HyeongYeop Kang

CONTACT INFORMATION	IIIXR Laboratory (http://iiixr.korea.ac.kr), Department of Computer Science and Engineering, Korea University	siamiz_hkang@korea.ac.kr
	145 Anam-ro, Seongbuk-gu Seoul, 02841 Republic of Korea	+82-02-3290-4608

RESEARCH INTERESTS

Computer Graphics, Extended Reality, Embodied Agents, Machine Learning, Human-computer Interaction

EDUCATION

Korea University, Seoul, Korea

Ph.D., Computer Science and Engineering, Mar. 2012 - Aug. 2017
- Thesis: *Multi-resolution Terrain Rendering with Unlimited Detail and Resolution*
- Advisors: JungHyun Han, Ph.D

B.S., Computer and Communication Engineering, Mar. 2008 - Feb. 2012

POSITIONS HELD

Associate Professor   Mar. 2025 - present
Department of Computer Science and Engineering, Korea University

Assistant Professor   Sep. 2024 - Feb. 2025
Department of Computer Science and Engineering, Korea University

Head of the Software Convergence Department   Mar. 2021 - Aug. 2024
Department of Software Convergence (graduate school), Kyung Hee University

Assistant Professor   Mar. 2020 - Aug. 2024
Department of Software Convergence, Kyung Hee University

Assistant Professor   Sep. 2019 - Feb. 2020
Software, Media and Industrial Engineering Department, Kangwon National University

Research Professor   Sep. 2018 - Aug. 2019
Next Generation Game Research Center, Korea University

Research Professor   Sep. 2017 - Aug. 2018
Computer Science and Engineering Research Center, Korea University

CONFERENCE & JOURNAL PAPERS

1. DongHeun Han, Byungmin Kim, RoUn Lee, KyeongMin Kim, Hyoseok Hwang, and **HyeongYeop Kang***, ForceGrip: Reference-Free Curriculum Learning for Realistic Grip Force Control in VR Hand Manipulation, **ACM SIGGRAPH**, Aug. 2025.

2. Jongwook Jeong, Myeongseok Kwak, and **HyeongYeop Kang***, Visual Interfaces to Mitigate Eye Problems in a Virtual Environment via Triggering Eye Blinking and Movement, **IEEE Transactions on Human-Machine System (THMS)**, Mar. 2025 (**IF = 4.453, Q1, JCR 17%**).

3. ByungMin Kim, DongHeun Han, and **HyeongYeop Kang***, Shaping the Future of VR Hand Interactions: Lessons Learned from Modern Methods, **IEEE Conference on Virtual Reality and 3D User Interfaces (IEEE VR)**, Mar. 2025.

4. Seungwon Seo[1], Seongrae Noh[1], Junhyeok Lee, Soobin Lim, Won Hee Lee, and **HyeongYeop Kang***, REVECA: Adaptive Planning and Trajectory-based Validation in Cooperative Language Agents using Information Relevance and Relative Proximity, **Association for the Advancement of Artificial Intelligence (AAAI)**, Mar. 2025 (Oral Presentation, Top 5%).

5. Seungjeh Chung, Joohyun Park, and **HyeongYeop Kang***, 3DStyleGLIP: Part-Tailored Text-Guided 3D Neural Stylization, **Pacific Graphics (PG)**, Oct. 2024.

6. Joohyun Park, Yujin Jeon, HuiYong Kim, SeungHwan Baek, and **HyeongYeop Kang***, P-Hologen: An End-to-End Generative Framework for Phase-Only Holograms, **Pacific Graphics (PG)**, Oct. 2024.

7. KyoungMin Kim and **HyeongYeop Kang***, DAMO: A Deep Solver for Arbitrary Marker Configuration in Optical Motion Capture, **ACM Transactions on Graphics** (**ToG**, Siggraph 2025 invited), Sep. 2024 (**IF = 7.711, Q1, JCR 5%**).

8. SooBin Lim, SeungWon Seo and **HyeongYeop Kang***, DARAM: Dynamic Avatar-Human Motion Remapping Technique for Realistic Virtual Stair Ascending Motions, **ACM SIGGRAPH**, Jul. 2023.

9. SeungJeh Chung, Taehun Lee, Bora Jeong, Jongwook Jeong and **HyeongYeop Kang***, VRCAT: VR Collision Alarming Technique for User Safety, **The Visual Computer**, Vol. 39, No. 7, Jul. 2023, pp. 3145-3159.

10. DongHeun Han, Roun Lee, KyoungMin Kim and **HyeongYeop Kang***, VR-HandNet: A Visually and Physically Plausible Hand Manipulation System in Virtual Reality, **IEEE Transactions on Visualization and Computer Graphics** (**TVCG**), Mar. 2023 (**IF = 5.226, Q1, JCR 10%**).

