

OTMAR HILLIGES | CURRICULUM VITAE

Prof. Dr. Otmar Hilliges, ETH Zurich, Departement Computer Science
Born 1979 in Munich, Germany.

<http://ait.inf.ethz.ch/people/hilliges/>



PROFESSIONAL EXPERIENCE

- 2013 - present Assistant Professor for Computer Science
ETH Zurich, Switzerland
- 2012 – 2013 Researcher, Microsoft Research Cambridge, UK
- 2010 – 2011 Post-Doc, Microsoft Research Cambridge, UK

EDUCATION

- 2005 – 2009 Ph.D. in Computer Science, Jul 2009, **Summa Cum Laude**. Ludwig-Maximilians-Universität, Munich, Germany.
- 1999 – 2004 MSc in Computer Science, Dec 2004, **Summa Cum Laude**. Technical University Munich.

RESEARCH INTERESTS

My research interests include Human-Computer Interaction, including post-desktop interfaces, mobile interaction, augmented and virtual reality, input sensing technologies and computational UI design.

AWARDS

- 2014: **Best paper award ACM CHI '14.**
 Best paper award IEEE IROS '14
- 2012: Honorable mention best note **ACM CHI '12.**
 Best demo award 2nd place ACM UIST '12.
 Best paper award Pervasive '12.
- 2011: **Best paper award IEEE ISMAR '11.**
- 2010: **Best paper award ACM CSCW '10.**
- 2008: **Best paper award ACM UIST '08.**

GRANTS & OTHER FUNDING

- 2016 - 2021 ERC Starting Grant – “Optimization-based Design of Interactive Technologies”
- 2015 - 2018 SNF Grant – “Deformation and Motion Modeling using Modular, Sensor-based Input Devices”
- 2014 - 2017 SNF Grant – “UFO: Semi-Autonomous Aerial Vehicles for Augmented Reality, Human-Computer Interaction and Remote Collaboration”
- 2014 - 2017 Microsoft Swiss JRC Grant – “Human-centric flight: micro aerial vehicles for interaction, videography and 3d reconstruction”

SELECTED PUBLICATIONS | (FULL PUBLICATION LIST AT: [HTTP://AIT.INFO.ETHZ.CH/PUBLICATIONS/](http://ait.inf.ethz.ch/publications/))

G. Oliver, W.C. Ma, D. Panozzo, A. Jacobson, **O. Hilliges**, O. Sorkine
“Rig Animation with a Tangible and Modular Input Device”
In Proceedings **ACM SIGGRAPH** 2016
Anaheim, USA, 2016

C. Gebhardt, B. Hepp, T. Nægeli, S. Stevsic, **O. Hilliges**
“Airways: Optimization-based Interactive Design of High-Level Quadrotor Behavior”
In Proceedings of *Human Factors in Computing Systems (ACM CHI)*
San Jose, USA, 2016

M. Bächer, B. Hepp, F. Pece, P. Kry, B. Bickel, B. Thomaszewski, **O. Hilliges**
“DefSense: Computational Design of Customized Deformable Input Devices”
In Proceedings of *Human Factors in Computing Systems (ACM CHI)*
San Jose, USA, 2016

V. Megaro, B. Thomaszewski, M. Gross, **O. Hilliges**, S. Coros
“Interactive Design of Robotic Creatures”
In Proceedings of **ACM SIGGRAPH ASIA**
Kobe, Japan, Nov 2015

J. Song, G. Sörös, F. Pece, S. R. Fanello, S. Izadi, C. Keskin, and **O. Hilliges**
“In-air gestures around unmodified mobile devices”
In Proceedings *ACM User Interface and Software Technologies (ACM UIST)*
Honolulu, Hi, USA, Oct 2014

T. Nägeli, C. Conte, A. Domahidi, M. Morari, and **O. Hilliges**
“Environment-independent Formation Flight for Micro Aerial Vehicles”
In Proceedings of *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2014)*
Chicago, Il, USA, Sep 2014 (**Best Paper Award**)

A. Jacobson, D. Panozzo, O. Glauser, C. Pradalier, **O. Hilliges**, O. Sorkine-Hornung
“Tangible and modular input device for character articulation”
In *ACM Trans. Graph.*, vol. 33, no. 4, pp. 1–12. (**ACM SIGGRAPH**)
Vancouver, Canada, Jul 2014

S. Taylor, C. Keskin, **O. Hilliges**, S. Izadi, J. Helms
“Type–Hover–Swipe in 96 Bytes: A Motion Sensing Mechanical Keyboard”
In Proceedings of *Human Factors in Computing Systems (ACM CHI)*
Toronto, Canada, Apr 2014 (**Best Paper Award**)

D. Kim, **O. Hilliges**, S. Izadi, A. Butler, J. Chen, I. Oikonomidis, P. Olivier
“Digits: freehand 3D interactions anywhere using a wrist-worn gloveless sensor”
In Proceedings *ACM User Interface and Software Technologies (ACM UIST)*
Cambridge, MA, USA, Oct 2012

