Seongkook Heo

Assistant Professor, University of Virginia

https://seongkookheo.com
seongkook@virginia.edu

I design and build methods that seamlessly bridge the physical and digital worlds, enabling people to utilize technology and communicate with others in expressive and fluid ways. My work spans novel sensing and feedback techniques, and interactive systems grounded in a deep understanding of human cognition, behavior, and dynamics.

Appointments

Aug 2019 – present	**University of Virginia**, Charlottesville, Virginia, USA Assistant Professor, Department of Computer Science
May 2017 – Aug 2019	**University of Toronto**, Toronto, Ontario, Canada Postdoctoral Researcher, Department of Computer Science Advisor: Dr. Daniel Wigdor

Education

Feb 2017	**Korea Advanced Institute of Science and Technology (KAIST)** Daejeon, South Korea Ph. D. Computer Science, Advisor: Geehyuk Lee
Jun 2009	**Korea Advanced Institute of Science and Technology (KAIST)** Daejeon, South Korea M.S. Digital Media, Advisor: Minsoo Hahn
Feb 2007	**Sungkyunkwan University,** Suwon, South Korea B.S. Electric and Electronic Engineering, B.S. Computer Engineering (Double Major)

Professional Experience

Jan 2016 – Apr 2016	**Autodesk Research,** Toronto, Ontario, Canada Research Intern supervised by Dr. Tovi Grossman
May 2015 – Aug 2015	**Microsoft Research**, Redmond, Washington, USA Research Intern supervised by Dr. Ken Hinckley

Selected Honors and Awards

2025	ACM UIST 2025 Best Poster Award
2025	ACM CHI 2025 Honorable Mention Award
2024	ACM VRST 2024 Honorable Mention Award
2024	ACM ISS 2024 Honorable Mention Award
2023	ACM CHI 2023 Best Paper Award
2023	ACM MobileHCI 2023 Best Paper Award
2023	IEEE VR 2023 Best Poster Award
2021	Meta Research Award
2019	UVA Alfred Weaver Career Enhancement Assistant Professorship
2016	Naver Ph.D. Fellowship

Archival Peer-reviewed Publications

Citation summary: h-index: 22, citation count: 2208, from Google Scholar on Jan 15, 2026.
(index starting with **C:** conference paper, **J:** Journal paper)
In Human-Computer Interaction, CHI, UIST, IMWUT, CSCW are considered top venues.
Student authors advised by me are underlined.

C. 36 2026 Adil Rahman, Wen Ying, Md Aashikur Rahman Azim, Michelle Annett, **Seongkook Heo**
"It Feels Like I am Invited to Communicate": Mediating Ad-Hoc Bystander-VR User Interruptions Through Proactive Proxies.
ACM Conference on Human Factors in Computing Systems ***(CHI '26,** Cond. Accepted**)***

C. 35 2026 Wen Ying, Yeonsu Kim, Adil Rahman, Erzhen Hu, Geehyuk Lee, **Seongkook Heo**
Redirected Pinch: Efficient and Comfortable Bare-Hand Interaction for 2D Windows in VR
ACM Conference on Human Factors in Computing Systems ***(CHI '26,** Cond. Accepted**)***

J. 14 2025 Zackary T. Landsman, Matthew Clark, **Seongkook Heo**, Afsaneh Doryab, Gregory J. Gerling
Evaluating the Physics and Repeatability of Human Brushers in Delivering Affective Touch.
IEEE Transactions on Haptics (Preprint)

C. 34 2025 Erzhen Hu, Mingyi Li, Andrew Hong, Xun Qian, Alex Olwal, David Kim, **Seongkook Heo**, Ruofei Du
Thing2Reality: Enabling Spontaneous Creation of 3D Objects from 2D Content using Generative AI in XR Meetings.
ACM Symposium on User Interface Software and Technology ***(UIST '25)***
(Acceptance Rate: 22.2%)

C. 33 2025 Erzhen Hu, Yanhe Chen, Mingyi Li, Vrushank Phadnis, Pingmei Xu, Xun Qian, Alex Olwal, David Kim, **Seongkook Heo**, Ruofei Du
DialogLab: Authoring, Simulating, and Testing Dynamic Human-AI Group Conversations.
ACM Symposium on User Interface Software and Technology ***(UIST '25)***
(Acceptance Rate: 22.2%)

