

# Curriculum Vitae

## Personal details

Date of birth 25<sup>th</sup> June 1987  
Citizenship Austrian

## Educational background

Jul 2013 - present PhD student at Hasso Plattner Institute, University of Potsdam  
Topic: Metamaterial Machines  
Advisor: Dr. Patrick Baudisch, chair of Human-Computer Interaction

Oct 2010 - Nov 2012 University of Applied Sciences Upper Austria, Campus Hagenberg  
*MSc*  
Program "Interactive Media", MSc  
Skills: Interaction Design, Human Computer Interaction, Software Design, Computer Vision  
Master's thesis: "Uncovering Moving Off-View Objects on Large Interactive Displays"  
Advisor: Dr. Michael Haller (Media Interaction Lab, Hagenberg)

May 2012 - Oct 2012 Term abroad at University of Waterloo, ON, Canada, Systems Design Department  
Advisors: Dr. Mark Hancock, Dr. Stacey Scott

Oct 2006 - Jul 2009 University of Applied Sciences Upper Austria, Campus Hagenberg  
*BSc*  
Program "Media Technology and Design", BSc  
Skills: Programming, Web Applications, Digital Imaging, Audio, Video, 3D Modeling and Animation  
Bachelor's thesis: "Klangfeldsynthese"  
Advisor: Christoph Schaufler, MA

## Publications

### PEER-REVIEWED PAPERS

Digital Mechanical Metamaterials.

**Alexandra Ion**, Ludwig Wall, Robert Kovacs, and Patrick Baudisch. In *Proceedings of CHI '17. Denver, CO, May 6 – 11, 2017*.

Metamaterial Mechanisms.

**Alexandra Ion**, Johannes Frohnhofen, Ludwig Wall, Robert Kovacs, Mirela Alistar, Jack Lindsay, Pedro Lopes, Hsiang-Ting Chen, and Patrick Baudisch. In *Proceedings of UIST'16. Tokyo, Japan, October 16 – 19, 2016. pp. 529-539*. BEST PAPER **HONORABLE MENTION**.

Skin drag displays: dragging a physical factor across the user's skin produces a stronger tactile stimulus than vibrotactile.

**Alexandra Ion**, Edward Wang, and Patrick Baudisch. In *Proceedings of CHI'15. Seoul, Korea, April 18 – 23, 2015*. Short paper.

Proprioceptive Interaction.

Pedro Lopes, **Alexandra Ion**, Willi Mueller, Daniel Hoffmann, Patrik Jonell, Patrick Baudisch. In *Proceedings of CHI'15. Seoul, Korea, April 18 – 23, 2015*

Impacto: Simulating Physical Impact by Combining Tactile Stimulation with Electrical Muscle Stimulation.

Pedro Lopes, **Alexandra Ion**, Patrick Baudisch. In *Proceedings of UIST'15. Charlotte, NC, November 8 – 11, 2015*.

Canyon: Providing location awareness of multiple moving objects in a detail view on large displays.

**Alexandra Ion**, Yu-Ling Chang, Michael Haller, Mark Hancock, Stacey Scott. In *Proceedings of CHI'13. Paris, France, April 27 – May 2, 2013. 3149-3158*. BEST PAPER **HONORABLE MENTION**.

## OTHER PUBLICATIONS

Using Your Own Muscles: Realistic physical experiences in VR.

Pedro Lopes, **Alexandra Ion**, Robert Kovacs. XRDS, Fall 2015, Vol. 22.

Understanding mid-air hand gestures: A study of human preferences in usage of gesture types for HCI.

Roland Aigner, Daniel Wigdor, Hrvoje Benko, Michael Haller, David Lindbauer, **Alexandra Ion**, Shengdong Zhao, and Jeffrey Tzu Kwan Valino Koh. *Technical Report MSR-TR-2012-111*. 2012.

Hot Topics in Personal Fabrication Research. Tutorial.

Stefanie Mueller, **Alexandra Ion**, and Patrick Baudisch. In *Proceedings of ACM ITS 2014, 499-502*.

## DEMONSTRATIONS

Metamaterial Mechanisms & Digital Mechanical Metamaterials. *ACM CHI 2017 Interactivity*.

Metamaterial Mechanisms. *ACM UIST 2016 Demonstration*.

Impacto: Simulating Physical Impact by Combining Tactile Stimulation with Electrical Muscle Stimulation. *ACM UIST 2015 Demonstration*.

