Bocheon (Kenny) Gim

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EDUCATION

Gwangju Institute of Science and Technology   Gwangju, Republic of Korea
Master's in Intelligent Robotics   *Mar. 2024 – Present*

Gwangju Institute of Science and Technology   Gwangju, Republic of Korea
Bachelor's in Electrical Engineering and Computer Science   *Mar. 2018 – Feb. 2024*

EXPERIENCE

Graduate Research Assistant   Mar. 2024 – Present
Gwangju Institute of Science and Technology   *Advisor: SeungJun Kim*
- Led research in regards to reinterpreting vehicle forces in in-car VR, leading to first-authored publications [c.1, c.4] in applications such as virtual locomotion and visuo-proprioceptive manipulation
- Developed XR applications such as video-matting based object visualization in AV, haptic devices utilizing electrical/vestibular/thermal stimulation, and utilization of built-in vehicle systems for multisensory feedback
- Contributed in funded projects regarding the use of XR in everyday productivity, actuated XR systems powered by sensory intelligence and soft robotics, and human-centered physical system design

Undergraduate Research Assistant   July. 2022 – Feb. 2024
Gwangju Institute of Science and Technology   *Advisor: SeungJun Kim*
- Led research in enabling active user-applied locomotion in in-car VR, leading to a first-authored publication [p.1]
- Developed a real hand visualization/interaction pipeline through real-time video matting as Bachelor's thesis [do.1]
- Developed optimized VR locomotion methods (arm-swinging, walk-in-place) for cooperative industrial workspaces

English Translator & Training Systems Administrator   May. 2020 – Feb. 2022
Republic of Korea Air Force (ROKAF)
- Supported English/Korean translation & interpretation during US–ROK joint exercises and defense meetings
- Managed military intranet training systems and administrative infrastructure duties.
- Completed military obligation at Staff Sergeant (21 months in service).

PUBLICATIONS

Conferences & Journals | *CHI, UIST, ISMAR, TVCG*

[**c.6**] **Bocheon Gim**, Seongjun Kang, Gwangbin Kim, Dohyeon Yeo, Yumin Kang, Ahmed Elsharkawy, SeungJun Kim. "From Disruption to Immersion: Reimagining Vehicle Motion as Environmental Feedback through Force Mappings in In-Car VR"

CHI 2026 (Cond. Accepted)

[c.5] Seongjun Kang, Gwangbin Kim, **Bocheon Gim**, Jeongju Park, Juwon Um, Semoo Shin, Chanyoung Park, SeungJun Kim. "When Fingers Become Tools: Rendering Virtual Tool Inertia with a Finger-Mounted Extending Rod"

CHI 2026 (Cond. Accepted)

[j.1] Ahmed Elsharkawy, **Bocheon Gim**, Aya Ataya, SeungJun Kim. "SelfBlending: Artificial Intelligence-driven Augmentation with Hand Interactions for Seamless Reality Blending in Virtual Environments"

IEEE TVCG (Under Revision)

[**c.4**] **Bocheon Gim**, Seongjun Kang, Dohyeon Yeo, Gwangbin Kim, Juwon Um, Jeongju Park, SeungJun Kim. "Defying Gravity: Towards Gravitoinertial Retargeting of Acceleration for Virtual Vertical Motion in In-Car VR"

IEEE ISMAR 2025

[c.3] Dohyeon Yeo, Gwangbin Kim, Minwoo Oh, Jeongju Park, **Bocheon Gim**, Seongjun Kang, Ahmed Elsharkawy, SeungJun Kim. "AttraCar: Multisensory In-Car VR with Thermal, Airflow, and Motion Feedback through Built-In Vehicle Systems"

ACM UIST 2025

[c.2] Seongjun Kang, Gwangbin Kim, **<u>Bocheon Gim</u>**, Jeongju Park, Semoo Shin, SeungJun Kim. "EarPressure VR: Ear Canal Pressure Feedback for Enhancing Environmental Presence in Virtual Reality"

ACM UIST 2025

[**c.1**] **<u>Bocheon Gim</u>**, Seokhyun Hwang, Seongjun Kang, Gwangbin Kim, Dohyeon Yeo, SeungJun Kim. "I Want to Break Free: Enabling User-Applied Active Locomotion in In-Car VR through Contextual Cues"

ACM CHI 2025

Posters & Demos | *CHI, UIST, ISMAR*

[d.3] Dohyeon Yeo, Gwangbin Kim, Minwoo Oh, Jeongju Park, **<u>Bocheon Gim</u>**, Seongjun Kang, Ahmed Elsharkawy, SeungJun Kim. "Demonstration of Multisensory In-Car VR: Repurposing the Vehicle's HVAC System and Power Seat for Immersive Haptic Feedback"

