# KashyapTodi


Research Scientist
Meta Reality Labs Research

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Nationality Indian
Date of Birth 21 November, 1987
Languages English (Proficient)
German, Hindi (Fluent)
Dutch (Intermediate)


## Current Position

**Research Scientist** **July 2021 – Present**

Meta Reality Lab Research

My current research applies computational methods (predictive models, optimization, AI methods) towards understanding and improving human–computer interaction, with a focus on Extended Reality applications. My research so far has two main focus areas:
(1) **adaptive user interfaces**, where systems can observe user interactions, make inferences, and apply predictive models to automatically improve user interfaces towards individual skills, experiences, and interests; (2) **mixed initiative interactions**, where intelligent systems interact with users to actively support them in their tasks.

## Education

**Doctor of Science (PhD) in Human–Computer Interaction** **Oct 2013 – June 2018**

*Expertise Centre for Digital Media, Hasselt University, Belgium*

Title: Improving and Facilitating the Placement of Interactive Elements on User Interfaces
Advisor: Prof. Dr. Kris Luyten

**Master of Science (M.Sc.) in Media Informatics** **Oct 2010 – Feb 2013**

*RWTH Aachen University, Germany*

Title: Sniper Pointing: Above the Surface Pointing with Multiple Resolutions
Overall Grade: 1.7 (German Grading Scale: 1=Very Good; 2=Good; 3=Satisfactory; 4=Sufficient; 5=Insufficient)

**Bachelor of Engineering (B.E.) in Computer Science and Engg.** **Aug 2006 – Jul 2010**

*Reva Institute of Technology (Affiliated to VTU), Bangalore, India*

Overall Grade: 70% (First Class with Distinction)

## Prior Experience

**Postdoctoral Researcher** **April 2018 – July 2021**

User Interfaces Group, Aalto University, Finland

Supervisor: Prof. Dr. Antti Oulasvirta
Activities: Independent research on computational interaction and adaptive user interfaces; mentoring research interns and students; designing and teaching courses in Human–Computer Interaction.

**Research Intern** **Jun 2016 – Sept 2016**

User Interfaces Group, Aalto University, Finland

Head/Supervisor: Prof. Dr. Antti Oulasvirta

Activities: Research and implementation related to 'Familiarisation: Restructuring Layouts with Visual Learning Models' (ACM IUI 2019 full paper)

**Research Intern** **May 2015 – Sept 2015**

User Interfaces Group, Aalto University, Finland

Head/Supervisor: Prof. Dr. Antti Oulasvirta

Activities: Design, implementation, testing, and publication of 'Sketchplore: Sketch and Explore with a Layout Optimiser' (DIS 2016 full paper)

**Research Assistant** **Feb 2013 – Oct 2013**

Media Computing Group, RWTH Aachen University, Germany

Head: Prof. Dr. Jan Borchers

Supervisor: Prof. Dr. Wacharamanotham

Activities: Design, implementation, testing, and publication of *'Understanding Finger Input Above Desktop Devices'* (CHI 2014 full paper)

**Student Research Assistant** **Aug 2012 – Feb 2013**

Media Computing Group, RWTH Aachen University, Germany

Head: Prof. Dr. Jan Borchers

Supervisors: Dr. Malte Weiss, Dr. Simon Voelker

Activities: Hardware and Software Maintenance of the Aachener Frieden Exhibit

# Teaching

**Course Organiser:**
- Research Project in Human–Computer Interaction (Aalto University; Spring 2020)
- Advanced Topics in Human–Computer Interaction (Aalto University; Spring 2019)

**Teaching Assistant:**
- Tools and Technologies for Interactive Systems Development (Hasselt University; in 2015, 2016, and 2017).

**Teacher Training:**
- A!Peda Intro (Aalto University, Spring 2019, 5 credits)

**Master's Student Selection:**
- Part of the committee responsible for selecting prospective HCI Master's students at Aalto University (2020)

# Supervision

**Bachelor Theses:**
- Steven Peeters (Hasselt University; 2017)
- Jelco Adamczyk (Hasselt University; 2016)

**Master Thesis:**
- Yuyan Jing (Aalto University; 2019)

**Summer Interns:**
- Chuyang Wu (Aalto University; 2020)
- Sanchit Bansal (Aalto University; 2019)
- Ekaterina Marchenko (Aalto University; 2019)
- Taru Saaraleinen (Aalto University; 2019)
- Camille Gobert (Aalto University; 2018)

