YAESOL KIM

📞 (+39) 333 587 0028 | ✉ yaesol.kim.it@gmail.com

RESEARCH INTERESTS

Virtual/Augmented Reality, Robotics, Haptics, Teleoperation, Human Robot Interaction

EDUCATION

Ewha Womans University, Seoul, Korea

2016 - 2021	**Ph.D., Computer Science and Engineering** • Supervised under Prof. Young J. Kim
2012 - 2016	**B.S., Computer Science and Engineering** • Supervised under Prof. Young J. Kim

EXPERIENCE

Istituto Italiano di Tecnologia (IIT), Genova, Italy

JUN 2022 - Present	**Advanced Robotics, Postdoctoral Researcher** • Conducted research on bilateral haptic teleoperation using variable impedance control. • Conducted research on mixed reality-based immersive robot telemanipulation. • Implemented a digital-twin based bimanual encountered-type haptic teleoperation system.

Ewha Womans University, Seoul, Korea

SEP 2021 - MAY 2022	**Center for Simulated Reality and Contents Convergence, Postdoctoral Researcher** • Conducted research on imitation learning for contact prediction in virtual reality. • Implemented a dual-arm robot system with two manipulators, two 3-finger grippers, and a depth camera. • Developed an ROS package to simulate and execute the dual-arm robot system.
MAR 2016 - AUG 2021	**Computer Graphics Lab, Research Assistant** • Conducted research on an encountered-type haptic display using a 7-DoF manipulator. • Worked as TA for 'Numerical Methods' and 'Computer Graphics' courses. • Implemented a virtual moon experience system as part of the virtual space exploration project.
MAR 2015 - FEB 2016	**Computer Graphics Lab, Undergraduate Intern** • Conducted research on virtual moon experiences with video-based crowd animation.
DEC 2014 - FEB 2015	**Embedded Software Lab, Undergraduate Intern** • Conducted research on on a long-tail watchdog timer for real-time embedded system.

Samsung Electronics, Suwon, Korea

JUN 2014 - AUG 2014	**Visual Display Division, Undergraduate Intern** • Developed a testing application to validate Tizen API on SAMSUNG Smart TV.

PUBLICATIONS

Dissertation

[D1] **Yaesol Kim**, Versatile Encountered-type Haptics for Immersive VR Environments Using Collaborative Robot, Ph.D. Dissertation, Ewha Womans University, 2021

International Journals

[J3] **Yaesol Kim**, Siyeon Kim, Uran Oh, and Young J. Kim, Synthesizing the Roughness of Textured Surfaces for an Encountered-type Haptic Display using Spatiotemporal Encoding, IEEE Transactions on Haptics, 14(1), 2021, pp. 32-43

[J2] **Yaesol Kim**, Hyun Jung Kim, Young J. Kim, Encountered-type haptic display for large VR environment using per-plane reachability maps, Computer Animation and Virtual Worlds (CASA 2018 Special Issue), 29(3-4), 2018, e1814 (cover image)

Domestic Journal

[J1] Hayeon Choi, Jiwan Yun, Seoyeon Park, **Yesol Kim**, Sangsoo Park, Long-Tail Watchdog Timer for High Availability on STM32F4-Based Real-Time Embedded Systems, Journal of Korea Multimedia Society, 18(6), 2015, pp. 723-733

International Conference Paper

[C1] **Yaesol Kim**, Myrna Citlali Castillo Silvia, Sara Anastasi, Nikhil Deshpande, Towards Immersive Bilateral Teleoperation Using Encountered-Type Haptic Interface, IEEE International Conference on Systems, Man, and Cybernetics (SMC), 2023

Domestic and Misc. Papers

[P9] Yonas Teodros Tefera, **Yaesol Kim**, Sara Anastasi, Nikhil Deshpande, Immersive Remote Teleoperation: Gaze-Driven Approaches From Sampling to Rendering, Second XR-ROB Workshop @ IEEE/RSJ IROS, Oct 2023 (Extended Abstract) (best paper award)

[P8] **Yaesol Kim**, Sara Anastasi, Nikhil Deshpande, Towards Encountered-type Haptic Interaction for Immersive Bilateral Telemanipulation, In 6th International Workshop on Virtual, Augmented, and Mixed-Reality for Human-Robot Interactions (VAM-HRI) @ IEEE/ACM HRI, Mar 2023 (Extended Abstract)