J. 13 2025 Erzhen Hu, Qian Wan, Changkong Zhou, Md Aashikur Rahman Azim, PiaoHong Wang, Xingyi Hu, Yuhan Zeng, Zhicong Lu, **Seongkook Heo**
ThingMoji: User-Captured Cut-Outs For In-Stream Visual Communication.
Proceedings of the ACM on Human-Computer Interaction (PACMHCI), ***CSCW '25***
(IF: 3.5)

C.32 2025 🏅 Md Aashikur Rahman Azim, Zihao Su, **Seongkook Heo**
Your Hands Can Tell: Detecting Redirected Hand Movements in Virtual Reality.
ACM Conference on Human Factors in Computing Systems ***(CHI '25)***
(Honorable Mention Award, Acceptance Rate: 24.9%)

C.31 2025 Buyoung Mun, Junsu Lee, Jiseong Kim, **Seongkook Heo**, Jaeyeon Lee
Diversifying grain-based compliance illusion by varying base compliance.
ACM Conference on Human Factors in Computing Systems ***(CHI '25)***
(Acceptance Rate: 24.9%)

C.30 2024 🏅 Peiyu Zhang, Wen Ying, Sara Riggs, **Seongkook Heo**
MoiréTag: A Low-cost Tag for High-precision Tangible Interactions Without Active Components
ACM Interactive Surfaces and Spaces Conference ***(ISS '24)***
(Honorable Mention Award, Acceptance Rate: 24.2%)

C.29 2024 🏅 Wen Ying, **Seongkook Heo**
Enhancing VR Sketching with a Dynamic Shape Display.
ACM Symposium on Virtual Reality Software and Technology ***(VRST '24)***
(Honorable Mention Award, Acceptance Rate: 21.6%)

J. 12 2024 Wenqiang Chen, Shupei Lin, Zhencan Peng, Farshid Salemi Parizi, **Seongkook Heo**, Shwetak Patel, Wojciech Matusik, and John Stankovic
ViObject: Harness Passive Vibrations for Daily Object Recognition with Commodity Smartwatches.
*Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies **(IMWUT)**, Volume 8, Issue 1, Article No.: 5 (March 2024), Pages 1-26. (IF: 3.6)*

J.11 2023 🏆 Adil Rahman, **Seongkook Heo.**
Frappé: An Ultra Lightweight Mobile UI Framework for Rapid API-based Prototyping and Environmental Deployment.
*Proceedings of the ACM on Human-Computer Interaction (PACMHCI), Volume 7, Article 211 (Sep 2023), 23 pages, **MobileHCI '23.** (Best Paper Award, IF: 3.5, 2023)*

J.10 2023 Md Aashikur Rahman Azim, Adil Rahman, **Seongkook Heo**.
UnifiedSense: Enabling Without-Device Gesture Interactions Using Over-the-shoulder Training Between Redundant Wearable Sensors.
*Proceedings of the ACM on Human-Computer Interaction (PACMHCI), Volume 7, Article 230 (Sep 2023), 25 pages, **MobileHCI '23.** (IF: 3.5)*

J.9 2023 Md Aashikur Rahman Azim, Adil Rahman, **Seongkook Heo**.
SequenceSense: A Tool for Designing Usable Foot-Based Gestures Using a Sequence-Based Gesture Recognizer.
*International Journal of Human-Computer Studies **(IJHCS)**, Volume 176, Issue C (Aug 2023) (IF: 5.3, SCIE)*

C.28 2023 Carl Hildebrandt, Wen Ying, **Seongkook Heo**, Sebastian Elbaum.
Mimicking real forces on a drone through a haptic suit to enable cost-effective validation.
*IEEE International Conference on Robotics and Automation **(ICRA 2023)** (Acceptance Rate: 43%)*

C.27 2023 🏆 Adil Rahman, Md. Aashikur Rahman Azim, **Seongkook Heo**.
Take my hand: Automated hand-based spatial guidance for the visually impaired.
*ACM Conference on Human Factors in Computing Systems **(CHI '23)** (Best Paper Award, Acceptance Rate: 27.6%).*

C.26 2023 Erzhen Hu, Jens Emil Grønbaek, Wen Ying, Ruofei Du, **Seongkook Heo**.
Thingshare: Ad-hoc digital copies of physical objects for sharing things in video meetings.
*ACM Conference on Human Factors in Computing Systems **(CHI '23)** (Acceptance Rate: 27.6%)*

C.25 2023 Erzhen Hu, Jens Emil Grønbaek, Austin Houck, **Seongkook Heo**.
Openmic: Utilizing proxemic metaphors for conversational floor transitions in multiparty video meetings.
*ACM Conference on Human Factors in Computing Systems **(CHI '23)** (Acceptance Rate: 27.6%)*