# Publications

***A full list of publications, with PDFs, can also be found at: www.kashyaptodi.com/#publications***

### Full Papers & Journal Articles

13. Yi-Chi Liao, Kashyap Todi, Aditya Acharya, Antti Keurulainen, Andrew Howes, Antti Oulasvirta. ***Rediscovering Affordances: A Reinforcement Learning Perspective*** in Proc. CHI 2022, New Orleans, USA
12. Florian Heller, Kashyap Todi, Kris Luyten. ***An Interactive Design Space for Wearable Displays*** in Proc. MobileHCI '21, Toulouse, France
11. Kashyap Todi*, Luis A. Leiva*, Daniel Buschek*, Pin Tian, Antti Oulasvirta. ***Conversations with GUIs*** in Proc. DIS 2021, Virtual
10. Kashyap Todi, Gilles Bailly, Luis Leiva, Antti Oulasvirta. ***Adapting User Interfaces with Model-based Reinforcement Learning*** in Proc. CHI 2021, Yokohama, Japan
9. Niraj Dayama, Simo Santala, Lukas Brückner, Kashyap Todi, Jingzhou Du, Antti Oulasvirta. ***Interactive Layout Transfer*** in Proc. IUI 2021, College Station, USA
8. Niraj Dayama*, Kashyap Todi*, Taru Saarelainen, Antti Oulasvirta. ***GRIDS: Interactive Layout Design with Integer Programming*** in Proc. CHI 2020, Honolulu, USA (* Joint first authors contributed equally)
7. Kashyap Todi. 2019. **Reimagining the Role of the Expert: From Interface Design to Interface Curation**. In Proc. HTTF 2019, Nottingham, UK
6. Kashyap Todi, Jussi Jokinen, Kris Luyten, Antti Oulasvirta. ***Individualising Graphical Layouts with Predictive Visual Search Models*** in ACM Trans. on Interactive Intelligent Systems (March 2019)
5. Camille Gobert, Kashyap Todi, Gilles Bailly, Antti Oulasvirta. ***SAM: A Modular Framework for Self-Adapting Web Menus*** in Proc. IUI 2019, Los Angeles, USA
4. Kashyap Todi, Jussi Jokinen, Kris Luyten, Antti Oulasvirta. ***Familiarisation: Restructuring Layouts with Visual Learning Models*** in Proc. IUI 2018, Tokyo, Japan
3. Kashyap Todi, Daryl Weir, Antti Oulasvirta. ***Sketchplore: Sketch and Explore with a Layout Optimiser*** in Proc. DIS 2016, Brisbane, Australia
2. Raf Ramakers, Kashyap Todi, Kris Luyten. ***PaperPulse: An Integrated Approach to Embedding Electronics in Paper Design*** in Proc. CHI 2015, Seoul, South Korea
1. Chat Wacharamanotham, Kashyap Todi, Jan Borchers. ***Understanding Finger Input above Desktop Devices*** in Proc. CHI 2014, Toronto, Canada

### Workshop Proposal Papers

1. Kashyap Todi, Jean Vanderdonckt, Xiaojuan Ma, Jeffrey Nichols, Nikola Banovic. ***AI4AUI: AI Methods for Adaptive User Interfaces*** in Proc. IUI 2020, Cagliari, Italy

### Extended Abstracts

5. Antti Oulasvirta, Samuli De Pascale, Janin Koch, Thomas Langerak, Jussi Jokinen, Kashyap Todi, Markku Laine, Manoj Kristhombuge, Yuxi Zhu, Aliaksei Miniukovich, Gregorio Palmas, and Tino Weinkauf. 2018. **Aalto Interface Metrics (AIM): A Service and Codebase for Computational GUI Evaluation**. In Proc. UIST Adjunct 2018
4. Kashyap Todi, Donald Degraen, Brent Berghmans, Axel Faes, Matthijs Kaminski, Kris Luyen. ***Purpose-Centric Appropriation of Everyday Objects as Game Controllers*** in Proc. CHI EA 2016 EA
3. Raf Ramakers, Kashyap Todi, Kris Luyten. ***PaperPulse: An Integrated Approach to Embedding Electronics in Paper Design*** in SIGGRAPH 2015 Posters
2. Kashyap Todi, Kris Luyten. ***Suit Up!: Enabling Eyes-Free Interactions on Jacket Buttons*** in CHI EA 2014
1. Mateusz Dolata, Ibrahim Cakir, Kashyap Todi, and Nils Jeners. ***From heavyweight framework to lightweight patchwork*** in CSCW 2012 EA

### Workshop Position Papers

6. Kashyap Todi, Ben Lafreniere, Tanya Jonker. ***Computational Adaptation of Extended Reality Interfaces Through Interaction Simulation*** at CHI 2022, New Orlean, USA
5. Kashyap Todi. ***Modelling Visual Search for Adaptive User Interfaces*** at IUI 2020, Cagliari, Italy
4. Kashyap Todi, Daryl Weir, Antti Oulasvirta. ***Sketchplorer: Sketchplorer: A Mixed-Initiative Tool for Sketching and Exploring Interactive Layout Designs*** at CHI 2017, Denver, USA
3. Kashyap Todi, Andrew Vande Moere, Kris Luyten. ***Making Smart Homes Personal: Fabrication and Customisation of Home Interfaces*** at CHI 2015, Seoul, South Korea
2. Raf Ramakers, Kashyap Todi, Kris Luyten. ***An End-User Development Approach for Designing and Fabricating Interactive Paper*** at CHI 2015, Seoul, South Korea
1. Kashyap Todi, Kris Luyten. ***Suit Up!: Inconspicuous Interactions on Jacket Buttons*** at CHI 2014, Toronto, Canada

