

# HYUNYOUNG KIM

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## SUMMARY

I am interested in solving usability problems through shape-changing interfaces. My research method encompasses from conducting user studies to identify usability problems, proposing novel applications for shape-changing interfaces, to advancing fabrication methods. I have experience both in academia and industry, focusing on HCI and UX design. I have a strong academic record since my Ph.D. E.g., I published three full papers at CHI<sup>1</sup> and four peer-reviewed articles in other venues. While working in the industry, I have filed six patents. I have been working in five different countries (Denmark, France, UK, Germany, and South Korea), broadening my research skills and network.

## RESEARCH APPOINTMENT

*Postdoc* Jan 2020-Present University of Copenhagen, Copenhagen, Denmark  
Research on shape-changing interfaces and novel fabrication method

## EDUCATION

*Ph.D.* 2020 Université Grenoble Alpes, Grenoble, France  
Thesis: User-Centered Design of Shape-Changing Controls  
Advisors: Céline Coutrix, Anne Roudaut

*M.Sc.* 2011 KAIST, Daejeon, South Korea  
Thesis: Gesture-Recognition Interface with Keyboard Embedded IR Modules  
Advisor: Minsoo Hahn

*Bachelor* 2009 Sungkyunkwan University, Suwon, South Korea  
Thesis: Personalized Comment Spam Filtering Using Clustering  
Advisor: Jee-Hyong Lee

## PUBLICATIONS

### PEER REVIEWED CONFERENCE PAPERS

- C.8 **Hyunyoung Kim**, Carlos E. Tejada, Aluna Everitt, Mengyu Zhong, Daniel Ashbrook. MorpheesPlug: A Toolkit for Prototyping Shape-Changing Interfaces. In proceedings of the 2021 CHI Conference on Human Factors in Computing Systems, **CHI '21** (26%) (To appear)
- C.7 Miriam Greis, **Hyunyoung Kim**, Andreas Korge, Céline Coutrix, Albrecht Schmidt. SplitSlider: a Tangible Interface to Input Uncertainty. 17th IFIP TC.13 International Conference on Human-Computer Interaction, **INTERACT '19**, Reviewers Choice Award (top 3%) [[pdf](#)]
- C.6 **Hyunyoung Kim**, Patricia Deud Guimaraes, Céline Coutrix, Anne Roudaut. ExpanDial: Designing a Shape-Changing Dial. In Proceedings of the 2019 Designing Interactive Systems Conference, **DIS '19** (acc.25%) [[pdf](#)]
- C.5 **Hyunyoung Kim**, Céline Coutrix, Anne Roudaut. Morphees+: Studying Everyday Reconfigurable Objects For the Design and Taxonomy of Shape-Changing UI. In proceedings of the 2018 CHI Conference on Human Factors in Computing Systems, **CHI '18** (acc.25%), Honourable Mention Award (top 5%) [[pdf](#)]
- C.4 **Hyunyoung Kim**, Céline Coutrix, Anne Roudaut. KnobSlider: Design of a Shape-Changing UI for Parameter Control. In proceedings of the 2018 CHI Conference on Human Factors in Computing Systems, **CHI '18** (acc.25%) [[pdf](#)]

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<sup>1</sup> CHI is the most prestigious venue in HCI, with higher impact factor than journals.

- C.3 **Hyunyoung Kim**, Céline Coutrix, Anne Roudaut. KnobSlider: Design of a Shape-Changing Device Grounded on Users' Needs. In Actes de la 28<sup>ème</sup> conférence francophone sur l'Interaction Homme-Machine, **IHM '16**, ACM Press [pdf] (French)
- C.2 **Hyunyoung Kim**, Kuenhwan Kwak, Jongwoo Jung, Insik Myung, and Minsoo Hahn. Tablaction: collaborative brainstorming system with stylus-fingertip interactions on tablet PCs. In Proceedings of the 9th ACM SIGGRAPH Conference on Virtual-Reality Continuum and its Applications in Industry, ACM VRCAI '10 [pdf]
- C.1 **Hyunyoung Kim**, Donghoon Lee, Jeehyung Lee. Personalized Comment Spam Filtering Using Clustering, Korea Intelligent System Society KIIS '08 [pdf] (Korean)

#### JOURNAL ARTICLE

- J.1 **Hyunyoung Kim**, Céline Coutrix, Anne Roudaut. KnobSlider: Design of a Shape-Changing Parameter Control UI and Study of User Preferences on Its Speed and Tangibility, *Frontiers Robotics and AI*, 2019 [pdf]

#### BOOK CHAPTERS

- B.2 **Hyunyoung Kim**, Changhee Cho, Jisu Kim, Sanghyun Park, Jinsul Kim, Kuinam J. Kim. Localizing a Flying Object on Target Place Using Heterogeneous Binary Sensors. In *Mobile and Wireless Technology 2015*, ISBN: 978-3-662-47669-7 [pdf]
- B.1 Sanghyun Park, **Hyunyoung Kim**, Jinsul Kim. An Innovative Detection Method Integrating Hybrid Sensors for Motorized Wheelchairs. *Information Science and Applications*, 2015, ISBN: 978-3-662-46578-3 [pdf]