J.8 2023 Sanghwa Hong, **Seongkook Heo**, Byungjoo Lee.
MaterialSense: Estimating and utilizing material properties of contact objects in multi-touch interaction.
*International Journal of Human-Computer Studies **(IJHCS)**, Volume 172, Issue C (Apr 2023) (IF: 5.3, SCIE)*

C.24 2022 Erfan Pakdamanian, Erzhen Hu, Shili Sheng, Sarit Kraus, **Seongkook Heo**, Lu Feng.
Enjoy the ride consciously with CAWA: Context-aware advisory warnings for automated driving.
*International ACM Conference on Automotive User Interfaces and Interactive Vehicular Applications **(AutoUI '22)** (Acceptance Rate: 38%)*

C. 23 2022 Erzhen Hu, Md. Aashikur Rahman Azim, **Seongkook Heo**.
Fluidmeet: Enabling frictionless transitions between in-group, between-group, and private conversations.
*ACM Conference on Human Factors in Computing Systems **(CHI '22)***
(Acceptance Rate: 24.7%)

C. 22 2021 Erfan Pakdamanian, Shili Sheng, Sonia Baee, **Seongkook Heo**, Sarit Kraus, Lu Feng.
DeepTake: Prediction of Driver Takeover Behavior using Multimodal Data.
*ACM Conference on Human Factors in Computing Systems **(CHI '21)***
(Acceptance Rate: 26.3%)

J. 7 2020 Hyunju Kim, Sanghwa Hong, Junki Kim, Taesoo Jang, Woontaek Woo, **Seongkook Heo**, Byungjoo Lee.
RealityBrush: an AR authoring system that captures and utilizes kinetic properties of everyday objects.
***Multimedia Tools and Applications**, Volume 80, Issue 20, Pages 31135-31158 (Aug 2020)*
(IF: 3.0)

C. 21 2020 Keunwoo Park, Daehwa Kim, **Seongkook Heo**, Geehyuk Lee.
MagTouch: Robust Finger Identification for a Smartwatch Using a Magnet Ring and a Built-in Magnetometer.
*ACM Conference on Human Factors in Computing Systems **(CHI '20)***
(Acceptance Rate: 24.3%)

C.20 2019 **Seongkook Heo**, Jaeyeon Lee, Daniel Wigdor.
PseudoBend: Producing Haptic Illusions of Stretching, Bending, and Twisting Using Grain Vibrations.
*ACM Symposium on User Interface Software and Technology **(UIST '19)***
(Acceptance Rate: 24.4%)

C.19 2019 Devamardeep Hayatpur, **Seongkook Heo**, Haijun Xia, Wolfgang Stuerzlinger, Daniel Wigdor.
Plane, Ray, and Point: Enabling Precise Spatial Manipulations with Shape Constraints.
*ACM Symposium on User Interface Software and Technology **(UIST '19)***
(Acceptance Rate: 24.4%)

C.18 2018 Sanghwa Hong, Eunseok Jeong, **Seongkook Heo**, Byungjoo Lee.
FDSense: Estimating Young's Modulus and Stiffness of End Effectors to Facilitate Kinetic Interaction on Touch Surfaces.
*ACM Symposium on User Interface Software and Technology **(UIST '18)***
(Acceptance Rate: 21.3%)

J.6 2018 Zhicong Lu, **Seongkook Heo**, Daniel Wigdor.
StreamWiki: Enabling Viewers of Knowledge Sharing Live Streams to Collaboratively Generate Archival Documentation for Effective In-Stream and Post-Hoc Learning.
*Proceedings of the ACM on Human-Computer Interaction (PACMHCI), Volume: 2, Article No.: 112 (Nov 2018), Pages 1-26, **CSCW '18** (IF: 3.5)*

C.17 2018 **Seongkook Heo**, Christina Chung, Geehyuk Lee, Daniel Wigdor.
Thor's Hammer: An Ungrounded Force Feedback Device Utilizing Propeller-Induced Propulsive Force.
*ACM Conference on Human Factors in Computing Systems **(CHI '18)***
(Acceptance Rate: 25.7%)

C.16 2018 Zhicong Lu, Haijun Xia, **Seongkook Heo**, Daniel Wigdor.
You Watch, You Give, and You Engage: A Study of Live Streaming Practices in China.
*ACM Conference on Human Factors in Computing Systems **(CHI '18)***
(Acceptance Rate: 25.7%)