IEEE ISMAR Demos 2025 (Best Demo 🏆)

[d.2] Dohyeon Yeo, Gwangbin Kim, Minwoo Oh, Jeongju Park, **<u>Bocheon Gim</u>**, Seongjun Kang, Ahmed Elsharkawy, SeungJun Kim. "Demonstration of AttraCar: Multisensory In-Car VR with Thermal, Airflow, and Motion Feedback through Built-In Vehicle Systems"

ACM UIST Demos 2025 (Best Demo People 🏆, Honourable Mention Jury 🏆)

[d.1] Seongjun Kang, Gwangbin Kim, **<u>Bocheon Gim</u>**, Jeongju Park, Semoo Shin, SeungJun Kim. "Demonstration of EarPressure VR: Ear Canal Pressure Feedback for Enhancing Environmental Presence in Virtual Reality"

ACM UIST Demos 2025

[p.2] Juwon Um, **<u>Bocheon Gim</u>**, Seongjun Kang, Yumin Kang, Eunki Jeon, SeungJun Kim. "TeleHopper: Simulating a Jumping Sensation as Proprioceptive Feedback for Teleportation in Virtual Reality via Electrical Muscle Stimulation"

ACM CHI Late-Breaking Work 2025

[**p.1**] **<u>Bocheon Gim</u>**, Seongjun Kang, Gwangbin Kim, Dohyeon Yeo, Seokhyun Hwang, SeungJun Kim. "Curving the Virtual Route: Applying Redirected Steering Gains for Active Locomotion in In-Car VR"

ACM CHI Late-Breaking Work 2024

Domestic | *KCC*

[do.2] Seongjun Kang, **<u>Bocheon Gim</u>**, Juwon Um, SeungJun Kim. "TherMusic: A Valence-Arousal-Based Music Emotion Classifier and Thermal Feedback Headset System"

KIISE KCC 2025 (Best Paper Award 🏆)

[**do .1**] **<u>Bocheon Gim</u>**, Seongjun Kang, Juwon Um, SeungJun Kim. "Utilizing Real-Time Video Matting to create a Scalable System for Real Hand Visualization and Interaction within Augmented Virtuality"

KIISE KCC 2025

FUNDED PROJECTS

- **Physical AI in Action: Tackling HCI Challenges with XR-Enhanced Robotics for Interpretable, Inclusive, and Immersive Interaction**, NRF Grant with MIT CSAIL (2025-2027/2028-2030)

- **Bridging the Gap Between Reality and Virtuality: Actuated XR Systems Powered by Sensory Intelligence and Soft Robotics**, NRF/MSIT (2024-2027)

- **HCI + AI for Human-Centered Physical System Design (AI for HCI)**, GIST-MIT Research Collaboration Grant, GIST Research Project (2024-2025)

- **SpaceTop: Spatial Computing HCI Technology for Everywhere XR Productivity Workstations**, University ICT Research Center (ITRC) Program with KAIST, IITP/MSIT (2024-2031)

- **Inter-University Alliance for Cultivating R&D Experts in Future Vehicular Technologies (I4FT)**, The Competency Development Program for Industry Specialist, KIAT/MOTIE (2022-2026)

- **Development of Natural User Interface (NUI) to Support Realistic Movement and Interaction within Metaverse Industrial Sites**, KETI (2022)

Skills

- **Languages**: Korean (Native), English (Native – iBT TOEFL 114/120, Jun. 2025)

- **Programming Languages**: Python, C, C#, C++, Java, Javascript, HTML/CSS, R

- **Software Tools**: Unity, Unreal Engine, SPSS, MATLAB, JASP

- **Hardware**: Arduino, Raspberry Pi

- **Visualization & Modeling**: Blender, Final Cut Pro, Adobe Illustrator

Academic Services

- **Peer Review**: 20 total, 4 Special Recognitions for Outstanding Reviews
  - **Full Papers**: CHI, CHI PLAY, DIS, MobileHCI, IMWUT, AutoUI, SUI, IEEE VR
  - **Posters**: CHI LBW, ISMAR Posters, DIS WIP, IMX WIP, MobileHCI WIP

- **Student Volunteer**: CHI 2025, ISMAR 2025

- **Invited Talks**: Korea Computer Congress 2025 (invited to present in-car VR research), hosted by Jin-Woo Jeong

- **Teaching**
  - HAFS Camp Senior Teacher, Hankuk Academy of Foreign Studies (Winter 2020)
  - Teaching Assistant for Environmental Monitoring (GS2934-01), GIST (Fall 2023)
  - Invited Demo Session for Extended Reality Project (RT6304-01), GIST (Fall 2025)