#### WORK-IN-PROGRESS

- W.2 Miriam Greis, **Hyunyoung Kim**, Andreas Korge, Céline Coutrix, Albrecht Schmidt. Extending Input Space of Tangible Dials and Sliders for Uncertain Input. In Proceedings of the Thirteenth International Conference on Tangible, Embedded, and Embodied Interaction, **TEI '19 WiP** [pdf]
- W.1 **Hyunyoung Kim**, Ilmin Kim, Jinsul Kim. Designing the Smart Foot Mat and Its Applications: as a User Identification Sensor for Smart Home Scenarios, *Advanced Science and Technology Letters*, Vol.87 (Art, Culture, Game, Graphics, Broadcasting and Digital Contents 2015), ISSN: 2287-1233 [pdf]

#### OTHER PUBLICATIONS

- O.6 **Hyunyoung Kim**. Fostering Design Process of Shape-Changing Interfaces. In The 31st Annual ACM Symposium on User Interface Software and Technology Adjunct Proceedings, **UIST '18 Doctoral Symposium** [pdf]
- O.5 **Hyunyoung Kim**, Céline Coutrix, Anne Roudaut. KnobSlider: A Shape-Changing Interface for Parameter Control, Workshop on Shape Changing Robotic Structures and Interfaces, **IROS '18**
- O.4 **Hyunyoung Kim**, Mauro Aliva, Thomas Kosch, Céline Coutrix, Anne Roudaut. Using Shape-Changing Interfaces to Foster Inclusive Education for Visually Impaired People. Position paper for the Inclusive Educational Technologies: Emerging Opportunities for People with Visual Impairments, workshop at SIGCHI Conference on Human Factors in Computing Systems, **CHI '18**, [pdf]
- O.3 **Hyunyoung Kim**, Céline Coutrix, Anne Roudaut. Empowering Makers to Create Reconfigurable Objects. Position paper for the Maker Movements, Do-It-Yourself Cultures and Participatory Design: Implications for HCI Research, workshop at SIGCHI Conference on Human Factors in Computing Systems, **CHI '18**, [pdf]
- O.2 **Hyunyoung Kim**, Céline Coutrix, Anne Roudaut, Leveraging Everyday Deformation for Shape-Changing Interfaces. Position paper for the Sharing Perspectives on the Design of Shape-Changing Interfaces, workshop at SIGCHI Conference on Human Factors in Computing Systems, **CHI '16**, [pdf]
- O.1 **Hyunyoung Kim**, Céline Coutrix, Anne Roudaut. Future Shape-Changing TUIs: Brainstorming & Origami Workshop. Workshop proposal for Second European Tangible Interaction Studio, **ETIS '16** [pdf]

#### FILED PATENTS

- P.6 **Hyunyoung Kim**, Hee-Won Jung, Device and method for transmitting electronic key thereof, US20140115493 A1
- P.5 **Hyunyoung Kim**, Tae-hwan WI, Method and device for transmitting information related to event,

US20140075329 A1

- P.4 **Hyunyoung Kim**, Tae-hwan WI, User terminal device and system for performing user customized health management, and methods thereof, US20130268292 A1
- P.3 Eun-young Lim, **Hyunyoung Kim**, Yeon-hee ROH, Joo-kyung Woo, Young-shil Jang, User terminal device for providing electronic shopping service and methods thereof, US20130332228 A1
- P.2 Sung-Jin Park, **Hyunyoung Kim**, User terminal, external apparatus, data transceiving system, and data transceiving method, US9622076 B2
- P.1 Jae-Woo Ko, Tae-hwan WI, Hee-Won Jung, **Hyunyoung Kim**, Bo-seok MOON, Management server and method for controlling device, user terminal apparatus and method for controlling device, and user terminal apparatus and control method thereof, US20130268998 A1

## PRIOR APPOINTMENT

Jun-Jul 2017, Nov 2017-Apr 2018 University of Bristol, Bristol, UK

*Visiting  
Researcher*

Project: Physical 3D modeling tool using Lego-like bricks. It involves scanning structures of bricks and transferring the data to CAD software, aiming to reduce try-and-error in physical prototyping.

Apr 16-Sep 17 University of Stuttgart, Stuttgart, Germany

*Visiting  
Researcher*

Advised two bachelor students' theses  
Lectured a Master's course for tangible user interfaces

2014-2015 Chonnam National University, Gwangju, South Korea

*Researcher*

Research smart textile interface  
Developed a part of a gun fire positioning system

2011-2013 Samsung Electronics, Suwon, South Korea

*UX Designer*

Conducted user research and designed UX for Smart Home (demonstrated at IFA '13, CES '13), Smart LED, Mobile Ads & Commerce, Endoscopic Device & Service.