## THESES

Uncovering moving off-view objects on large interactive displays.

**Alexandra Ion**. Master's thesis, Interactive Media, University of Applied Sciences Upper Austria. 2012.

Klangfeldsynthese – Betrachtung der Klangfeldsynthese anhand des IOSONO Systems.

**Alexandra Ion**. Bachelor's thesis, Media Technology and Design, University of Applied Sciences Upper Austria. 2009.

## Professional experience

Mar 2013 - Jul 2013	Software Developer & Usability Engineer (Full time employee, Professional/Experienced) Bernecker+Rainer Industrie Elektronik Ges.m.b.H., <a href="http://www.br-automation.com/">http://www.br-automation.com/</a>
Sep 2010 - Feb 2012	Software Developer (Part time employee, Professional/Experienced) Interactive Pioneers GmbH, <a href="http://interactive-pioneers.com/">http://interactive-pioneers.com/</a> (former Powerflasher GmbH)
Oct 2009 - Aug 2010	Software Developer (Full time employee, Entry Level) Interactive Pioneers GmbH, <a href="http://interactive-pioneers.com/">http://interactive-pioneers.com/</a> (former Powerflasher GmbH) Developer for WPF, Silverlight, Java Backend, Actionscript 3.0, Flex
Mar 2009 - Aug 2009	WPF/Silverlight Developer (Student/Intern) Interactive Pioneers GmbH, <a href="http://interactive-pioneers.com/">http://interactive-pioneers.com/</a> (former Powerflasher GmbH)
Aug 2008 - Sep 2008	Screen/Web Designer, Web Developer (Student/Intern) Lomographic Society International, <a href="http://www.lomography.com/">http://www.lomography.com/</a>

## Volunteering

Reviewing:	CHI 2017 – 2014 UIST 2016 Augmented Human 2016 – 2015 SUI 2016, World Haptics 2015, IWC 2014
Organizing committee:	UIST 2017 (SV chair), UIST 2016 (documentation chair)
Student volunteer:	CHI 2016, UIST 2015, ITS 2014

## Teaching

*All students are co-advised with Patrick Baudisch.*

Master's thesis (6 months full time)	Ludwig Wilhelm Wall. 2016. Design and Synthesis of Digital Mechanical Metamaterials.
Research projects (semester course, approx. 1 day/week)	Benjamin Feldmann, Martin Schlegel. 2016. 3D editor converting metamaterials to a linkage view and back. Johannes Frohnhofen, Johannes Filter, John Geiger. 2016. 3D voxel editor for metamaterial mechanisms. Noel Danz. 2015. Caching cells for faster export of metamaterials. Friedrich Horschig, Noel Danz. 2015. Photoshop as an editor for metamaterials. Sijing You, Friedrich Horschig, Martin Fritsche, Max Schneider. 2014. Impacto. Co-mentored w/ Pedro Lopes.
Lectures	3D printed mechanics. 60 minute lecture as part of the "Future Interactive Technologies" master's class. Inspecting and analyzing data using SPSS. 150 min lecture as part of "Future Interactive Technologies".
TAing	Winter terms 2014/15, 2015/16 - "Designing interactive systems" (HCI1) Winter term 2010/11 - "Applied software techniques" (C++ programming) Summer term 2011 - "Online Multimedia" (Flex development) Winter term 2011/12 - "Digital Imaging" Summer term 2012 - "Computer Graphics" (OpenGL)

## Invited talks

Singularity University Copenhagen, hosted by Märtha Rehnberg. Metamaterial Mechanisms. 2016.  
TU Berlin, hosted by Marc Alexa. Metamaterial Mechanisms. 2016.  
TU Berlin, hosted by Marc Alexa. Skin drag displays. 2015.

## Selected press

fast company. These Metamaterials Act Like Machines. 09/2016.  
gizmodo. This Simple 3D-Printed Door Handle Works Without Any Moving Parts. 09/2016.  
creative applications. Metamaterial Mechanisms – 3D Grids with Mechanical Properties. 09/2016.  
Make:. "Metamaterials" Allow You to 3D Print Simple Machines. 09/2016.  
dezeen. Metamaterials Make it Possible to Create Mechanisms from a Single Piece of Plastic. 09/2016.  
digital trends. 3D-printed Metamaterial 'Machines' are Greater than the Sum of their Parts. 09/2016.