Curriculum Vitae

1. Personal Information

Yeongmi Kim, PhD
Department of Mechatronics, MCI, Innsbruck, Austria
Phone: +43 681 813 06980, E-mail: yeongmi.kim@mci.edu
http://orcid.org/0000-0002-1647-1152
https://scholar.google.com/citations?user=C7D5pG4AAAAJ

2. Education

03. 2006 – 02. 2010	Ph. D. in Mechatronics, School of Information and Mechatronics, GIST(Gwangju Institute of Science and Technology), South Korea, Advisor: Prof. Jeha Ryu
03. 2004 – 02. 2006	M.Sc. in Mechatronics, Gwangju Institute of Science and Technology, South Korea
03.1999 – 02. 2004	B.Sc. in Mechanical & Information Engineering, Korea Maritime University, South Korea

3. Professional Experience

Since 02. 2015	Lecturer, MCI, University of Applied Science, Innsbruck, Austria
08. 2014 – 01. 2015	Senior Researcher, Institute of Computer Science, Innsbruck University, Austria
02.2013 – 07. 2014	Research Associate, Department of Computer Science, University of Sheffield, United Kingdom
05. 2010 – 01. 2013	Postdoctoral Researcher, Department of Health Sciences and Technology, ETH Zurich, Switzerland
03-04.2013	BK21 PostDoc fellow, School of Information and Mechatronics, Gwangju Institute of Science and Technology, South Korea
12. 2008 – 07. 2009	Visiting scientist, Department of Information Technology and Electrical Engineering, ETH Zurich, Switzerland

4. Funded Projects

2017	*SeeVision*, FFG Bride21 project, Principal Investigator (PI), withdrawal due to disagreement of consortium.
2013 – 2014	*BEAMING*, EU Project, 7th FP ICT 248620, *Researcher*
2013 – 2014	Motion Based Augmented Reality Broadcasting Service, Funding: Electronics & Telecommunications Research Institute, Researcher and main proposer
2010 – 2013	iMiC – Innovative Movement-Therapies in Childhood, Swiss Foundation Gaydoul Mäxi Stiftung, Researcher
2010 – 2012	Seeing White Cane, Swiss CTI Confederation's Innovation Promotion Agency, Researcher
2009 – 2009	Project on Haptic Media Technology Standard Development, Researcher Funding: Association of Next Generation PC Industry

2008 – 2010	Research on Immersive Haptic Media Technology, Funding: Korean Ministry of Knowledge Economy, Researcher
2007 – 2009	Development of Authoring Tool Kit for Realistic Interactive Digilog Book, Funding: Korean Ministry of Culture, Sports and Tourism, Researcher
2008 – 2009	Development of Haptic Media Systems, Funding: GIST Technology Initiative, Researcher
2007 – 2007	Study of Delivering Emotion Through a Tactile Chatting System, Funding: Ministry of Commerce, Industry and Energy, Principal Investigator (PI)
2007 – 2008	Development of Educational Contents for Haptic Broadcasting, Funding: Korea Science and Engineering Foundation, Researcher
2006– 2006	Tactile Gloves for Blind People, Funding: Ministry of Commerce, Industry and Energy, Principal Investigator (PI)
2004 – 2008	Haptic Display System for Realistic Broadcasting System, Funding: Ministry of Information and Communication, Researcher
2004 – 2007	Haptic Interaction Technology with Virtual Portable Electronics for Immersive Contents, Funding: Ministry of Science and Technology, Researcher
2004 – 2006	Development of Haptic Modeling and Rendering for Wearable Environments, Funding: Electronics and Telecommunications Research Institute, Researcher

5. Supervision /Co- Supervision of Students

Supervised students received following **prizes**

2016	Best Bachelor Thesis (2nd place), Mechatronics Platform Austria – Daniela Platzer
2014	Student Project Slam 2014 (2nd place), The University of Innsbruck – Hannes Vieider
2012	IEEE Region 8 Student Paper Contest (first place) – Mike Rinderknecht
2012	Logitech prize, Creative, Innovative and Pragmatic Master Thesis – Mike Rinderknecht

Ph. D Theses (co-supervision)

Feb 2013 – Feb 2017 (Completed)	Hamideh Kerdegari. Wearable computing for fire fighters, University of Sheffield.
Feb 2013 – Jan 2015	Anatolii Sianov. Bimanual Data-Driven Haptic Rendering, University of Sheffield.

