

# Seongkook Heo

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## Education

Present	<b>Ph.D. Candidate, Computer Science, KAIST, Daejeon, South Korea.</b>
2009	<b>M.Sc. Digital Media, KAIST, Daejeon, South Korea.</b>
2007	<b>B.S. Electric and Electronic Engineering, Sungkyunkwan University, Suwon, South Korea.</b>
2007	<b>B.S. Computer Engineering, Sungkyunkwan University, Suwon, South Korea. (Double Major)</b>

## Internships

2016 Jan - Apr	<b>Autodesk Research, Toronto, Canada</b> Research Intern supervised by Tovi Grossman Developing interaction techniques for wearable devices
2015 May - Aug	<b>Microsoft Research, Redmond, USA</b> Research Intern supervised by Ken Hinckley Sensing techniques for mobile interaction
2008 Jun - Aug	<b>Samsung Advanced Institution of Technology (SAIT), Suwon, South Korea</b> Research Intern at Multi-modal Interaction Lab Designing multi-modal interaction techniques for consumer electronics
2005–2006	<b>AhnLab, Seoul, South Korea</b> Software Engineering Intern Testing personal security software UI and features

## Peer-reviewed Papers and Notes

2016	Ken Hinckley, <b>Seongkook Heo</b> , Christian Holz, Hrvoje Benko, Abigail Sellen, Richard Banks, Kenton O'Hara, Gavin Smyth, and William Buxton. Pre-Touch Sensing for Mobile Interaction. <i>CHI '16</i>
2016	Jonggi Hong, <b>Seongkook Heo</b> , Poika Isokoski, and Geehyuk Lee. Comparison of Three QWERTY Keyboards for a Smartwatch. <i>Interacting with Computers, Oxford University Press</i>
2015	Jonggi Hong, <b>Seongkook Heo</b> , Poika Isokoski, and Geehyuk Lee. SplitBoard: A Simple Split Soft Keyboard for Wristwatch-sized Touch Screens. <i>CHI '15</i>
2014	<b>Seongkook Heo</b> , Jiseong Gu, and Geehyuk Lee. Expanding Touch Input Vocabulary by Using Consecutive Distant Taps. <i>CHI '14</i>

- 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*, 34(3)
- 2013 **Seongkook Heo**, Jaehyun Han, and Geehyuk Lee.  
Designing Rich Touch Interaction through Proximity and 2.5D Force Sensing Touchpad, *OZCHI '13*
- 2013 **Seongkook Heo** and Geehyuk Lee.  
Indirect Shear Force Estimation for Multi-Point Shear Force Operations. *CHI '13*
- 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. *CHI '13*
- 2013 Jinhyuk Choi, **Seongkook Heo**, Jaehyun Han, Geehyuk Lee, and Junehwa Song,  
Mining Social Relationship Types in an Organization by using Communication Patterns, *CSCW '13*
- 2012 Jaehyun Han, Sangwon Choi, **Seongkook Heo**, and Geehyuk Lee.  
Optical touch sensing based on internal scattering in a touch surface. *Electronics Letters*, 48(22):1420-1422, 2012
- 2012 **Seongkook Heo** and Geehyuk Lee.  
ForceDrag: Using Pressure as a Touch Input Modifier. *OZCHI '12*
- 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. *UIST '11*
- 2011 **Seongkook Heo** and Geehyuk Lee.  
Force gestures: augmenting touch screen gestures with normal and tangential forces. *UIST '11*
- 2011 **Seongkook Heo** and Geehyuk Lee.  
Forcetap: extending the input vocabulary of mobile touch screens by adding tap gestures. *MobileHCI '11*
- 2011 Jaehyun Han, **Seongkook Heo**, G Lee, Won-Chul Bang, DoKyoon Kim, and ChangYeong Kim.  
6-DOF tracker using LED directivity. *Electronics Letters*, 47(3):177-178, 2011

## Posters and Demonstrations

- 2014 Jaehyun Han, **Seongkook Heo**, and Geehyuk Lee.  
Trampoline: A Double-sided Elastic Touch Device for Repousse and Chasing Techniques. *CHI '14 Works-in-progress*
- 2013 **Seongkook Heo**, and Geehyuk Lee.  
Ta-Tap: Consecutive Distant Tap Operations for One-handed Touch Screen Use. *UIST '13 Poster*
- 2012 **Seongkook Heo**, Yong-ki Lee, Jiho Yeom, and Geehyuk Lee.  
Design of a Shape Dependent Snapping Algorithm. *CHI '12 Works-in-progress*
- 2011 Sangwon Choi, Jaehyun Han, Sunjun Kim, **Seongkook Heo**, Geehyuk Lee,  
ThickPad: A Hover-Tracking Touchpad for a Laptop, *UIST '11 Demo*
- 2011 **Seongkook Heo** and Geehyuk Lee.  
Force gestures: augmented touch screen gestures using normal and tangential force. *CHI '11 Works-in-progress*
- 2008 **SeongKook Heo**, Dongwook Lee and Minsoo Hahn,  
FloatingPad: A Touchpad Based 3D Input Device, *ICAT '08 Poster*

