instructor: Prof. Michael Burrell)

Primary School Student Mentoring

01/2024 – 06/2024   Career Mentor, Motgol Hanok Children's Library, Seoul
02/2023   Tutor, AI & SW, 1784 School Revolution Program, NAVER CONNECT Fdn.
05/2022 – 12/2022   Head Tutor, Python, Ulju The Dream Campus Program, UNIST
09/2021 – 12/2021   Head Tutor, 3D Printing & Arduino, Ulju The Dream Campus Program, UNIST

EXTRACURRICULAR ACTIVITIES

06/2024 - Present   AttentionX [site]
                     AI research group and startup accelerator
                     • Activities: [p.17], [p.18]

09/2020 – Present   HeXA (Hacker's eXciting Academy), UNIST [site]
                     Computer programming and information security club
(08/2022 – 07/2023)   President
(03/2021 – 06/2024)   Executive Board Member
(09/2020 – Present)   Software Engineer and Designer
                     • Activities: [p.4], [p.8], [p.10], [p.19]

01/2021 – Present   brAIns (brew AI neo scientist), UNIST AI Graduate School
                     AI research club
(03/2022 – 08/2023)   Co-president

09/2020 - Present   GRAPHOS, UNIST
                     Visual arts club

                     NAEK (National Academy of Engineering of Korea) [site]
11/2020 – Present   YIPL (Young Intellectual Property Leaders) [site]
07/2024 – Present   YEHS (Young Engineers Honor Society) [site]
(07/2024 – Present)   School Representative

08/2022 – 02/2023   Consulate-General of Japan in Busan [site]
(08/2022 – 02/2023)   Ambassador
(01/2023)   Japan East-Asia Exchange for Students and Youths (JENESYS) 2022 Participant

                     UNIST Undergraduate Student Council [site]
03/2023 – 06/2023   Policy Team Member, Undergraduate Student Council Emergency Committee
02/2023 – 03/2023   Chair, Club Union Election Commission
09/2021 – 12/2021   Legal Support TF Member, 11th Undergraduate Student Council WE:TH U

08/2017 – 02/2020	KYSN (Korean Youth Society of Neuroscience)
	Student-led academic society for Korean high school students interested in neuroscience
	Co-Founder
(03/2018 – 02/2019)	Vice President
03/2016 – 01/2019	Neuro, Busan Science High School
	Neuroscience and Biomedical Engineering Club
	Co-Founder
(03/2016 – 02/2017)	President

ADDITIONAL INFORMATION

02/2024 – Present   **Podcast Collaborator**, SideB Comics Social Club, Seoul Webtoon Academy [list]

REFERENCES

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