Master Theses (supervision /co-supervision)

Sep 2017	Enneking Florian. Development and evaluation of SurfTics, a haptic 3DoF shape display with tactile texture feedback, MCI.
Sep 2017	Terzer Michael. Development of a sensor Cluster for Precision Agriculture in Apple Orchards and Vineyards, MCI.
Sep 2017	Wielend Sebastian. An upper limb haptic motion training system, MCI.
Jul 2017	Fügenschuh Tobias. Affordable Active Knee Orthosis for Everyday Use, MCI.
Sep 2016	Matthias Decker. A robot-assisted hand rehabilitation system after stoke, MCI.
Sep 2013	Abhilash AR Kesari. Multimodal feedback and synchronization in tele-teaching, University of Sheffield.
Dec 2012	Mathias Bannwart. Sensory assessment system, ETH Zurich.
Dec 2012	Immoos Anabel. Auditory feedback in motor learning, ETH Zurich.
Sep 2012	Davud Sadihov. Development of a VR game application using Kinect to train arm

	function in stroke rehabilitation, ETH Zurich.
Aug 2012	Pascal Gyger. Development of Instrumented objects to train arm and hand function in stroke rehabilitation. ETH Zurich.
Jul 2012	Mike Domenik Rinderknecht. Combined tendon vibration and virtual reality for hand rehabilitation based on illusory movements, ETH Zurich/ Ecole Polytechnique Fédérale de Lausanne (EPFL).
Jul 2012	Andrés Villa Torres. Follow or being followed – Communication based on synchronic acting. Master Thesis, Zurich University of the Arts.
Jul 2011	Abdurrahman Dhina. Development and evaluation of an instrumented wearable tactile interface for home-based rehabilitation. Ecole Polytechnique Fédérale de Lausanne (EPFL).
Feb 2011	Jonas Furrer. Augmented white cane II: towards an effective electronic mobility aid for the blind. ETH Zurich.

Bachelor/MSc Semester Theses (supervision /co-supervision)

Ongoing	Ondřej Pešek. Controling of water level in a condensate tank, Bachelor Thesis, MCI.
Ongoing	Patrick Behr, Development of a wearable haptic device for immersive interaction in VR,Bachelor Thesis, MCI.
Ongoing	Mareike Armitage, The influence of vibration feedback in the sensory rehabilitation process of stroke patients - A comparative study, Bachelor Thesis, MCI.
Ongoing	Karl Kuprian. A Robot assisted sensory training system. Bachelor Thesis, MCI.
Nov 2017	Klotz Matthias. Design and implementation of a wearable haptic interface for a VR system, Bachelor Thesis, MCI.
Jun 2017	Lee Chhong Shing. Haptic exploration of images for the visually impaired, Bachelor Thesis, University of Innsbruck.
Sep 2016	Daniel Kofink. A hand held sensory assessment device for people with sensory deficit, Bachelor Thesis, MCI.
Sep 2016	Robert Kleiner. Design and development of a control board for pneumatically driven soft actuator, Bachelor Thesis, MCI.
Jul 2016	Lukas Wolf. Development of a novel haptic interface for electronic travel aids for the blind, Bachelor Thesis, MCI.
Jul 2016	Daniela Platzer. Development of a sensory training interface for stroke rehabilitation, Bachelor Thesis, MCI.
Jul 2016	Raphael Wesenjak. Automatic tele-monitoring of ice conditions in lake/rivers, Bachelor Thesis, MCI.
Dec 2015	Carsten Fischer. Developing a low-cost augmented reality system. Bachelor Thesis, University of Innsbruck.
Jun 2015	Hannes Vieider. Advanced Motion-Based Haptic Rendering Algorithm. Bachelor Thesis, University of Innsbruck.
Feb 2014	Lukas Koch. Design optimization of an electronic travel aid for low cost rapid prototyping. Bachelor Thesis, ETH Zurich.
Sep 2013	Lukas Koch. Optimization and evaluation of an ETA device. Semester Thesis, ETH Zurich.
Dec 2012	Lukas Bühler. ReCube II. Semester Thesis, ETH Zurich.
Jul 2012	Rosali Pyun. An advanced augmented white cane. Semester Thesis, ETH Zurich.

Feb 2012	Thomas Lindenberg. Control and clinical evaluation of a robotic device for the assessment of hand sensory function. Bachelor Thesis, ETH Zurich.
Jul 2011	Michael Huber. Hands|on - Supportive interface for home rehabilitation after stroke. Bachelor Thesis, Zurich University of the Arts.
Jul 2011	Samuel Bauer, and Dinis Meier. ArmCoach - Motivating arm rehabilitation in daily life. Bachelor Thesis, Zurich University of the Arts.
Jun 2011	Mike Domenik Rinderknecht. Novel rehabilitation strategies for stroke patients based on illusory movements induced by tendon vibrations. Semester Thesis, Ecole Polytechnique Fédérale de Lausanne (EPFL).
Jun 2011	Hendrik Erckens. Auditory feedback for upper limb movement in rehabilitation. Semester Thesis, ETH Zurich.
Jun 2011	Stefan Jucker. Implementation of simple and intuitive games for a rehabilitation robot. Bachelor Thesis.

