

YOONSANG KIM

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RESEARCH INTERESTS

Cross-platform/device-agnostic systems for AR/VR/MR | Context-aware immersive visualization | Ubiquitous XR | Intelligent interface | Prototyping | Security and privacy in digital twin

Keywords: AR | MR | Intelligent Interface | Human-centered AI | Ubiquitous Computing | Visualization | XR Security/Privacy

EDUCATION

Stony Brook University <i>Ph.D. Candidate., Computer Science</i>	Stony Brook, NY Aug. 2020 – Present
Stony Brook University <i>M.S., Computer Science</i>	Stony Brook, NY May. 2020
Darmstadt University of Applied Sciences <i>Exchange Student (via Soongsil University Program)</i>	Darmstadt, Germany Jul. 2015
Soongsil University <i>B.S., Computer Science and Engineering</i>	Seoul, Korea Feb. 2017

RESEARCH AND TECHNICAL EXPERIENCE

Stony Brook University <i>Research Assistant</i>	Stony Brook, NY May. 2022 – Present
<ul style="list-style-type: none">Designing next generation ubiquitous interface and context-aware XR using multimodal LLMPrototyping interactive recommender system using RAG LLM for personalized AR experienceConducting research on context-aware adaptive UI across virtuality (cross-device, co-located, remote)Researching conversational, cross-reality (AR/MR-to-VR) interface for remote collaborationInvestigating spatial computing for network security applications using Apple Vision ProDesigned end-to-end analytics framework for user behaviors in XR environments (AR, VR, MR) using multimodal (visual, audio, interaction) cuesImplemented hand-held system (tablet, mobile) for collaborative multi-user AR experienceProposed a novel mobile AR framework for co-located collaboration in immersive tiled displaysDeveloped a novel design of OS-level access control system in AR for privacy-protectionExplored the applications of local & remote renderingExplored situated visualization for optimal volume placementStudied mapping/synchronization of coordinate systems in digital twin	
<i>Graduate Student Researcher</i>	Stony Brook, NY May. 2020
<ul style="list-style-type: none">Studied platform/device-agnostic properties for scientific (volume rendering) /information visualizationExplored the applications of gesture-based input in Virtual Reality using Leap motionDesigned Shark² algorithm (shape/location channel) for Unity C# to utilize across multi-platforms	
Soongsil University <i>Undergraduate Student Researcher</i>	Seoul, Korea Jul. 2018
<ul style="list-style-type: none">Developed hand gesture recognizer for MR remote desktop settingsDeveloped an immersive remote desktop screen network streaming system in C and Unity C# utilizing virtualized graphics card and WINAPI hooking	

PUBLICATIONS

- Matthew Castellana, Chahat Kalsi, **Yoonsang Kim**, Saeed Boorboor, Arie Kaufman. **(To Appear)**
AuxiScope: Handheld Augmented Reality Tablet as an Auxiliary Display for Large-Scale Display Systems. IEEE ISMAR. 2025.
- Yoonsang Kim**, Zainab Aamir, Mithilesh Singh, Saeed Boorboor, Klaus Mueller, Arie Kaufman.
[Explainable XR : Understanding User Behaviors of XR Environments using LLM-assisted Analytics Framework](#). IEEE VR (TVCG). 2025.
- Saeed Boorboor, **Yoonsang Kim**, Ping Hu, Josef M Moses, Brian A Colle, Arie Kaufman.
[Submerse: Visualizing Storm Surge Flooding Simulations in Immersive Display Ecologies](#). IEEE TVCG. 2023.
- Saeed Boorboor, Matthew Castellana, **Yoonsang Kim**, Zhutian Chen, Johanna Beyer, Hanspeter Pfister, Arie Kaufman.
[VoxAR: Adaptive Visualization of Volume Rendered Objects in Optical See-Through Augmented Reality](#). IEEE TVCG. 2023.
- Yoonsang Kim**, Sanket Goutham, Amir Rahmati, Arie Kaufman.
[Erebus: Access Control for Augmented Reality Systems](#). USENIX Security. 2023.
- Yoonsang Kim**, Saeed Boorboor, Amir Rahmati, Arie Kaufman.
[Design of Privacy Preservation System in Augmented Reality](#). IEEE VizSec Poster. 2021.
- Yu-Jung Ko, Hang Zhao, **Yoonsang Kim**, IV Ramakrishnan, Shumin Zhai, Xiaojun Bi.
[Modeling Two-Dimensional Touch Pointing](#). UIST. 2020.
- Suwen Zhu, **Yoonsang Kim**, Jingjie Zheng, Jennifer Yi Luo, Liuping Wang, Xiangmin Fan, Feng Tian, Xiaojun Bi.
[Using Bayes' Theorem for Command Input: Principle, Models, and Applications](#). CHI. 2020.
- Yoonsang Kim**, Geunyeop Ha, Sangjun Lee.
[Flexible Remote-Control Application for Virtual Reality using Virtual Graphics Driver and OpenCV](#). IJAER. 2017.

ACADEMIC SERVICES

- | | |
|---|--------------------------|
| • Reviewer of IEEE ISMAR (Recognized for Outstanding Reviews) | 2025 (Currently Serving) |
| • Reviewer of ACM ISS | 2025 (Currently Serving) |
| • Reviewer of ACM UIST | 2025 (Currently Serving) |
| • Reviewer of ACM IMWUT | 2025 (Currently Serving) |
| • Reviewer of ACM SUI | 2025 (Currently Serving) |
| • Reviewer of ACM VRST | 2025 (Currently Serving) |

HONORS AND AWARDS

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|---|-----------|
| • Best Data Science/AI Award. SBU Hackathon. Stony Brook University | Sep. 2019 |
| • Dean's Award. Software Competition. Soongsil University | Oct. 2016 |
| • National Semi-Finalist. Microsoft Imagine Cup. Microsoft Korea | Mar. 2016 |
| • Gold Award. IT·BT Software Convergence Engineering Competition. Soongsil University | Dec. 2015 |

LEADERSHIP EXPERIENCE

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|---|-----------------|
| Stony Brook University | Stony Brook, NY |
| <i>Teaching Assistant</i> | May. 2022 |
| • Assisted lecture/assignment preparation for professors of courses (VR, HCI, Visualization, OS) | |
| <i>Research Mentor</i> | |
| • Mentored 2 high school, 4 undergraduate, and 9 graduate students to design an algorithm in the domains of Mobile AR, Device localization in AR, User interface, and Information visualization | |
| Soongsil University | Seoul, Korea |
| <i>Exchange Student Program Mentor</i> | Dec. 2016 |
| • Helped the incoming students of exchange student program & shared experience | |
| Republic of Korea Army (The 31 st Infantry Division Engineering Battalion) | Gwangju, Korea |
| <i>Financial & Personnel Administrator</i> | Jan. 2013 |
| • Served military duty at the HQ in the Engineering battalion as Financial & Personnel administrator | |

TECHNICAL SKILLS

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| Language | C#, Python, C, C++, HLSL, Compute Shader, JavaScript, Java, Go |
| Tool/Framework/API | Unity, AR Foundation (ARCore/ARKit; Android/iOS/Meta Horizon OS/Vision OS), Vuforia SDK, OpenGL, D3.js, WINAPI, MFC, WPF, MySQL, DB2, HTML, CSS |

LANGUAGES

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| Korean | Native |
| English | Full professional working proficiency : TOEFL 110 (27/27/28/28) |
| German | Elementary proficiency : A1(Beginner level) |