C.15 2017 Sunggeun Ahn, **Seongkook Heo**, Geehyuk Lee.
Typing on a Smartwatch for Smart Glasses.
*ACM Interactive Surfaces and Spaces Conference **(ISS '17)***
(Acceptance Rate: 26.9%)

C.14 2017 **Seongkook Heo**, Michelle Annett, Ben Lafreniere, Tovi Grossman, George Fitzmaurice.
No Need to Stop What You're Doing: Exploring No-Handed Smartwatch Interaction.
*Graphics Interface **(GI '17)** (Acceptance Rate: 50%)*

J.5 2017 **Seongkook Heo** and Geehyuk Lee.
Vibrotactile Compliance Feedback for Tangential Force Interaction.
***IEEE Transactions on Haptics,** Vol. 10, Issue 3. (IF: 2.4, SCIE)*

C.13 2016 **Seongkook Heo**, Jingun Jung, and Geehyuk Lee.
MelodicTap: Fingering Hotkey for Touch Tablets.
*Australian Conference on Human-Computer Interaction **(OZCHI '16)** (Acceptance Rate: 45%)*

C.12 2016 Ken Hinckley, **Seongkook Heo**, Christian Holz, Hrvoje Benko, Abigail Sellen, Richard Banks, Kenton O'Hara, Gavin Smyth, and William Buxton.
Pre-Touch Sensing for Mobile Interaction.
*ACM Conference on Human Factors in Computing Systems **(CHI '16)***
(Acceptance Rate: 23.2%)

J.4 2016 Jonggi Hong, **Seongkook Heo**, Poika Isokoski, and Geehyuk Lee.
Comparison of Three QWERTY Keyboards for a Smartwatch.
***Interacting with Computers**, Vol. 28, Issue 6. Pages 811-825 (Nov 2016) (IF: 1.0, SCIE)*

C.11 2016 🏆 Chang-Min Kim, **Seongkook Heo**, Kyeong Ah Jeong, and Youn-Kyung Lim.
Formula One: Mobile Device Supported Rapid In-the-Wild Design and Evaluation of Interactive Prototypes.
*Human Computer Interaction Korea (**HCI Korea '16**)*
(Best Paper award, Acceptance Rate: 67%).

C.10 2015 Jonggi Hong, **Seongkook Heo**, Poika Isokoski, and Geehyuk Lee.
SplitBoard: A Simple Split Soft Keyboard for Wristwatch-sized Touch Screens.
*ACM Conference on Human Factors in Computing Systems **(CHI '15)***
(Acceptance Rate: 24.9%)

C.9 2014 **Seongkook Heo**, Jiseong Gu, and Geehyuk Lee.
Expanding Touch Input Vocabulary by Using Consecutive Distant Taps.
*ACM Conference on Human Factors in Computing Systems **(CHI '14)***
(Acceptance Rate: 22.7%)

J.3 2014 Jaehyun Han, **Seongkook Heo**, Hyong-Euk Lee, and Geehyuk Lee.
IrPen: A 6-DOF Pen System to Support Over-the-surface Interactions with Tablet Computers.
***IEEE Computer Graphics and Applications,** Vol. 34, Issue 3. Pages 22-29. (IF: 1.7, SCIE)*

C.8 2013 **Seongkook Heo**, Jaehyun Han, and Geehyuk Lee.
Designing Rich Touch Interaction through Proximity and 2.5D Force Sensing Touchpad,
*Australian Conference on Human-Computer Interaction **(OZCHI '13)** (Acceptance Rate: 49%)*

C.7 2013 **Seongkook Heo** and Geehyuk Lee.
Indirect Shear Force Estimation for Multi-Point Shear Force Operations.
*ACM Conference on Human Factors in Computing Systems **(CHI '13)***
(Acceptance Rate: 20.0%)

C.6 2013 Jiseong Gu, **Seongkook Heo**, Jaehyun Han, Sunjun Kim, and Geehyuk Lee.
LongPad: A TouchPad Using the Whole Area below the Keyboard on a Laptop.
ACM Conference on Human Factors in Computing Systems ***(CHI '13)***
(Acceptance Rate: 20.0%)

C.5 2013 Jinhyuk Choi, **Seongkook Heo**, Jaehyun Han, Geehyuk Lee, and Junehwa Song.
Mining Social Relationship Types in an Organization by using Communication Patterns
*ACM Conference on Computer supported cooperative work (****CSCW '13)***
(Acceptance Rate: 35.6%)

J.2 2012 Jaehyun Han, Sangwon Choi, **Seongkook Heo**, and Geehyuk Lee.
Optical touch sensing based on internal scattering in a touch surface.
Electronics Letters*, Vol. 48, Issue 22. (IF: 0.7, SCIE)*

