

Yonghyun Gwon

Chuncheon-si, South Korea | +82 10-7685-8845 | mathewgwon@gmail.com | github.com/Noperi0r

EDUCATION

Kyung Hee University - Seoul & Suwon, South Korea

Expected Aug 2026

B.S. in Software Convergence (Computer Engineering) | GPA: 4.32 / 4.5 | Full Tuition Scholarship — 8 semesters

PUBLICATIONS

Conference Papers

- KunHo Heo, SuYeon Kim, Yonghyun Gwon, Youngbin Kim, MyeongAh Cho. "ParTY: Part-Guidance for Expressive Text-to-Motion Synthesis." IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2026.

Workshop / Adjunct Papers

- Jaehyun Byun, Byunghoon Kang, Yonghyun Gwon, Hongsong Choi, Yunseo Do, Eunho Kim, Sangkeun Park, Seungjae Oh. "CrossGaussian: Enhancing Remote Collaboration through 3D Gaussian Splatting and Real-time 360° Streaming." ACM UIST Adjunct 2025 (Poster); IEEE ISMAR 2025 Research Demonstrations.

Domestic Conference

- Yonghyun Gwon, KunHo Heo, YoungKwan Cho, SuYeon Kim, HaYoung Lee, MyeongAh Cho. "Word-Motion Cross Attention for Fine-Grained Text Guided Human-Human Interaction Motion Generation." Korea Software Congress (KSC), 2025. [1st Author]

Acknowledgment

- Jungeun Lee, Minha Jeon, Jinyoung Lee, Seungmoon Choi, Seungjae Oh. "SkinHaptics: Exploring Skin Softness Perception and Virtual Body Embodiment Techniques to Enhance Self-Haptic Interactions." ACM CHI, 2025. [Acknowledged contributor - VR experiment environment implementation]

RESEARCH EXPERIENCE

Visual Science Lab (VSLab), Kyung Hee University

Jul 2025 - Feb 2026

Undergraduate Research Assistant | Advisor: Prof. MyeongAh Cho

- Ongoing research on interaction-attribute and physical-property conditioning for text-guided HHI motion generation, focusing on whether contact, distance, synchronization, and relative-motion signals can improve controllability without weakening text alignment.
- Proposed Word-Motion Cross Attention as first author of a KSC 2025 HHI motion-generation paper, improving InterHuman text-motion retrieval by +2.3 / +3.4 / +3.2 points on R-Precision Top-1/2/3 while maintaining MM-Dist.
- Improved ParTY's qualitative motion figures by converting low-quality baseline renders into clearer prompt/seed comparison figures, using body-part coloring, controlled camera setup, SSAO, anti-aliasing, and qualitative example curation to highlight differences across generated motions.

Interactive Technology & Methodology Lab (HCI Lab), Kyung Hee University

Sep 2024 - Dec 2024

Research Contributor | Advisor: Prof. Seungjae Oh

- Led the initial Cross-Reality and Reality-Virtuality Continuum literature survey, turning early research exploration into experimental scenarios for 3DGS-based remote collaboration; work evolved into CrossGaussian (UIST Adjunct 2025; ISMAR Adjunct 2025).
- Implemented the Unity client for CrossGaussian, linking Insta360 360° camera input, real-time Unity rendering via API, and Photon-based synchronization to support a two-machine 360° streaming prototype.

SkinHaptics Project | HCI Lab, Kyung Hee University

Apr 2024 - Jul 2024

Research Contributor | PI: Prof. Seungjae Oh

- Built the Unity VR experiment environment for skin-softness perception research, implementing Euler-based vertex deformation, distance-based attenuation, and Oculus hand-skeleton gesture triggers used in the CHI 2025 study.

WORK EXPERIENCE

FunctionBay / MetaMotion X — Simulation Developer; Unity Programmer Intern

Jul 2024 - Aug 2025

Pangyo Techno Valley, South Korea | FunctionBay division later became MetaMotion X; work continued on the same defense-linked simulation project.

- Extended replay and event-logging systems for a defense-linked Unity simulation, making runtime events easier to trace and reproduce while addressing file I/O failures, incomplete writes, and multi-PC log collection issues.
- Implemented Unity Netcode features for synchronized combat and simulation states, debugging hit registration, damage logic, state transitions, and client desynchronization in a multi-client environment; documented and validated fixes through STDs, unit tests, and Redmine.
- Built Unity production UI features for 3D-to-2D object projection, route visualization, and Scene-View-like navigation, while separately leading a UE5 demo framework with physics-based virtual camera and CineCamera workflows.

M5ERS - Backend Intern

Nov 2024 - Feb 2025

Remote & San Jose, CA, USA | Tools: Node.js/Express, C, UART, Python, Jira

- Built a Node.js/Express backend for an FPGA-based mining-hardware prototype, using route-controller-service separation to expose register read/write APIs and bridge requests to a C UART control process.
- Implemented the C hardware-control loop behind the backend, handling stdin/stdout command exchange, UART register read/write routing, response formatting, and integration testing; also prototyped Bitcoin proof-of-work mechanics in Python.

- Operated UNIX servers for a military C4I intranet, supporting security checks, log audits, backups, access control, network troubleshooting, and Log4j incident-response procedures under command guidance.
- Managed access control for user terminals across multiple military units and monitored network infrastructure including routers and switches.

PROJECTS

AI-Based Multiplayer Latency Predictor [Team Lead]

Nov 2024 - Dec 2024

Tools: C++, Python, Unreal Engine 5, PyTorch, ONNX/NNE

- Led a UE5 latency-compensation project that reframed nonlinear vehicle prediction as motion-delta regression and trained a PyTorch Residual+GLU model on custom vehicle-motion logs.
- Integrated the ONNX model through Unreal Engine 5 NNE for asynchronous 10 Hz inference inside a custom movement component, improving drift-trajectory tracking over constant-velocity prediction.

OpenGL Model Rendering Engine

Dec 2023

Tools: C++, OpenGL

- Built a lightweight 3D rendering engine from scratch, implementing model loading, Phong lighting, shading pipeline, and camera controls.

TEACHING & MENTORING

Course Mentoring / Educational Project Support

2026

- Designed and developed the base Unity ML-Agents project architecture used for reinforcement-learning term projects and course mentoring.

Game Development Club – Study Leader & Mentor

2023, 2024

- Led Unreal Engine C++ and Unity study sessions, mentoring student developers in multiplayer programming, gameplay systems, and engine workflows.

HONORS & ACTIVITIES

1st Place — UNIJAM Game Jam (Smilegate & UNIDEV)	2024
2nd Place — Immersive Tourism Content Contest (Korea Tourism Organization)	2024
2nd Place — University Portfolio Competition (Kyung Hee University)	2024
Creativity Award — Software Festival (Kyung Hee University)	2024
2nd Place — Artistic Software Competition (Kyung Hee University)	2023
3rd Place — Software Festival (Kyung Hee University)	2023
G-STAR Game Exhibition Exhibitor (Korea Association of Game Industry)	2023, 2024
Selected Participant — NexonJam 2024 (28 programmers selected)	2024

TECHNICAL SKILLS

Advanced: C/C++, C#, Unity, Unreal Engine
Proficient: Python, PyTorch, ONNX/NNE, Node.js/Express
Familiar: OpenCV, JavaScript, HTML/CSS
Tools: Git, Perforce (P4V), Jira, Azure DevOps, Redmine
Languages: Korean (native), English (fluent), Japanese (conversational)