Academic Guests/Internships/Studies on Mechatronics (supervision /co-supervision)

Aug 2016	Daniel Ingram, A Motion-Controlled Endoscope for the da Vinci Surgical System, Marshall Plan, MCI.
Jul 2014	Harsheel Soin. Development of Educational Haptic device. Internship, University of Innsbruck.
Jul 2012	Oliver Schlatter. Potential roles of the Kinect in upper-limb rehabilitation. Studies on Mechatronics, ETH Zurich.
Feb 2012	Anabel Immoos. Study of auditory feedback for upper limb movement. Internship, ETH Zurich.
Aug 2011	Marvin Ludersdorfer. Designing, prototyping, and evaluating a two variable cutaneous display device for a prosthetic hand. Internship, University of Applied Sciences Deggendorf, Germany.
Nov 2010	Alejandro Juárez Robles. Robotic sensory trainer. Internship, Universidad Iberoamericana, Mexico.

6. Teaching Activities

Since 2016	Current Research Area – Medical engineering, graduate lecture, Dept. of Mechatronics, MCI, Innsbruck
Since 2015	Advanced Control Engineering Lab, graduate lecture, Dept. of Mechatronics, MCI
Since 2015	Control Engineering 1(modeling), 2(continuous control system), 3(digital control system), Control Engineering Lab, undergraduate lecture, Dept. of Mechatronics, MCI
2011	Guest lecturer, Human-Robot Interaction (Prof. Roger Gassert), ETHZ
2010	Guest lecturer, Rehabilitation Engineering II (Profs. Robert Riener and Roger Gassert) ETHZ
2007 - 2008	Teaching assistance, Haptics, GIST

7. Scientific Activities

Organization of Conference/Technical Sessions:

2017	IEEE WorldHaptics 2017 Conference: Work-in-Progress Chair, Conference editorial board
2010	IEEE/RAS-EMBS International Conference on Biomedical Robotics and Biomechatronics 2010, Rehabilitation II, Technical Session: Session Chair
2011	IEEE International Conference on Rehabilitation Robotics 2011: Scientific Committee

Reviewing International Journals/Conferences:

IEEE Transactions on Haptics
Journal of NeuroEngineering and Rehabilitation
Applied Ergonomics
Interacting with Computers: The Interdisciplinary Journal of Human-Computer Interaction
Transactions on Applied Perception
MIT Presence
NeuroEngineering and Rehabilitation
BioMedical Engineering OnLine
IEEE World Haptics
EuroHaptics
IEEE International Conference on Rehabilitation Robotics (ICORR)
IEEE Haptic Symposium
AsiaHaptics
IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)
IEEE International Conference on Biomedical Robotics and Biomechatronics (BIOROB)

8. Professional Activities

2008 – 2010	Expert, Standardization Forum for Next Generation PC/Five-Sense Working Group (Korea)
2009 – 2010	Korea Representative, ISO/IEC JTC1/SC29WG11, MPEG
2010	Co-Editor, ISO/IEC 23005-7, MPEG-V (Media Context and Control)
2010 – 2014	Member of Association for the Advancement of Assistive Technology (AAATE) in Europe
2016 – present	Member of da Vinci Research Kit (dVRK) user groups

9. Invited Talks & Keynote Lectures

2017	Overview of the da Vinci research kit (DVRK) and implementation, Department of Biomedical Engineering, The University of Basel, Switzerland, 2017.
2012	Increasing the Quality of Life Through Efficient Assistive Systems, Department of Psychology, The University of Sheffield, UK, 2012.
2012	Feel to Move: Assessment, Restoration and Augmentation on Hand Sensory Function, SNU-KAIST-ETHZ-EPFL Joint Symposium on Engineering for Biomedical Applications, Seoul National University, Korea, 2012.

2012	Rehabilitation Engineering and Assistive Technology, Design Studio VI: Embodied Interaction Advanced, Zurich University of the Arts, Switzerland, 2012.
2010	Haptic Feedback in Multimedia and Rehabilitation, INRIA Lille, France, 2010.

10. Honors & Awards

2017	Best poster runner-up at IEEE WorldHaptics 2017
2015	Horizon 2020, Marie Skłodowska-Curie Actions. Individual Fellowships (IF) - European fellowships (EF) 2014, application accepted.
2012	First prize at IEEE R8 Student Paper Contest (with co-supervised Master student: Mike Rinderknecht), Topic: Device for a Novel Hand and Wrist Rehabilitation Strategy for Stroke Patients Based on Illusory Movements Induced by Tendon Vibration
2010	BK21 PostDoc fellowship, Ministry of Education & Human Resources Development, Korea
2009	Research Scholarship, Dasan, Gwangju Institute of Science and Technology, Korea
2008	Global Fellowship, Gwangju Institute of Science and Technology, Korea
2007	WATCH21 Best Project Award by Ministry of Commerce, Industry and Energy, Korea
2007	Research Fellowship, Korea Science and Engineering Foundation (KOSEF)
2007	Research Fellowship, The Korean Broadcasting System (KBS)
2006	WATCH21 Best Project Award by Ministry of Commerce, Industry and Energy, Korea
2006	Young Author Award, SICE-ICASE International Joint Conference
2004 – 2010	Full scholarship for a master/doctoral study, Ministry of Education, Science and Technology, Korea
2004	Valedictorian, Korea Maritime University, Korea