C.4 2012 **Seongkook Heo** and Geehyuk Lee.
ForceDrag: Using Pressure as a Touch Input Modifier,
Australian Conference on Human-Computer Interaction ***(OZCHI '12)***

C.3 2011 **Seongkook Heo**, Jaehyun Han, Sangwon Choi, Seunghwan Lee, Geehyuk Lee, Hyong-Euk Lee, SangHyun Kim, Won-Chul Bang, DoKyoon Kim, and ChangYeong Kim.
IrCube tracker: an optical 6-DOF tracker based on LED directivity.
ACM Symposium on User Interface Software and Technology ***(UIST '11)***
(Acceptance Rate: 26%)

C.2 2011 **Seongkook Heo** and Geehyuk Lee.
Force gestures: augmenting touch screen gestures with normal and tangential forces.
ACM Symposium on User Interface Software and Technology ***(UIST '11)***
(Acceptance Rate: 26%)

C.1 2011 **Seongkook Heo** and Geehyuk Lee.
Forcetap: extending the input vocabulary of mobile touch screens by adding tap gestures.
International Conference on Human-Computer Interaction with Mobile Devices and Services ***(MobileHCI '11)*** *(Acceptance Rate: 22.8%)*

J.1 2011 Jaehyun Han, **Seongkook Heo**, G Lee, Won-Chul Bang, DoKyoon Kim, ChangYeong Kim.
6-DOF tracker using LED directivity.
Electronics Letters*, Vol. 47, Issue 3. Pages 177-178. (IF: 0.7, SCIE)*

Book Chapters

B. 1 2013 **Seongkook Heo**, Jaehyun Han, and Geehyuk Lee
Designing for hover-and force-enriched touch interaction.
Australian Computer-Human Interaction Conference, Springer, Cham, 2013

Arxiv Preprints

A.2 2025 Shenghui Chen, Yunhao Yang, Kayla Boggess, **Seongkook Heo**, Lu Feng, Ufuk Topcu
Evaluating Human Trust in LLM-Based Planners: A Preliminary Study
arXiv preprint arXiv:2502.20284

A.1 2024 Erzhen Hu, Mingyi Li, Jungtaek Hong, Xun Qian, Alex Olwal, David Kim, **Seongkook Heo**, Ruofei Du
Thing2Reality: Transforming 2D Content into Conditioned Multiviews and 3D Gaussian Objects for XR Communication
arXiv preprint arXiv:2410.07119

Workshop papers, Posters, and Demonstrations

p.15 2025 Hyeongjin Kim, Erzhen Hu, **Seongkook Heo**
SpaceShare: Leveraging Multimodal Context for Fluid Sharing of Spaces in Video Meetings
UIST '25 Poster

p.14 2025 🏆 Adil Rahman, Rifat Rahman Khan, Jonggi Hong, Stephanie Valencia, **Seongkook Heo**
CustomSight: Enhancing LLM-Powered Visual Assistance for Blind Individuals using Goal-Directed Dynamic Filters
UIST '25 Poster (Best Poster Award)

p.13 2025 Ajwa Shahid, Jane Chung, **Seongkook Heo**
Exploring Older Adults Personality Preferences for LLM-powered Conversational Companions.
CHI '25 Late-Breaking Work

d.5 2024 Erzhen Hu, Mingyi Li, Xun Qian, Alex Olwal, David Kim, **Seongkook Heo**, Ruofei Du
Experiencing Thing2Reality: Transforming 2D Content into Conditioned Multiviews and 3D Gaussian Objects for XR Communication.
UIST '24 Demo

d.4 2024 Wen Ying, Adil Rahman, **Seongkook Heo**
Demonstrating VRScroll: A Shape-Changing Device for Precise Sketching in Virtual Reality.
CHI '24 Demo

p.12 2023 🏆 Wen Ying, **Seongkook Heo.**
VRScroll: A Shape-Changing Device for Precise Sketching in Virtual Reality,
IEEE VR '23 Poster (Best Poster Award)

p.11 2022 Peiyu Zhang, Wen Ying, **Seongkook Heo**.
Fringer: A Finger-Worn Passive Device Enabling Computer Vision Based Force Sensing Using Moiré Fringes.
UIST '22 Poster

p.10 2022 Md Aashikur Rahman Azim, Adil Rahman, **Seongkook Heo**.
Over-The-Shoulder Training Between Redundant Wearable Sensors for Unified Gesture Interactions.
UIST '22 Poster.

