

Gyeongdeok Kim

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RESEARCH INTERESTS

- **Human-Computer Interaction (HCI):** Accessible Interface, Assistive Technology
- **Haptics:** Haptic User Interface, Vibrotactile Perception, Kinesthetic Feedback
- **Multimodal Interaction:** Auditory-Haptic Integration for Visually Impaired Users

EDUCATIONAL BACKGROUND

Ph.D. in Human-Computer Interaction

Sept. 2020 – Present

Gwangju Institute of Science and Technology (GIST), South Korea

B.Sc. in Mechanical Engineering

Feb. 2014 – Aug. 2020

Korea University of Technology and Education (KOREATECH), South Korea

B.Sc. in Computer Science and Engineering

Feb. 2014 – Aug. 2020

Korea University of Technology and Education (KOREATECH), South Korea

PROFESSIONAL EXPERIENCES

Student Internship at Smart Media Research Group

July 2019 – August 2019

Electronics and Telecommunications Research Institute (ETRI), South Korea

- Analyzed crime data for early risk detection and developed a visualization tool (later published at IEEE ICTC 2020).

AWARDS & SCHOLARSHIPS

Research Achievement Scholarship (~0.5k USD)

2025

Gwangju Institute of Science and Technology (GIST)

Full GIST Sponsored Scholarship

2020 – Present

Gwangju Institute of Science and Technology (GIST)

National Science & Technology Scholarship

2014, 2017, 2018, 2019

Korea Student Aid Foundation (KOSAF)

PUBLICATIONS

International Conference Papers

- **Gyeongdeok Kim**, Chungman Lim, Gyungmin Jin, and Gunhyuk Park, “I-VAMOS: Independent Voting with Accessible Multimodal Offline System for Visually Impaired Users,” *In Proceedings of the CHI Conference on Human Factors in Computing Systems (CHI)*, 2026. (**Conditionally Accepted**)
- **Gyeongdeok Kim**, Chungman Lim, and Gunhyuk Park, “I-Scratch: Independent Slide Creation With Auditory Comment and Haptic Interface for the Blind and Visually Impaired,” *In Proceedings of the CHI Conference on Human Factors in Computing Systems (CHI)*, 2025.
- Yongjin Kim, **Gyeongdeok Kim**, Yongtae Lee, and Kwangho Jang, “Bandwidth Selection of Kernel Density Estimation for GIS-based Crime Occurrence Map Visualization,” *IEEE International Conference on ICT Convergence (ICTC)*, 2020.

International Journal Articles

- Chungman Lim, **Gyeongdeok Kim**, Su-Yeon Kang, Hasti Seifi, and Gunhyuk Park, “Can a Machine Feel Vibrations?: Predicting Roughness and Emotional Responses to Vibration Tactons via a Neural Network,” *IEEE Transactions on Haptics (ToH)*, 2025.  **Best Paper Award**
- Chungman Lim, **Gyeongdeok Kim**, Yatiraj Shetty, Troy McDaniel, Hasti Seifi, and Gunhyuk Park, “Emotional and sensory ratings of vibration Tactons in the lab and crowdsourced settings,” *International Journal of Human-Computer Studies (IJHCS)*, 2025.

Domestic Conference Papers

- **Gyeongdeok Kim**, Hyungseok Lee, and Seunghan You, “Estimation of Vehicle Sideslip Angle Using Machine Learning,” *In Proceedings of the 2019 Fall Conference of Drive and Control, the Korean Society for Fluid Power and Construction Equipment*, pp. 161-163, 2019 (in Korean).

PATENTS

- Gunhyuk Park, **Gyeongdeok Kim**, Donghyeon Kim, Bongsoo Kim, and Sungho Kim., “Force and complex vibration rendering system using force feedback device and wideband resonance actuator and method for providing force and complex vibration using the system,” KR102885148B1 (Granted); US20240108977A1 (Published April 2024).

RESEARCH PROJECTS

Hyper-realistic Dental Training Simulator Using Digital Twin and AI/XR Technologies Apr. 2021 – Dec. 2025

Funding Agency: Korea Medical Device Development

- Designed and implemented a CHAI3D-based haptic rendering library for Phantom Touch X to render voxel-based 3D tooth models.
- Integrated a vibrotactile library to provide synchronized force-and-vibration feedback, enhancing the realism of the dental simulation.

TECHNICAL SKILLS

Software

Languages	C, C++, Python
Graphics Engines	Unity, OpenGL
Haptics Engines	CHAI3D
Development Tools	Visual Studio, Android Studio, Xcode
Mathematical Analysis	MATLAB
Statistical Analysis	R
3D Modeling	SolidWorks

Hardware

Haptic Feedback	Phantom Touch, Phantom Touch X
Vibrotactile Feedback	ERM, LRA, Voice-coil actuator
Embedded Modules	Raspberry Pi, Arduino, AVR

LANGUAGES

Korean: Native **English:** Advanced