Research Output List

PEER-REVIEWED SCIENTIFIC JOURNALS

[9] H. Kim, **Y. Kim**, G. Lee, M. Billinghurst and C. Bartneck, "The Object Shift Technique and Activity based Weighed Mean Tracking Method for Multi-user Interactive Visualization with a Large Display Virtual Environment", *Computers & Graphics*, in review.

[8] H. Kerdegari, **Y. Kim**, and T. J. Prescott, "Head-mounted Sensory Augmentation Device: Designing a Tactile Language", *IEEE Transactions on Haptics*, Vol. 9, No.3, pp. 376-386, 2016.

[7] **Y. Kim**, A. T. Moncada, J. Furrer, M. Riesch and R. Gassert, "Quantification of long cane usage characteristics with the constant contact technique", *Applied Ergonomics,* Vol. 55, pp. 216-225, 2016.

[6] **Y. Kim**, M. Harders, and R. Gassert, "Vibrotactile Pattern Recognition of Distance Information for an Obstacle", *IEEE Transactions on Haptics,* Vol. 8, No.3, pp. 298-305, 2015.

[5] O. Lambercy, **Y. Kim**, and R. Gassert, "Robot-assisted Assessment of Vibration Perception and Localization on the Hand", *Disability and Rehabilitation*, Vol. 8, No.2, pp. 129-135, 2013.

[4] J. Kim, C. Lee, **Y. Kim**, and J. Ryu, "A Haptic Broadcasting System Based on MPEG-V", *Signal Processing: Image Communication*, Vol. 28, Issue. 2, pp. 151-161, 2013.

[3] **Y. Kim**, J. Cha, I. Oakley, and J. Ryu, "Exploring Tactile Movies: An Initial Tactile Glove Design

and Concept Evaluation," *IEEE MultiMedia* Vol.17, No.3, pp.34-34, 2010.

[2] J. Cha, I. Oakley, Y. Ho, **Y. Kim**, and J. Ryu, "A Framework of Haptic Broadcasting, " *IEEE MultiMedia*, Vol.16, No.3, pp.16-27, 2009.

[1] **Y. Kim**, I. Oakley, and J. Ryu, "Human Perception of Pneumatic Tactile Cues," *Advanced Robotics: special Issue on Tactile Feedback for Humanoids and Humans,* Vol.22, No.8, pp.807-828, 2008.

PEER-REVIEWED BOOKS/BOOK CHAPTER

[1] **Y. Kim**, and M. Harders, "HapticDisplay", The Scholarpedia Encyclopedia of Touch (SET), Springer-Verlag, pp. 817-827, November 2015.

PEER-REVIEWED CONFERENCE PROCEEDINGS

[33] S. Obermoser, D. Klammer, G.Sigmund, A. Sianov, and **Y. Kim**, "A Pin Display Delivering Distance Information in Electronic Travel Aids ", IEEE International Conference on Biomedical Robotics and Biomechatronics (BIOROB), in review.

[32] S. Spiss, M. Siess, **Y. Kim**, and M. Harders, "Effect of Touch Stimuli on Proprioceptive Recalibration During Upper-Limb Rotation in Virtual Reality Mirror Therapy", IEEE International Conference on Biomedical Robotics and Biomechatronics (BIOROB), in review.

[31] H. Kim, **Y. Kim**, G. Lee, M. Billinghurst and C. Bartneck, "Collaborative View Configurations for Multi-user Interaction with a Wall-size Display", International Conference on Artificial Reality and Telexistence & Eurographics Symposium on Virtual Environments, 2017.

[30] M. Decker and **Y. Kim,** "A Hand Exoskeleton Device for Robot Assisted Sensory-Motor Training after Stroke", *in Proc. of IEEE WorldHaptics,* 2017.

[29] T. Hausberger, M. Terzer, F. Enneking, Z. Jonas and **Y. Kim**, "SurfTics - Kinesthetic and tactile feedback on a touchscreen device", *in Proc. of IEEE WorldHaptics,* 2017.

[28] S. Wielend, W.Türtscher, J. Pitterle, F. Holzknecht, M. Decker and **Y. Kim**, "Haptic rehabilitation device for reaching and grasping tasks", *in Proc. of IEEE WorldHaptics,* 2017.

[27] S. Spiss, **Y. Kim**, S. Haller and M. Harders, "Comparison of Tactile Signals for Collision Avoidance on Unmanned Aerial Vehicles," *in Proc. of AsiaHaptics,* 2016.