A Wilson, H Benko, S Izadi, **O Hilliges**
“Steerable Augmented Reality with the Beamatron”
In Proceedings *ACM User Interface and Software Technologies (ACM UIST)*
Cambridge, MA, USA, Oct 2012

O. Hilliges, D.Kim, S. Izadi, M.Weiss
“HoloDesk: Direct 3D Interactions with a Situated See-Through Display”
Proceedings of *Human Factors in Computing Systems (ACM CHI)*
Austin, Tx, USA, Apr 2012

D Molyneaux, S Izadi, D Kim, **O Hilliges**, S Hodges, X Cao, A Butler, H Gellersen
“Interactive environment-aware handheld projectors for pervasive computing spaces”
In *Pervasive Computing '12*
Newcastle, UK, 2012 (**Best Paper Award**)

S. Izadi, D. Kim, **O. Hilliges**, D. Molyneaux, R. Newcombe, P. Kohli, J. Shotton, S. Hodges, D. Freeman, A. Davison, A. Fitzgibbon
“KinectFusion: Real-time 3D Reconstruction and Interaction Using a Moving Depth Camera”
In Proceedings *ACM User Interface and Software Technologies (ACM UIST)*
Santa Barbara, CA, USA, Oct 2011

R. Newcombe, S. Izadi, **O. Hilliges**, D. Molyneaux, D. Kim, A. Davison, P. Kohli, J. Shotton, S. Hodges, A. Fitzgibbon
“Real-Time Dense Surface Mapping and Tracking with Kinect”
In Proceedings *IEEE Augmented and Mixed Reality (IEEE ISMAR)*
Basel, Switzerland, Oct 2011 (**Best Paper Award**)

Bibliometric indicators: Citations 4548, h-index: 26 (Google Scholar, Jul 2016)

SCIENTIFIC COMMUNITY SERVICES

I regularly serve on various program committees in the larger area of Human Computer Interaction, Augmented and Mixed Reality and Wearable Computing. In particular, I have served on the following:

Technical Program Committee Member (Area Chair)

- ACM SIGCHI Conference on Human Factors in Computing Systems (ACM CHI '13/'14/'15/'16)
- ACM Symposium on User Interface Software and Technology (ACM UIST '12 / '14/ '16)
- WWW, 23rd International World Wide Web Conference (WWW2014)
- ACM Conference on Tangible, Embedded, and Embodied Interaction (ACM TEI '14)
- ACM SIGCHI Conference on Mobile and Ubiquitous Multimedia (ACM MUM '13)
- ACM Joint Conference on Pervasive and Ubiquitous Computing (UbiComp '13)
- IEEE Symposium on Mixed and Augmented Reality (IEEE ISMAR '13)
- IEEE Joint 3DIM/3DPVT Conference (IEEE 3DV '13)
- IEEE Joint 3DIM/3DPVT Conference (IEEE 3DIMPVT '12)
- ACM Conference on Interactive Tabletops and Surfaces (ACM ITS '10)
- ACM Conference on Tangible and Embedded Interaction (ACM TEI '09)

Organizing Committee Member

- Keynote Chair, ACM UIST '13 & ACM UIST '14
- Video Co-Chair, ACM UbiComp '13
- Demo Co-Chair, ACM UIST '10 & '11
- Student Volunteer Chair, ACM ITS '08 & '09

Reviewing

I regularly review for all HCI conferences including ACM CHI, UIST, ITS, TEI, UbiComp, IEEE ISMAR, 3DV and for many journals. I also regularly review for conferences and journals in AR, VR, Computer Graphics, Computer Vision and Image Processing, and Robotics.

PATENTS

<i>Surface Reconstruction, Mapping and Interaction</i>	<i>“Distributed Asynchronous Localization And Mapping For Augmented Reality”</i> <i>“Generating Computer Models Of 3D Objects”</i> <i>“Gesture Recognition Techniques”</i> <i>“Moving Object Segmentation Using Depth Images”</i> <i>“Reducing Interference Between Multiple Infra-Red Depth Cameras”</i> <i>“Using A Three-Dimensional Environment Model In Gameplay”</i> <i>“Real-Time Camera Tracking Using Depth Maps”</i> <i>“Mobile Camera Localization Using Depth Maps”</i> <i>“Three-Dimensional Environment Reconstruction”</i>
<i>Display Technologies, User Interaction</i>	<i>“Tabletop Display Providing Multiple Views To Users”</i> <i>“User Interaction In Augmented Reality”</i> <i>“Three-Dimensional User Interaction”</i> <i>“Augmented Reality With Direct User Interaction”</i>
<i>Body and Object Recognition</i>	<i>“Human Body Pose Estimation”</i> <i>“Detection of Body and Props”</i>
<i>Interactive Surface User Interaction</i>	<i>“Physics Simulation-Based Interaction for Surface Computing”</i> <i>“Pointing Device with Independently Movable Portions”</i> <i>“Surface Computer User Interaction”</i> <i>“Interactive Surface Computer with Switchable Diffuser”</i>