



## EDUCATION

**MIT Media Lab, PhD**  
advisor Pattie Maes

Sep 2013 -  
Aug 2018

**KAIST, MS Electrical Engineering**  
3D Computer Vision, Machine Learning

Feb 2008 -  
Jan 2010

**KAIST, BS Electrical Engineering**  
National Science and Technology  
Scholarship

Mar 2004 -  
Feb 2008

**Gyeonggi Science High School**

## WORK EXPERIENCE

**Microsoft Research Studio 99**  
Artist in Residence / Research Intern

Jun 2014 -  
Aug 2014

**Samsung Electronics**  
Software Engineer at  
Telecommunication Systems Division

Feb 2010 -  
Apr 2013

Creativity Lab - eyeCan project  
Software Lead

## PUBLICATIONS

\*selected

*Remnance of Form, Interactive Shadows as Altered Views on Objects*, accepted to **Leonardo**, 2018

*Guitar Machine: Robotic Augmentation for Hybrid Human-Machine Guitar Play*, **NIME 2018**

*Robotic Symbionts: Interweaving Actions by Human and Machine Extensions*, **IEEE Pervasive Computing**

*Morphology Extension Kit: A Modular Robotic Platform for Physically Reconfigurable Wearables*, **TEI 2018**

*Morphological Interfaces: On Body Transforming Technologies*, **Ait.CHI 2017**

*Body-Borne Computers as Extensions of Self*, **Computers 6 (1)**

*Body Integrated Programmable Joints Interface*, **CHI 2016 (Best Paper Honorable Mention - 4%)**

*L'evolved: autonomous and ubiquitous utilities as smart agents*, **Ubicomp 2015**

*THAW: Tangible Interaction with See-Through Augmentation for Smartphones on Computer Screens*, **TEI 2015**

*Cord UIs: Controlling Devices with Augmented Cables*, **TEI 2015**

*Feature-based detection of inverted-stereo for stereoscopic 3D viewing comfort*, **IEEE trans. on Broadcasting**

## EXHIBITIONS

\*selected

Otherly Space / Knowledge at ACC (Gwangju, Korea) *A Flying Pantograph*

SIGGRAPH Asia 2017 Art Gallery  
*Remnance of Form*

Re/pair (as part of The Big Anxiety Festival)  
*Vicarious Movement*

MIT Hacking Arts 2016 *A Flying Pantograph*

TEI 2016 Arts Exhibition *A Flying Pantograph*

CHI 2015 Art Gallery *Remnance of Form*

TEI 2015 Arts Exhibition *Remnance of Form*

Microsoft Research Studio 99 *Remnance of Form*

## AWARDS

\*selected

Robotic Symbionts - Honorable Mention, Experimental/Student Categories, 2017 Fast Company Innovation by Design

Council for Arts at MIT Grant 2017

CHI 2016 Best Paper Honorable Mention

Cord UIs - Winner, Students Category, 2015 Fast Company Innovation by Design

THAW - Finalist, Experimental Category, 2015 Fast Company Innovation by Design

Samsung Social Responsibility Award, Samsung Electronics 2012

## NOTABLE PROJECTS

### A Flying Pantograph

a drone-based drawing machine explores human-machine shared aesthetics in the process of mark-making.

human-robot interaction, drone-based interfaces, augmented expression

### Guitar Machines

a series of robotic guitars that augment musical performances as well as sonic aesthetics of the guitar.

mechatronics design, electronics design, augmented expression, robotic musicianship

### Robotic Symbionts

a wearable robotic device that enhances the hand's expressivity via extra robotic appendages.

human-robot interaction, mechanical design, electronics design

### Remnance of Form

an interactive installation that challenges our relationship with mundane objects through a transforming shadow.

projection mapping, vision-based tracking, augmented reality

### THAW

a futuristic multi-screen UI between collocated smartphones and larger displays

vision-based tracking, tangible user interface

### Cord UIs

cords, often a nuisance, become expressive and playful user interfaces.

tangible user interface, embedded sensor

### eyeCan

an open-source eye-tracking system distributed to 200 users with severe motor disability. allows for direct access to a range of Windows input using simple eye movements.

eye-tracking, assistive technology, open-source

## TALK

\*selected

**SXSW Interactive 2016**, *Beyond Form: Designing with Fluid Objects*

**Sebasi + PAN 2014**, *Imagine by Inventing*

**Seoul Digital Forum 2013**, *Samsung's eyeCan + Eyewriter: Co-writing a Recipe for Collaboration*

**Busan Tech Plus Forum 2012**, *A Story about Technology that Changes Lives*

**TEDxSamsung 2nd Conference**, *Developing an DIY Eye-Mouse for ALS Patients*

## MEDIA

Extensive media coverage by major news outlets such as *BBC*, *WIRED*, *Daily Mail*, *Fast Company*, *Discovery News*, and *Gizmodo* and magazines such as *Technology Review*, *Neural*, *Creative Applications*, or *The Creator's Project*.