[26] **Y. Kim**, D. Sadihov, K. Leuenberger, M. Harders, B. Choi, Y. Jeong, and R. Gassert, "Motion-Based Augmented Broadcasting System with Haptic Feedback", *in Proc. of AsiaHaptics,* 2016.

[25] H. Kerdegari, **Y. Kim**, and T. J. Prescott, "Head-mounted Sensory Augmentation Device: Comparing Haptic and Audio Modality," *Living Machines*, pp. 107-118. 2016.

[24] H. Kerdegari, **Y. Kim**, and T. J. Prescott, "Human Tactile Navigation using Sensory Augmentation Helmet," *International Conference on Biomimetic and Biohybrid*, 2015.

[23] H. Kerdegari, **Y. Kim**, T. Stafford, and T. J. Prescott, "Centralizing bias and the vibrotactile funneling illusion on the forehead," *EuroHaptics 2014*.

[22] A. Immoos, J. Cerny, B. Hertler, R. Sigrist, P. Wolf, **Y. Kim**, A.R. Luft, R. Gassert, J.S. Sulzer, " Repetitive arm training with music and error sonification for therapy following stroke,"

International Conference on Multisensory Motor Behavior Impact of Sound, 2013.

[21] M. Bannwart, P. Pyk, K. Eng, R. Gassert and **Y. Kim**, "Assessment of hand sensory function with a wearable vibrotactile display," *Proc. 10th International Conference on Virtual Rehabilitation (ICVR 2013)*, 2013.

[20] R. Pyun, **Y. Kim**, P. Wespe, and R. Gassert, "Characterization of Proximity Sensors for the Design of Electronic Travel Aids," *Association for the Advancement of Assistive Technology in Europe(AAATE) Conference*, pp. 714 – 719, 2013.

[19] R. Pyun, **Y. Kim**, P. Wespe, S. Schneller and R. Gassert, "Advanced Augmented White Cane with

Obstacle Height and Distance Feedback," *IEEE International Conference on Rehabilitation Robotics (ICORR)*, 2013.

[18] D. Sadihov, B. Migge, R. Gassert, and **Y. Kim**, "Enhanced VR Upper-limb Rehabilitation System With Motion-based Tactile Feedback," *IEEE World Haptics*, pp. 449 - 454, 2013.

[17] M. Domenik Rinderknecht, **Y. Kim**, L. Santos- Carreras, H. Bleuler, R. Gassert, "Combined Tendon Vibration and Virtual Reality for Post-Stroke Hand Rehabilitation," *IEEE World Haptics*, pp. 277 - 282, 2013.

[16] J. Kim, **Y. Kim**, J.Ryu, "MPEG-V Standardization for Haptically Interacting with VirtualWorlds," *IEEE World Haptics*, pp. 55 - 60, 2013.

[15] A. I. Dailly, R. Sigrist, **Y. Kim,** P. Wolf, H. Erckens, J. Cerny, A, Luft, R.Gassert, and J.Sulzer, "Can Simple Error Sonification in Combination with Music Help Improve Accuracy in Upper Limb Movements?," *IEEE/RAS-EMBS International Conference on Biomedical Robotics and Biomechatronics (BioRob),* pp. 1423-1427, 2012.

[14] D. Damian, M. Ludersdorfer, **Y. Kim**, A. H. Arieta, R. Pfeifer and A. Okamura, "Wearable Haptic Device for Cutaneous Force and Slip Feedback," *IEEE International Conference on Robotics and Automation (ICRA)*, pp.

1038-1043, USA, 2012.

[13] **Y. Kim**, S. Park, H. Kim, H Jeong, and J. Ryu, "Effects of different haptic modalities on students' understanding of physical phenomena," *Proc. WorldHaptics,* pp. 379-384, Istanbul, Turkey, 2011.

[12] O. Lambercy, **Y. Kim**, and R. Gassert, "Assessment of Vibration Perception with the Robotic Sensory Trainer," *Proc. International Convention on Rehabilitation Engineering and Assistive Technology (i-CREATe),* Bangkok, Thailand, 2011.

[11] O. Lambercy, A. Juárez Robles, **Y. Kim**, and R. Gassert, "Design of a Robotic Device for Assessment and Rehabilitation of Hand Sensory Function," *Proc. IEEE International Conference on Rehabilitation Robotics (ICORR)*, Zurich, Switzerland, 2011.

[10] S. Gallo, D. Chapuis, L. Santos-Carreras, **Y. Kim**, P. Rétornaz, H. Bleuler, and R. Gassert, "Augmented White Cane with Multimodal Haptic Feedback, " *IEEE/RAS-EMBS International Conference on Biomedical Robotics and Biomechatronics (BioRob),* pp.149-155,Toyko, Japan, 2010.