2010 Samsung Software Membership, Seoul, South Korea

*Student Researcher*

Designed and implemented new interaction techniques, focusing on adding physical interactions to mobile applications

2006 Korea Mart, Tokyo, Japan

*Intern*

Implemented the company's website and shopping mall

## HONORS AND AWARDS

- Sep 2019 Reviewers Choice Award, INTERACT 2019 (top 3% of >300 submissions)
- Mar 2019 ACM SIGCHI Student Travel Grant, 1800 USD
- Apr 2018 Honourable Mention Award, ACM CHI 2018 (top 5% of >2500 submissions)
- Mar 2017 Grant for research abroad, Université Grenoble Alpes, 3000 EUR
- Mar 2017 ACM-W Scholarship. Grant for female students traveling to an ACM conference, 1200 USD
- 2011-2013 Employee of Month, UX Lab, DMC R&D, Samsung Electronics, 3 times
- 2009-2010 National scholarship, KAIST
- Aug 2005 Korea National Robot Soccer MiroSot League, 3rd place, Korea Robot Soccer Association
- Feb 2005 Champions League MiroSot Small League, 1st place, Kangnam University Korea
- 2004-2008 Jang Yeong-sil Scholarship. Four-years of full tuition, based on Korean national scholastic achievement test (1st grade, top 4% nationwide), Sungkyunkwan University

## SERVICE AND TEACHING

- Prog. Committee* CHI '21, TEI WiP '21, TEI '20
- Paper review* CHI '17 '19-'21, TEI '17 '19-'21, UIST '18 '20, MobileHCI '18, NordiCHI '20, ISS '18-'19
- Organizer* Weekly research meeting, HCC Section, University of Copenhagen
- Guest Lecturer* 2021. Communication and IT program's Bachelor Project in HCC, University of Copenhagen. Volume: 1h

	2020. DIKU User Interface Technology (Master's course), University of Copenhagen. Volume: 1h
	2020. Communication and IT program's Bachelor Project in HCC, University of Copenhagen. Volume: 2h
<i>Lecturer</i>	2016-17. Fachpraktikum: a MSc course for tangible user interface, University of Stuttgart. Co-lectured with Alexander Voit, Pascal Knierim, and Céline Coutrix. Volume: 22.5h
<i>Examiner</i>	2020. External course examiner for two courses. University of Copenhagen. Volume: 9.75h
<i>Mentor</i>	2015. Girls' Day: Science project for teenage girls in cooperation with Bachelor students. Volume: 4h
<i>Mentor</i>	2011. Science competition for female undergraduates and high school students. Volume: 8h

## INVITED TALKS

Human-Centered Computing Section, University of Copenhagen. Denmark. Aug 2019  
Morphing Matter Lab, Carnegie Mellon University. USA. Jul 2019  
Human-Centered Ubiquitous Media Lab, LMU Munich. Germany. May 2019  
Tangible Media Group, MIT Media Lab. USA. Mar 2019  
HCI Engineering Group, MIT CSAIL. USA. Mar 2019  
Media Interaction Lab, University of Applied Sciences Upper Austria. Austria. Dec 2018

## THESIS MENTORING

<i>Masters Thesis</i>	Diana Soponar (Dec 2020 – May 2021). Co-advised with Daniel Ashbrook Title: Embedding Threads Into 3D-Printed Models
	Dimitrios Galinos (Dec 2020 – May 2021). Co-advised with Daniel Ashbrook Title: VR vs Real life: A Study on How Different Media Change User Experiences on Shape-Changing Interfaces
<i>Bachelor Thesis</i>	Haris Causegic (Dec 2016 – May 2017). Co-advised with Alexandra Voit and Céline Coutrix Title: Ambient notifications through shape-change in domestic environments
	Andreas Korge (Nov 2016 – Apr 2017). Co-advised with Miriam Greis and Céline Coutrix Title: Exploring suitability of shape-changing tangible interfaces to communicate uncertainty This work was published at TEI '19 WiP and INTERACT 2019.

## SPECIFIC SKILLS

<i>Fabrication</i>	3D printing, Fusion 360, Inventor, SketchUp, laser cutting
<i>Programming</i>	Processing, Python, C#, C/C++, Matlab, Java, HTML/CSS/Javascript, MySQL
<i>Electronics</i>	Arduino, Eagle CAD, circuit design, artwork
<i>Statistics</i>	Experimental design, R, Excel
<i>User Research</i>	Pairwise comparison, focus group, brainstorming, usability test, task observation, wizard of oz
<i>UX Design</i>	Scenarios and use cases, personas, wireframe, user flow, Axure, Omnigraffle, Balsamiq, Flowella
<i>Visual Design</i>	Illustrator, Photoshop, Premiere

## PERSONAL INTERESTS

Painting and Making · Piano · Snorkeling · Video games

March 12, 2021