11. MinYeong Seo and **HyeongYeop Kang***, VR Blowing: A Novel Interaction Method for Blowing Air in the Virtual Reality, **IEEE Transactions on Visualization and Computer Graphics** (**TVCG**), Jan. 2023 (**IF = 5.226, Q1, JCR 10%**).

12. Cheolwoo Lee, Seokhee Jeon, Waseem Hassan and **HyeongYeop Kang***, VR Unseen Gaze: Inducing Feeling of Being Stared At in Virtual Reality, **Virtual Reality**, Jan. 2023 (**IF = 5.095, Q1, JCR 20%**).

13. MinYeong Seo and **HyeongYeop Kang***, Towards virtual stair walking, **The Visual Computer**, Vol. 37, No. 9, Jun. 2021.

14. DongHeun Han, ChulWoo Lee and **HyeongYeop Kang***, Gravity Control-based Data Augmentation Technique for Improving VR User Activity Recognition, **Symmetry**, Vol. 13, No. 5, May 2021.

15. Jong-chul Yoon and **HyeongYeop Kang***, Interactive learning in the classroom: A mobile augmented reality assistance application for learning, **Computer Animation and Virtual Worlds**, Jan. 2021.

16. **HyeongYeop Kang** and Junghyun Han*, SafeXR: Alerting Walking Persons to Obstacles in Mobile XR Environments, **The Visual Computer**, 36.10-12: 2065-2077, Jul. 2020.

17. Geonsun Lee, **HyeongYeop Kang**, Jongmin Lee and Junghyun Han*, "A User Study on View-sharing Techniques for One-to-Many Mixed Reality Collaborations," **IEEE Conference on Virtual Reality and 3D User Interfaces (IEEE VR)**, Mar. 2020, Atlanta, Georgia, United States (**Best conference paper nominee**).

18. **HyeongYeop Kang**, Geonsun Lee and Junghyun Han*, "Obstacle detection and alert system for smartphone AR users," **ACM Symposium on Virtual Reality Software and Technology** (**ACM VRST**), Oct. 2019, Sydney, Australia.

19. **HyeongYeop Kang**, Geonsun Lee and Junghyun Han*, "Visual Manipulation for Underwater Drag Force Perception in Immersive Virtual Environments," **IEEE Conference on Virtual Reality and 3D User Interfaces** (**IEEE VR**), Mar. 2019, Osaka, Japan (**Best conference paper nominee**).

20. **HyeongYeop Kang**, Geonsun Lee, Dae Seok Kang, Ohung Kwon, Jun Yeup Cho, Ho-Jung Choi and Junghyun Han*, "Jumping Further: Forward Jumps in a Gravity-reduced Immersive Virtual Environment," **IEEE Conference on Virtual Reality and 3D User Interfaces** (**IEEE VR**), Mar. 2019, Osaka, Japan (**Best conference paper nominee**).

21. **HyeongYeop Kang**, Yeram Sim and Junghyun Han*, "Terrain Rendering with Unlimited Detail and Resolution," **Graphical Models**, Vol.97, May 2018, pp. 64-79.

22. **HyeongYeop Kang**, Geonsun Lee, Seongsu Kwon, Ohung Kwon, Seongpil Kim and JungHyun Han*, "Flotation Simulation in a Cable-driven Virtual Environment - A Study with Parasailing," **ACM Conference on Human Factors in Computing Systems** (**CHI**), Apr. 2018, Montreal, Canada.

23. **HyeongYeop Kang** and Junghyun Han*, "Feature-preserving procedural texture," **The Visual Computer**, Vol. 33, No. 6-8, Jun. 2017.

24. **HyeongYeop Kang**, Hanyoung Jang, Chang-Sik Cho and JungHyun Han*, "Multi-resolution terrain rendering with GPU tessellation," **The Visual Computer**, Vol. 31, No. 4, Apr. 2015, pp. 455-469.