[9] S. Park, J. Lee, **Y. Kim**, and J. Ryu, "Preliminary System Framework for 'Sil-Gam' Book," *IEEE International Symposium on Ubiquitous Virtual Reality (ISUVR 2009)*, pp.64-67, Gwangju, Korea, 2009.

[8] Y. Seo, B. Lee, **Y. Kim**, J. Kim, J. Ryu, "K-Haptic Modeler™: A Haptic Modeling System," *IEEE*

International Workshop on Haptic Audio Visual Environments and their Applications(HAVE' 2007), pp.12-14, Ottawa, Canada, 2007.

[7] J. Cha, Y. Seo, **Y. Kim**, J. Ryu, "Haptic Broadcasting: Passive Haptic Interactions using MPEG-4 BIFS," *Proc. of World Haptics 2007: 2nd Joint Eurohaptics Conf. And Symposium on Haptic Interfaces for Virtual Environment and Teleoperator Systems (World Haptics 2007)*, pp.274-279, Tsukuba, Japan, 2007.

[6] **Y. Kim**, I. Oakley, J. Ryu, "Design and Psychophysical Evaluation of Pneumatic Tactile Display," *International Conference on Control, Automation and Systems - The Society of Instrument and Control Engineers (SICE-ICCAS 2006)*, pp.1933-1938, Pusan, Korea, 2006.

[5] **Y. Kim**, S. Kim, T. Ha, I. Oakley, W. Woo, J. Ryu, "Air-jet Button Effects in AR, " *Lecture Notes in Computer Science(ICAT 2006),* vol. 4282, pp.384-391, Hangzhou, China, 2006.

[4] T. Ha, **Y. Kim**, J. Ryu and W. Woo, "Enhancing Robustness and Immersiveness in AR-based Product Design," *Lecture Notes in Computer Science (ICAT 2006)*, vol. 4282, pp. 207-216, Hangzhou, China, 2006.

[3] **Y. Kim**, I. Oakley, J. Ryu, "Combining Point Force Haptic and Pneumatic Tactile Displays," *EuroHaptics*, pp.309-316, Paris, France, 2006.

[2] I. Oakley, **Y. Kim**, J. Lee, J. Ryu, "Determing the Feasibility of Forearm Mounted Vibrotactile Displays," *Symposium on Haptic Interfaces for Virtual Environments and Teleoperator Systems*, pp.27-34, Washington, USA, 2006.

[1] **Y. Kim**, J. Ryu, "Information Display by Wearable Pneumatic Tactile Display," *HCI International*, pp.459-467, Las Vegas, USA, 2005.

PEER-REVIEWED DOMESTIC (KOREAN) JOURNAL

[6] J. Ryu, **Y. Kim**, and J. Kim, "State of the art of Standard for Haptic Interfaces and Applications," *TTA Journal,* Vol.133, pp. 75-80, 2010.(Korean)

[5] **Y. Kim**, J. Cha, Y. Seo, G. Lee, and J. Ryu, "A Haptic Interaction System for Virtual Portable Electronics," *Journal of Korean Multimedia Society,* Vol.13, No.3, pp. 63-73, 2009.(Korean)

[4] S. Hwang, **Y. Kim**, Y. Seo, K. Ko, J. Ryu, G. Lee, and Y. Lee, "Immersive Virtual Custom-made Model House," *Journal of CAD/CAM Korean,* Vol.13, No.1, pp.8-17, 2008.(English)

[3] J. Cha, **Y. Kim**, Y. Seo, and J. Ryu, " Haptic Media Broadcasting, " *Journal of the Korean Society of Broadcast Engineers,* Vol.11, No.4, pp.118-131, 2007.(Korean)

[2] T. Ha, **Y. Kim**, J. Ryu, and W. Woo, "Methodologies for Engineering Immersiveness in AR-based Product Design," *Journal of Institute of Electronics Engineering of Korea,* Vol.44, No.2, pp.37-46, 2007.(Korean)

[1] **Y. Kim**, I. Oakley, and J. Ryu, "Design and Experiments of Pneumatic Tactile Display for Haptic Interaction," *Journal of HCI Korea, ,* Vol.1, No.2, pp.19-26, 2006.(Korean)

HANDS on DEMOS

[3] T. Hausberger, M. Terzer, F. Enneking, Z. Jonas and **Y. Kim**, "Shape and texture rendering of an image on a touchscreen", IEEE WorldHaptics 2017.

[2] **Y. Kim**, J. Cha, and J. Ryu, "Immersive Haptic Movie system", EuroHaptics, Madrid, Spain, 2008.

[1] **Y. Kim**, J. Cha, and J. Ryu, "Haptically Enhanced Movie System using MPEG-4 BIFS", 2nd International Workshop on Haptic and Audio Interaction Design, Seoul, Korea, 2007.