[P7] **Yaesol Kim**, Nikhil Deshpande, Young J. Kim, End-to-End Encountered-type Haptic Response Generation Using Learning from Demonstrations in Virtual Reality, First XR-ROB Workshop @ IEEE/RSJ IROS, Oct 2022 (Extended Abstract)

[P6] **Yaesol Kim**, Young J. Kim, Synthesizing the roughness of Textured Surfaces for an Encountered-type Haptic Display, Korea Robotics Society Annual Conference (KRoC), Aug 2020 (Extended Abstract)

[P5] **Yaesol Kim**, Young J. Kim, H-Wall: Encountered-type Haptic Display for VR Environment using Per-plane Reachability Maps, Korea Robotics Society Annual Conference (KRoC), Jan 2018 (Extended Abstract)

[P4] **Yaesol Kim**, Young J. Kim, Versatile Encountered-type Haptic Display for VR Environment using a 7-DoF Manipulator, International Conference on Intelligent Robots and Systems (IROS), Oct 2016 (Extended Abstract)

[P3] **Yaesol Kim**, Gahye Park, Yun-hyeong Kim, Young J. Kim, Virtual Moon Experiences with Video-based Crowd Animation, HCI Korea, Jan 2016

[P2] Yun-hyeong Kim, **Yaesol Kim**, Gahye Park, Young J. Kim, Video-based Crowd Animation on Moon Surface, Korea Computer Graphics Society, Jul 2015 (Extended Abstract)

[P1] Jaen Ku, **Yaesol Kim**, Yoonsun Lim, Sooyeol Yang, Real-time Compensation Algorithm for Localization Using iBeacon, Korea Software Conference, Dec 2015

Patents

[P2] Young Jun Kim, **Yae Sol Kim**, Uran Oh, METHOD AND SYSTEM FOR PROVIDING A ROUGHNESS HAPTIC OF A VIRTUAL OBJECT USING SPATIOTEMPORAL ENCODING, KR102332318, 2021

[P1] Young Jun Kim, **Yae Sol Kim**, VIRTUAL SPACE EXPERIENCING APPARATUS AND METHOD, KR101751176, 2017

TECHNICAL SKILLS

Languages   C, C++, C#, Python, Java, Matlab, R

Robot SW   ROS, Sunrise Workbench for KUKA, OMPL, MoveIt! CoppeliaSim, Gazebo, Rviz

Robot HW   KUKA iiwa 7 R800, UR5e, Robotiq 3F adaptive gripper, Fetch&Freight, Franka Emika

Vision Sensor   Kinect v1, Kinect v2, Leap Motion, Intel Realsense

Virtual Reality   Unity3D, Unreal Engine, Blender, Maya, 3ds Max, Oculus SDK

AWARDS & GRANTS

2023   **Young Professional Travel Grant**   IEEE Systems, Man, and Cybernetics Society

2022   **Postdoctoral Fellowship Program**   National Research Foundation of Korea

2018   **Cover Image**   Computer Animation and Virtual Worlds

2015   **Bronze Prize for Portfolio Contest**   Accreditation Board for Engineering Education of Korea

2015   **Gold Prize for Portfolio Contest**   Dep of CSE, Ewha Womans University

2015   **Bronze Prize for Capstone Design Contest**   Dep of CSE, Ewha Womans University

OTHER ACTIVITIES

Academic

Program Committee - The 1st International Workshop on Human-in-the-Loop Applied Machine Learning (HITLAML)   SEP 2023

Teacing Assistant - Numerical Methods   Spring 2016, Spring 2017

Teacing Assistant - Computer Graphics   Fall 2016

Demonstration

Real-time immersive teleoperation from Luxembourg to Genova - The 1st International Workshop on Human-in-the-Loop Applied Machine Learning (HITLAML)   04 SEP 2023

Invited Talk

Haptics in VR - Yale Girl's Highschool, Seoul, Korea   08 NOV 2021

Versatile Encountered-type Haptics for Immersive VR environments using Collaborative Robot - Gachon University, Seongnam, Korea   23 AUG 2021

Versatile Encountered-type Haptics for Immersive VR environments using Collaborative Robot - Women's Commission Workshop @ Korea Computer Congress   24 JUN 2021