p.9 2022 Archana Narayanan, Erzhen Hu, **Seongkook Heo**.
Enabling Remote Hand Guidance in Video Calls using Directional Force Illusion.
CSCW '22 Poster.

w.1 2022 Zihao Su, Faysal Shezan, Yuan Tian, David Evans, **Seongkook Heo**.
Perception Hacking for 2D Cursorjacking in Virtual Reality.
CHI'22 Workshop on Novel Challenges of Safety, Security and Privacy in Extended Reality Workshop Paper.

p.8. 2020 Anastasia Lalamentik, **Seongkook Heo**.
Tactile glance: Encoding notifications using illusive movement constraints for eyes- and ears-free interaction.
IEEE Haptics Symposium 2020 Works-in-progress

d.3 2018 **Seongkook Heo**, Christina Chung, Geehyuk Lee, Daniel Wigdor.
Thor's hammer: An ungrounded force feedback device utilizing propeller-induced propulsive force.
CHI '18 Demo

d.2 **Seongkook Heo**, Geehyuk Lee.
2017 Creating haptic illusion of compliance for tangential force input using vibrotactile actuator.
UIST '17 Demo

p.7 Jaehyun Han, **Seongkook Heo**, Jiseong Gu, Geehyuk Lee.
2014 Trampoline: A double-sided elastic touch device for repoussé and chasing techniques.
CHI '14 Works-in-progress

p.6 **Seongkook Heo,** Geehyuk Lee
2013 Ta-tap: Consecutive distant tap operations for one-handed touch screen use.
UIST '13 Poster

p.5 **Seongkook Heo**, Yong-Ki Lee, Jiho Yeom, Geehyuk Lee.
2012 Design of a shape dependent snapping algorithm.
CHI '12 Works-in-progress

d.1 Sangwon Choi, Jaehyun Han, Sunjun Kim, **Seongkook Heo**, Geehyuk Lee
2011 Thickpad: A hover-tracking touchpad for a laptop.
UIST '11 Demo

p.4 **Seongkook Heo**, Geehyuk Lee.
2011 Force gestures: Augmented touch screen gestures using normal and tangential force.
CHI '11 Works-in-progress

p.3 **Seongkook Heo**, Dongwook Lee, Minsoo Hahn
2008 Floatingpad: A touchpad based 3d input device.
ICAT '08 Poster

p.2 Seungwoo Lee, **Seongkook Heo**, Youmin Kim, Youngjae Kim, Soojin Lee, Minsoo Hahn
2008 An Interactive Knocking Floor.
Ubicomp '08 Poster

p.1 Seungsoon Park, Seungwoo Lee, **Seongkook Heo**, Kyoung Shin Park, Minsoo Hahn
2007 Escape!: an indoor location-based horror game that uses indirect ambient cues
UCS '07 Poster

Patents

P.25 No-handed smartwatch interaction techniques, US Patent #US11262850B2, 3/1/2020

P.24 Pre-touch sensing for mobile interaction, US Patent, #US10732759B2, 8/4/2020

P.23 Method and apparatus of playing haptic feedback for shear movement, KR Patent #10-1565679, 10/28/2015

P.22 Touch screen controlling method in mobile device, and mobile device thereof, KR Patent #1496017, 2/16/2015

P.21 Method and apparatus for one-handed application of multi-touch gesture using continuous touch, KR Patent Pending, Application #2013-0083986, 7/17/2013

P.20 Optical touchpad apparatus with proximity and force sensing capabilities and method of sensing touch in apparatus, KR Patent #1449833, 10/2/2014

P.19 User interface method and apparatus using successive touches, US Patent #US9612736B2, 4/4/2017

P.18 Electronic device, and method thereof, KR Patent #10-163909, 9/30/2016

P.17 Device and method of video playback control using force and contact position information, KR Patent #1393261, 4/30/2014

P.16 Device and method for identifying multi-touch points using internal scattering, PCT/KR2012/006624, 8/21/2012

P.15 Method and system for body tracking for spatial gesture recognition, PCT/KR2012/006372, 8/10/2012

P.14 Apparatus and method for multi-touch sensing using total internal reflection, KR Patent #1356835, 1/22/2014

P.13 Method and system for body tracking for spatial gesture recognition, KR Patent #1256046, 4/12/2013

P.12 System and method for estimating position and direction, KR Patent #KR101673885B1, 11/2/2011 EU Patent #EP2385390, 8/21/2013, China Patent #CN102279380, 10/21/2015

P.11 Method for controlling touch screen in portable device, and portable device of the same, KR Patent #1177650, 8/21/2012