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| 2008 | Seungwoo Lee, <b>SeongKook Heo</b> , Youmin Kim, Youngjae Kim, Soojin Lee and Minsoo Hahn,<br>An Interactive Knocking Floor. <i>UbiComp 2008 Poster</i>                                    |
| 2007 | Seungsoon Park, Seungwoo Lee, <b>SeongKook Heo</b> , Kyoungsin Park, and Minsoo Hahn,<br>Escape!: An Indoor Location-based Horror Game Using Indirect Ambient Cues. <i>UCS 2007 Poster</i> |

## Book Chapters

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| 2015 | <b>Seongkook Heo</b> , Jaehyun Han, and Geehyuk Lee.<br>Designing for Hover-and Force-Enriched Touch Interaction. <i>Computer-Human Interaction. Cognitive Effects of Spatial Interaction, Learning, and Ability</i> , Springer, 2015. 68-87. |
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## Patents

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| P22 | Method and apparatus of playing haptic feedback for shear movement, KR Patent Pending, Application #2014-0026719, 3/6/2014   |
| P21 | Touch screen controlling method in mobile device, and mobile device thereof, KR Patent #1496017, 2/16/2015   |
| P20 | Method and apparatus for one-handed application of multi-touch gesture using continuous touch, KR Patent Pending, Application #2013-0083986, 7/17/2013                                   |
| P19 | Optical touchpad apparatus with proximity and force sensing capabilities and method of sensing touch in apparatus, KR Patent #1449833, 10/2/2014   |
| P18 | User interface method and apparatus using successive touches, US Patent Pending, Application #US20150026619, 1/22/2015   |
| P17 | Device and method of video playback control using force and contact position information, KR Patent #1393261, 4/30/2014  |
| P16 | Device and method for identifying multi-touch points using internal scattering, PCT/KR2012/006624, 8/21/2012   |
| P15 | Method and system for body tracking for spatial gesture recognition, PCT/KR2012/006372, 8/10/2012  |
| P14 | Apparatus and method for multi-touch sensing using total internal reflection, KR Patent #1356835, 1/22/2014  |
| P13 | Method and system for body tracking for spatial gesture recognition, KR Patent #1256046, 4/12/2013   |
| P12 | System and method for estimating position and direction, EU Patent #EP2385390, 21/8/2013, China Patent #CN102279380, 21/10/2015 US Patent Pending, Application #US20110261270, 4/18/2011 |
| P11 | Method for controlling touch screen in portable device, and portable device of the same, KR Patent #1177650, 8/21/2012   |

P10	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
P9	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
P8	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
P7	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
P6	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
P5	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
P4	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
P3	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
P2	Method for controlling touch screen on portable device using built-in accelerometer, and portable device of the same, KR Patent #1173400, 8/6/2011
P1	Apparatus for sensing if a driver drives a car safely, KR Patent #1054062, 7/28/2011

## Invited Talks

2016 Jan.	Enriching Touch – with force, hover, and manual dexterity <b>University of Toronto</b>
2016 Jan.	Enriching Touch – with force, hover, and manual dexterity <b>Autodesk Research</b>
2014 Oct.	Enriching Touch <b>HiDeep Co.</b>
2014 Mar.	Enriching interaction on and over the surface <b>Korea Electronics Technology Institute</b>
2014 Feb.	Completing Touch <b>TEDxKAIST Salon: Beyond Now</b>

## Teaching Experience

Spring 2010, 11, 14	<b>Human-Computer Interaction, TA</b> School of Computing, KAIST
Spring 2012	<b>Compiler Design, TA</b> School of Computing, KAIST
Fall 2010	<b>HCI - Physical Computing, TA</b> School of Computing, KAIST

## Academic Service

Program Committee	<b>MobileHCI 2015</b>
Reviewer	<b>CHI 2011, 2012, 2013, 2014, 2016, SIGGRAPH ASIA 2014, TEI 2013, 2015, MobileHCI 2012, 2016, ICMI 2015, UIST 2016</b>
Student Volunteer	<b>World Haptics Conference 2015</b>

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