PATENTS

[29] Detecting and Evaluating Movements of a User, .: **PCT/EP** 2016/069870, 2017

[28] White Cane with Integrated Electronic Travel Aid Using 3D TOF Sensor, **US** 20130220392, 2013

[27] Representing Interactive Tactile Feedback Based on User's Motion, **EP** 12007948.8, 2012.

[26] White Cane with Integrated Electronic Travel Aid Using 3D TOF Sensor, **PCT**, WO 2012/040703, 2012.

[25] Device and Virtual Reality Setup for Hand and Wrist Rehabilitation Based on Tendon Vibration, **EP** 12001925.2, 2012.

[24] Method and Apparatus for Authoring Tactile Information, and Computer Readable Medium Including the Method, 10-0860547-00-00, **Korea**, 2008.

[23] Node Structure for Representing Tactile Information and Method and System for Transmitting Tactile Information Using the Same, 10-0835297-00-00, **Korea**, 2008.

[22] Representing Interactive Tactile Feedback Based on User's Motion, **EP** 12007948.8, 2012.

[21] White Cane with Integrated Electronic Travel Aid Using 3D TOF Sensor, **PCT**, WO 2012/040703, 2012.

[20] Device and Virtual Reality Setup for Hand and Wrist Rehabilitation Based on Tendon Vibration, **EP** 12001925.2, 2012.

[19] White Cane with Integrated Electronic Travel Aid Using 3D TOF Sensor, 0154.0029US1, **USA**, 2011.

[18] Method for Expressing Haptic Information and Haptic Information Transmission System Using Data Format Definition, **PCT**/KR2010/008910, 2011

[17] Method for Expressing Haptic Information and Haptic Information Transmission System Using Sensory Information Classification, **PCT**/KR2010/008906, 2011

[16] Method for Expressing Haptic Information Using Control Information and System for Transmitting Haptic Information, **PCT**/KR2010/008615, 2011.

[15] The Method and Apparatus for Authoring Tactile Information, and Computer Readable Medium Including the Method, 08723237.7, **EP**, 2009.

[14] Node Structure for Representing Tactile Information and Method and System for Transmitting Tactile Information Using the Same, 08723258.3, **EP**, 2009.

[13] The Simulation System for Training and the Method Thereof, 10-2009-0120321, **Korea**, 2009.

[12] Basic Architecture for Implementing a Haptic Video, 10-2009-0124189, **Korea**, 2009.

[11] Additional Nodes for MPEG-4 BIFS to support Haptic Interaction, 10-2009-0105540, **Korea**, 2009.

[10] Control Information for Implementing a Haptic Video, 10-2009-0123532, **Korea**, 2009.

[9] Sensory Information for Implementing a Haptic Video, 10-2009-0123534, **Korea**, 2009.

[8] Avatar Characteristics for Interaction Device for Implementing a Haptic Video, 10-2009-0123535, **Korea**, 2009.

[7] Data Formats for Interaction Device for Implementing a Haptic Video, 10-2009-0123529, **Korea**, 2009.

[6] Haptic System, A Haptic Rendering Method Thereof, and A Recoding Medium Implementing the Same, Capable of Training Penmanship, 10-2009-0058218, **Korea**, 2009.

[5] Actual Feeling Book System for Multimodal Immersive Interaction Offering Sensation Contents and a Method Thereof, 10-2009-0002938, **Korea**, 2009.

[4] The Method and Apparatus for Authoring Tactile Information, and Computer Readable Medium Including the Method, 12/303367, **USA**, 2008.

[3] Node Structure for Representing Tactile Information and Method and System for Transmitting Tactile Information Using the Same, 12/303368, **USA**, 2008.

[2] The Method and Apparatus for Authoring Tactile Information, and Computer Readable Medium Including the Method, **PCT**/KR2008/001199, 2008.

[1] Node Structure for Representing Tactile Information and Method and System for Transmitting Tactile Information Using the Same, **PCT**/KR2008/001220, 2008.

STANDARD

MPEG standardization (http://www.itscj.ipsj.or.jp/sc29/29w42911.htm#MPEG-V)

[7] **ISO/IEC 23005-1**, MPEG-V (Media Context and Control), Part 1:Architecture, ISO/IEC 23005-1:2011

[6] **ISO/IEC 23005-2**, MPEG-V (Media Context and Control), Part 2:Control Information, ISO/IEC 23005-2:2011

[5] **ISO/IEC 23005-3**, MPEG-V (Media Context and Control), Part 3:Sensory Information, ISO/IEC 23005-3:2011

[4] **ISO/IEC 23005-4**, MPEG-V (Media Context and Control), Part 4:Virtual World Object Characteristics, ISO/IEC 23005-4:2011

[3] **ISO/IEC 23005-5**, MPEG-V (Media Context and Control), Part 5:Data Formats for Interaction Device, ISO/IEC 23005-5:2011