P.10 Apparatus and method for sensing a moving object and a virtual golf simulation device using the same capable of accurately implementing the center point coordinate about an extracted object, KR Patent #1019801, 2/25/2011

P.9 Apparatus and method for sensing a moving object and a virtual golf simulation device using the same capable of obtaining a multiple exposure image about a moving object, KR Patent #1019823, 2/25/2011

P.8 Apparatus and method for sensing a moving object and a virtual golf simulation device using the same capable of accurately extracting an image of an object, KR Patent #1019798, 2/25/2011

P.7 Apparatus and method for sensing a moving object and a virtual golf simulation device using the same capable of exactly extracting the center point coordinate of a moving object using a low speed camera, KR Patent #1019824, 2/25/2011

P.6 Apparatus and method for sensing a moving ball and a virtual golf simulation device using the same capable of obtaining the center point coordinate about an image of a ball, KR Patent #1019829, 2/25/2011

P.5 Sensing processing device for a moving object and a method thereof, and a virtual golf simulation device using the same capable of accurately extracting center point coordinate of an overlapped object, KR Patent #1019782, 2/25/2011

P.4 Apparatus and method for sensing a moving ball and a virtual golf simulation device using the same capable of obtaining an image of a moving ball, KR Patent #1019847, 2/25/2011

P.3 Device and method for sensing processing of a moving object, and a virtual golf simulation device using the same capable of achieving accuracy of sensing, KR Patent #1019902, 2/25/2011

P.2 Method for controlling touch screen on portable device using built-in accelerometer, and portable device of the same, KR Patent #1173400, 8/6/2011

P.1 Apparatus for sensing if a driver drives a car safely, KR Patent #1054062, 7/28/2011

Teaching

Spring 2025 Instructor, **CS3205: HCI in Software Development**, *University of Virginia*

Spring 2020 - 2024 Instructor, **CS4501/6501: Engineering Interactive Technologies**, *University of Virginia*

Fall 2019 - 2024 Instructor, **CS6501: Human-Computer Interaction**, *University of Virginia*

Fall 2018 Guest Lecturer, **CSC318: Design of Interactive Computational Media,** *University of Toronto*

Winter 2018 Guest Lecturer, **CSC2514: Human-Computer Interaction**,
University of Toronto

Spring 2012 Teaching Assistant**, CS420: Compiler Design**,
KAIST

Fall 2011 Teaching Assistant, **CS684: Human-Computer Interaction**,
KAIST

Spring 2010 -2011 Teaching Assistant, **CS472: Human-Computer Interaction**,
KAIST

Student Advising

Doctoral Students

2019 - 2024 **Md Aashikur Rahman Azim (Graduated in 2024)**
Placement: Meta as Research Scientist

2020 - **Adil Rahman (ABD)**

2020 - **Wen Ying (ABD)**

2021 - **Erzhen Hu (ABD)**

Master of Science

2024 - **Hyeongjin Kim**
Defended thesis in Summer 2025
Placement: Korea Army Academy at Yeong-Cheon as Lecturer

2024 - 2025 **Ajwa Shahid**
Defended thesis in Spring 2025
Placement: PhD program at Dartmouth College

2022 - 2023 **Spencer Keefer**
Received degree in Spring 2023
Placement: Altron, Inc as Software Engineer

2022 - 2023 **Joseph Spaeth**
Received degree in Spring 2023
Placement: United Network for Organ Sharing (UNOS) as Software Engineer

2020 - 2021 **Archana Narayanan**
Received degree in Summer 2021
Placement: Mathworks as Verification Engineer

2019 - 2021 **Anastasia Lalamentik**
Received degree in Spring 2021
Placement: Kaleido as Software Engineer

2019 - 2020 **Wen Ying**
Received degree in Summer 2020
Placement: PhD program at the University of Virginia

Master of Engineering (Research Advising via Independent Study)

2024 **Kasra Lekan**
Received degree in Spring 2024
Placement: Bain & Company as Associate Consultant

2023 **Anne Zhang**
Received degree in Spring 2024

2021 **Andrew Jackman**
Received degree in 2022
Placement: Research Engineer at Barron Associates

2021 **Jiajia Liang**
Received degree in 2021
Placement: Palantir as Software Engineer

2020 **Ruchir Shah**
Received degree in Fall 2021
Placement: Upwing Energy, Data Research Analyst