BOOK	**The Future of the Metaverse: Hyper-Realistic Technologies**	2022
	Tak Woo, Seokhee Jeon and **HyeongYeop Kang**, Kyung Hee University Communication & Press, ISBN = 9788982227226	

GOVERNMENT GRANTS	**National Research Foundation of Korea (NRF)**	2025 - 2029
	Gaussian VR Space Representation for Realistic Rendering and Interaction in Dynamic Lighting, Principal Investigator	
	National Research Foundation of Korea (NRF)	2020 - 2023
	Obstacle Detection and Alert System for Multi-user Extended Reality, Principal Investigator	
	Korea Creative Content Agency (KOCCA)	2017 - 2020
	Telepresence and Remote Interaction, Participant (as a research professor)	
	National Research Foundation of Korea (NRF)	2016 - 2020
	Drone Navigation Assistance System Using 360 Camera and HMD, Participant (as a research professor)	

INDUSTRY GRANTS	**FunctionBay** Battlefield Simulation Software Development, Principal investigator	2025 - 2026
	LG Electronics Understanding Multimodal PDF Documents Using LLMs, Principal investigator	2025
	FunctionBay Manned and Unmanned Integrated Combat System Simulation Development, Co-investigator	2023 - 2024
	Korea Electronics Technology Institute Development of Motion Generation Technology for Anti-Intrusion Avatar in Choreography Animation, Principal Investigator	2023
	Korea Electronics Technology Institute An Advanced Module for Generating IMU and Video-Based Training Data, Principal Investigator	2023
	NCSOFT Persona-aware NPC gesture motion synthesis, Principal Investigator	2023 - 2024
	NCSOFT Style-controllable Gesture Synthesis Using Persona Categorization, Principal Investigator	2022 - 2023
	Samsung Future Technology Promotion Project Phase Hologram Generation and Compression based on Circular Representation and Randomness Regularization, Co-investigator	2022 - 2025
	Pearl Abyss Pearl Abyss × KHUSWCON Fellowship Project, Principal Investigator	2021 - 2023

PATENTS

Device and method for generating generative model-based phase holograms
(KR 10-2024-0019602, 2024)

A Method of Reconstructing Human Pose from Unordered Sparse Point Cloud and a Computer Program for Executing the Same
(KR 10-2023-0157467, 2023)

Avatar-Human Motion Remapping Method and a Computer Program for Executing the Same
(KR 10-2023-0152298, 2023)

Apparatus for Virtual Hand Motion Generation based on Controller and Method for Thereof
(KR RS-2022-00155911, 2022)

Virtual Reality Service Providing User Device, Method and System
(KR 1-1-2022-0479539-49, 2022)

Method for Rendering Terrain
(US 9959670 B2, 2018)

Method for Rendering Terrain
(KR 002497, 2014)

AWARDS & HONORS	**OSSTEM Technical Paper Award** (OSSTEM IMPLANT)	Jul. 2023
	Outstanding Presentation Award (ACM SIGCHI Korea Chapter)	Apr. 2018
	Virtual Training System Award (Ministry of Trade, Industry and Energy) • Virtual Training for Reduced Gravity Environment	Dec. 2016
	Qualcomm Innovation Award (Qualcomm) • Terrain Searching with Fully Convolutional Neural Network	May. 2016
	Global Ph.D. Fellowship (National Research Foundation of Korea)	2012 - 2013
	Nexon Open Studio, 1st **place** (Nexon) • Virtual Economy: Correlation of Estate, Stock and Labor Market	Oct. 2010
	Game Developing Competition, 1st **place** (Nexon) • The Game of Risk: Game Theories in Online Game Economy	May 2010
	Game Developing Competition, 1st **place** (Nexon) • Mazer: Creating a Maze	May 2009
	National Science & Tech. **Scholarship** (Korea Student Aid Foundation)	2008 - 2011

ADVISING & MENTORING	**Geonsun Lee** University of Maryland, Ph.D. student	Sep. 2017 - Aug. 2020
	Yeram Sim Nexon Korea, Game programmer	Mar. 2014 - Aug. 2016

TEACHING	Department of Computer Science and Engineering, Korea University 　　Computer Graphics 　　Visualization	2025 - present
	Department of Software Convergence, Kyung Hee University 　　Game Engine Basics (Unity, Unreal) 　　Game Engineering 　　Game Player Experience Design 　　Game Graphics Programming (OpenGL, DirectX, Vulkan, CUDA) 　　Design Thinking 　　Game Engineering	2020 - 2024
	Software, Media and Industrial Engineering, Kangwon National University 　　Basics of C++ Language 　　Digital Logic Design	2019 - 2020

PROFESSIONAL SERVICE	**Conference Leadership & Committees** 　　IEEE VR 2026, Exhibition & Sponser Chair 　　SIGGRAPH Asia 2025, Poster PC Member 　　SIGGRAPH Asia 2025, XR Program PC Member 　　SIGGRAPH 2025 Chapter in Seoul, Steering Committee 　　IEEE VR 2025, Demo Awards

KCGS 2025, Organizing Committee
KCGS 2024, Organizing Committee
KCGS 2023, Operational Committee

Talks		
	Korea Electronics Technology Institute (KETI)	Jun. 2025
	LG Electronics	Apr. 2025
	French Institute for Research in Computer Science and Automation (INRIA)	Mar. 2025