[2] **ISO/IEC 23005-6**, MPEG-V (Media Context and Control), Part 6:Common Types and Tools, ISO/IEC 23005-6:2011

[1] **ISO/IEC 23005-7**, MPEG-V (Media Context and Control), Part 7:Conformance and Reference Software, **Co-Editor**, ISO/IEC 23005-7:2011

TTA (Telecommunications Technology Association) of Korea

[4] Haptic Book Reference Model and Use Cases, **TTAK. OT-10.0268**, 2009.
[3] Haptic Interaction Metadata (Amendment), **TTAS. KO-10.0274,** 2008.
[2] A System Reference Model for Haptic Broadcasting, **TTAK. OT-10.0221,** 2008.
[1] Haptic Authoring Guideline for Haptically Enhanced Movie, **TTAK. OT-10.0222**, 2008.

SOFTWARE REGISTRATION

[3] **Y. Kim**, J. Cha, Y. Seo, and J. Ryu, Haptic Movie Authoring Tool, registered no. 2009-01-133-005865, 2009.

[2] J. Cha, J. Kim, B. Lee, **Y. Kim**, Y. Seo, and J. Ryu, Haptic User Interface Editor, registered no. 2005-01-169-006515, 2005.

[1] J. Cha, J. Kim, B. Lee, **Y. Kim**, Y. Seo, and J. Ryu, Haptic Modeler Using Haptic User Interface, registered no. 2005-01-169-006516, 2005.

MEDIA COVERAGE & PUBLIC SRVICE

Mar 2018	INNOVATION Magazine
Jun 2017	News on TV, BR Fernsehe, haptik-forschung-fuerstenfeldbruck
Apr 2014	Lange Nacht der Forschung
Jan 2013	SRF (Schweizer Radi und Fernsehen), einstein http://www.srf.ch/sendungen/einstein/uebersicht
Sep 2012	Scientifica 2012: Public Exhibition http://www.scientifica.ch/ausstellung/gesund-werden/ein-sehender-blindenstock/ http://www.scientifica.ch/archiv/gesund-werden-gesund-bleiben/gesund-werden-2/ein-sehender-blindenstock-2/
Sep 2012	TeleZueri: News on TV
Aug 2012	Wissen: Sehenden Stock: Newspaper
Feb 2010	Donga Science: Magazine
Feb 2009	etnews: Internet newspaper http://www.etnews.com/news/nationland/2192462_1495.html
Jun 2008	Information Technology Research Center forum : Public Exhibition
Feb 2008	SBS UCC Science Exploration – Five sense TV: TV program in Korea
Jun 2007	Information Technology Research Center forum: Public Exhibition
Jun 2006	Information Technology Research Center forum: Public Exhibition

Major Scientific Achievements

Principal research background of Yeongmi Kim mainly focuses on Assistive Technology, and Rehabilitation Engineering and Human-Machine-Computer-Interaction. Her research has been published in several international and national journal and conference papers, and has led to several patents.

1) Rehabilitation Engineering:

One part of research has targeted assessment and training systems for the rehabilitation of sensory-motor function in stroke patients. Various hardware solutions for sensory-motor assessment or training of arm and hand function have been created and application software in virtual reality to motivate patients as well as to evaluate their activity by the developed hardware have been developed. This resulted in several publications, a patent and but also a startup (i.e. yband). Recently, we developed a robot-assisted stroke rehabilitation system in VR supporting reaching and grasping exercises via a hand exoskeleton and 2D planar device. With this system we are currently evaluating different assistance rehabilitation modes (i.e. passive, active, and adaptive) with

clinical partners (i.e. Hospital Hochzirl, Prof. Saltuari und Dr. Mayr).

2) Assistive Technology:

Another thread of my current research targeted assistive technology. In collaboration with the organization for people with visual impairments, industrial designers, and the industrial partner for sensing technology, we led the development of novel interfaces for the safe and independent navigation of visually impaired people. By integrating haptic feedback and remote sensing, we were able to create a new generation of electronic travel aids. By analyzing the characteristics of white cane usage, guidelines for designing sensing and displaying elements of electronic travel aids were presented. Further, the optimal coding method to reduce the training time and yield high information recognition rate was investigated through human perception studies. In the recent research, not only passive haptic feedback but also active haptic interaction was explored to present 2D digital image information to a person with a visually impairments. We explored and investigated a method to improve haptic perception of 2D image through the developed device when visual feedback is not provided.

3) Human-Machine-Computer-Interaction: Since the MSc and PhD studies, Yeongmi Kim has worked on various interdisciplinary research projects related to immersive human-machine-computer interaction systems in virtual/augmented reality, often focusing on visuo-haptic interaction. This included for instance building and controlling of various novel input/output interfaces or the development of authoring software tools for generating synchronized multimodal media content. In order to investigate the most optimal interface and feedback system, a battery of perception studies and evaluations were conducted.