Undergraduate Students

2024 - **Zebenai Melaku**
2024 - **Linda Meng**
2024 - **Jungtaek Hong**
2023 **Kunsh Singh**
2023 **Jeremy Suh**
2023 **Arnav Wadehra**
2023 **Isaac Sim**
2023 **Jason He**
2023 **Johnny Azizi**
2022 **Austin Houck**
2022 **Zihao Su**
2022 **Peiyu Zhang**
2022 **Chase Dawon**
2022 **Omika Suryawanshi**
2020 **Conor Frymire**
2019 **Jami Park**
2019 **Charlotte Robertson**

Visiting Students Supervised

Jan - Feb 2025 **Yeonsu Kim**
PhD Student at KAIST for research collaboration

Invited Presentations

Oct 2025 Toward Human-Computer-World Interaction
Virginia Commonwealth University, Department of Physics

Dec 2024 Toward Human-Computer-World Interaction
Southern University of Science and Technology, School of Design

Dec 2024 Toward Human-Computer-World Interaction
Korea University, Department of Computer Science and Engineering

Jul 2024 Toward Human-Computer-World Interaction
University of California, Los Angeles, Department of Electrical and Computer Engineering

Apr 2024 Connecting Realities for Fluid Computer-Mediated Communication
UX Innovation Speaker Series, University of British Columbia

Apr 2024 Vision-based Passive Micro-movement Sensing System for Telehealth
Commonwealth Cyber Initiative, Central Virginia

Dec 2023 Connecting Realities for Fluid Computer-Mediated Communication
KAIST, School of Computing

Dec 2023 Connecting Realities for Fluid Computer-Mediated Communication
Kyunghee University, Department of Software Convergence

Dec 2023 Connecting Realities for Fluid Computer-Mediated Communication
University of Maryland, College Park, College of Information

Nov 2023 Connecting Realities for Fluid Computer-Mediated Communication
Google

May 2022 As we may chat: virtualizing proxemic cues for fluid transitions in virtual meetings
UNIST, Design Department

Dec 2021 Why I Chose Academia
KAIST, School of Computing

Nov 2021 Physicalizing Virtual and Augmented Reality
Virginia Tech, Department of Computer Science

Nov 2021 Physicalizing Virtual and Augmented Reality
George Mason University, Department of Information Sciences and Technology

Sep 2021 Physicalizing Virtual and Augmented Reality
Yonsei University, School of Computing

May 2020 High-bandwidth Human-Computer Interaction: Possibilities and Challenges
University of Copenhagen, Department of Computer Science

Oct 2019 User Interface for Future Computers
Korean-American Scientists and Engineers Association Central VA Chapter

Nov 2018 Expanding Touch Interaction Bandwidth by Making Computers Feel Touch and be Felt
TUX: Toronto User Experience Speaker Series

Aug 2018 As We May Touch—toward richer and more natural touch interaction
Oculus Research

Jul 2018 As We May Touch—toward richer and more natural touch interaction
EPIC Group, Microsoft Research

Feb 2018 Let it move- Creating force and movement feedback on the surface and in the air
New York University, Future Reality Lab

Dec 2017 Let it move- Creating force and movement feedback on the surface and in the air
Saarland University, HCI Group

Nov 2016 As We May Touch—toward richer and more natural touch interaction
KAIST, *HCI Group*

Jan 2016 Enriching Touch – with force, hover, and manual dexterity
University of Toronto, DGP Lab

Jan 2016 Enriching Touch – with force, hover, and manual dexterity
Autodesk Research

Oct 2014 Enriching Touch
HiDeep Co.

Mar 2014 Enriching interaction on and over the surface
Korea Electronics Technology Institute

Feb 2014 Completing Touch
TEDxKAIST Salon: Beyond Now

Service

Organizing Committee

- IEEE VR 2026 Diversity, Equity, Inclusion, and Accessibility Co-Chair
- ACM ISS 2019, 2024 Demos Chair
- IEEE SIEDS 2021 Workshop Organizer

Conference Program Committee

- ACM CHI 2019, 2020, 2022, 2024, 2025, 2026
- ACM UIST 2020, 2024, 2025, 2026
- ACM VRST 2021, 2022
- ACM TEI 2022
- ACM MobileHCI 2015
- ACM VRST 2024 Award Committee

Paper Reviewer

- CHI, UIST, DIS, TEI, MobileHCI, SIGGRAPH ASIA, ICMI, IEEE VR, IMWUT, IEEE Trans. Haptics, ACM TOCHI, IJHCS, Frontiers in Virtual Reality

Grant Review Panel

- NSF CISE HCC research grant proposal panelist
- Commonwealth Cyber Initiative (CCI) research grant proposal panelist