### Theses

2. Kashyap Todi. 2018. ***Improving and Facilitating the Placement of Interactive Elements on User Interfaces.*** PhD Thesis at Hasselt University, Belgium
1. Kashyap Todi. 2013. ***Sniper Pointing: Above the Surface Pointing with Multiple Resolutions.*** Master Thesis at Media Computing Group, RWTH Aachen, Germany

### Demos & Exhibits

6. **[IUI Demo]** Camille Gobert, Kashyap Todi, Gilles Bailly, Antti Oulasvirta. ***SAM: Self-Adapting Menus on the Web*** in IUI 2019, L.A., USA
5. **[IUI Demo]** Katri Leino, Kashyap Todi, Antti Oulasvirta, Mikko Kurimo. ***Computer-Supported Form Design using Keystroke-Level Modeling with Reinforcement Learning*** in IUI 2019, L.A., USA
4. **[CHI Student Game Competition]** Brent Berghmans, Axel Faes, Matthijs Kaminski, Kashyap Todi. ***Household Survival: Immersive Room-Sized Gaming Using Everyday Objects as Weapons*** in CHI 2016 EA, San Jose, USA
3. **[CHI Interactivity]** Kashyap Todi, Daryl Weir, Antti Oulasvirta. ***Sketchplore: Sketch and Explore Layout Designs with an Optimiser*** in CHI 2016 EA, San Jose, USA
2. **[SIGGRAPH Studio]** Raf Ramakers, Kashyap Todi, Kris Luyten. ***PaperPulse: An Integrated Approach to Embedding Electronics in Paper Design*** in SIGGRAPH 2015 Studio, Los Angeles, USA
1. **[CHI Interactivity]** Raf Ramakers, Kashyap Todi, Kris Luyten. ***PaperPulse: An Integrated Approach to Making Interactive Paper*** in CHI 2015 EA, Seoul, South Korea

## Guest Lectures & Invited Talks

- Computational Methods for Self-Adapting User Interfaces. University of Washington. February 2022
- Mixed Initiative UI Design Through Optimization. Berkeley Institute of Design. December 2021
- Adapting User Interfaces Towards Individual Expertise and Experience. Spotify Research. July 2021
- Adapting User Interfaces Towards Individual Expertise and Experience. Reality Labs. October 2020
- Computational User Interface Design. Aalto University, Fall 2020
- Human–Computer Interaction. Aalto University, Fall 2020
- Seminar on Computational Interaction. ETH Zurich, Spring 2020
- Computational User Interface Design. Aalto University, Fall 2018
- Human–Computer Interaction. Helsinki University, Fall 2018

## Service and Volunteering Activities

- **Associate Chair** / **Program Committee Member:** UIST 2022, IUI 2022, CHI 2022, CHI 2021, IUI 2020, IUI 2019, MobileHCI 2020, MobileHCI 2019, ISS 2020, ISS 2019, CHI 2020 Late-Breaking Works (LBW), CHI 2019 LBW
- **Organising Committee:** UIST 2022, IUI 2022, CHI 2022, CHI 2021, CHI 2020
- **SIGCHI VP for Operations** (2021 – Present)
- **SIGCHI Video Operations** (2019 – 2021)
- **Peer Reviewing:** Over 200 peer-reviews completed so far for CHI, UIST, MobileHCI, DIS, ISS, TEI, IUI
- **Outstanding Reviewer Recognition:** CHI 2022, IUI 2022, CHI 2021, CHI 2020 (2 papers), CHI 2016, MobileHCI 2019
- **Student Volunteer:** CHI 2017, CHI 2016, DIS 2016, ITS 2013
- **CHI 2030 Visioning Task Force Member**
- **Organizer:** "AI and Human Memory" Special Event (Online, 23 February, 2021)

## Other Activities

- **HCI Data and Stats:** Developed www.WhatTheHCI.com to increase visibility of HCI publications, and also publish summary data and statistics from the yearly CHI conference.
- **Internship: User-Oriented System Design Lab at Fraunhofer FIT**, Germany
  *Topic: Location-based Tamagotchi game for Android (2011 – '12)*
- **Seminar: 'Post-Desktop User Interfaces' at Media Computing Group**
  Topic: Evolution of Awareness in Distributed Workspaces (2011 – '12)
- **Internship: CSCW Experience Lab at Fraunhofer FIT**, Germany
  *Topic: Analysing social aspects and behaviour of users on social networks (2011)*
- **97 Percentile in 6th National IT Aptitute Test.** All-India rank of 1596 out of 63,314 candidates (2010)

## Skills and Competences

- Computational methods and techniques for HCI applications
- Design and development of interactive systems
- Personal fabrication using Arduino, electronics, paper-based printed circuits, and other hardware
- Sensor-based hardware such as motion capture ( Vicon, OptiTrack, Leap Motion), gaze tracking, etc.
- Design of experiments and user studies; User research; Statistical analyses
- Graphic illustration, video editing, and other presentation skills