

Stefanie Mueller - CV

Assistant Professor, MIT EECS/MechE
MIT Computer Science and Artificial Intelligence Lab
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Employment

Massachusetts Institute of Technology, Cambridge, MA 2017
Assistant Professor, Electrical Engineering and Computer Science
Joint Appointment with Mechanical Engineering
Member of MIT CSAIL

Education



Hasso Plattner Institute, Germany 2016
Ph.D., Computer Science / Human Computer Interaction, summa cum laude
Thesis: Interacting with Personal Fabrication Machines
Advisor: Patrick Baudisch

Hasso Plattner Institute, Germany 2013
M.Sc. with highest distinction, IT-Systems Engineering

University of Applied Science Harz, Germany 2010
B.Sc., Computer Science in Media

Full Papers (top-tier venues in Human-Computer Interaction are ACM CHI, UIST, TOCHI, F&T)

- [11] Patrick Baudisch, **Stefanie Mueller**. Personal Fabrication. *Foundations and Trends (F&T) in Human-Computer Interaction* 10, 3–4, 165-293 (ca. 130 pages), 2017.
- [10] Saiganesh Swaminathan, Thijs Roumen, Robert Kovacs, David Stangl, **Stefanie Mueller**, Patrick Baudisch. Linespace: A Sensemaking Platform for the Blind. *Proc. ACM CHI 2016*.
- [9] Alexander Teibrich, **Stefanie Mueller**, Robert Kovacs, Stefan Neubert, François Guimbretière, Patrick Baudisch. Patching Physical Objects. *Proc. ACM UIST 2015*, 83-91.
- [8] Udayan Umaphathi, Hsiang-Ting Chen, **Stefanie Mueller**, Ludwig Wall, Anna Seufert, Patrick Baudisch. LaserStacker: Fabricating 3D Objects by Laser Cutting and Welding. *Proc. ACM UIST 2015*, 575-582.
- [7] Harshit Agrawal, Udayan Umaphathi, Robert Kovacs, Johannes Frohnhofen, Hsiang-Ting Chen, **Stefanie Mueller**, Patrick Baudisch. Protopiper: Physically Sketching Room-Sized Objects at Actual Scale. *Proc. ACM UIST 2015*, 427-436.
- [6]  Dustin Beyer, Serafima Gurevich, **Stefanie Mueller**, Hsiang-Ting Chen, Patrick Baudisch. Platener: Low-Fidelity Fabrication of 3D Objects by Substituting 3D Print with Laser-Cut Plates. *Proc. ACM CHI 2015*, 1799-1806. **[BEST PAPER NOMINEE]**

- [5] **Stefanie Mueller**, Martin Fritzsche, Jan Kossmann, Maximilian Schneider, Jonathan Striebel, Patrick Baudisch. Scotty: Relocating Physical Objects Across Distances Using Destructive Scanning, Encryption, and 3D Printing. *Proc. ACM TEI 2015*, 233-240.
- [4] **Stefanie Mueller**, Sangha Im, Serafima Gurevich, Alexander Teibrich, Lisa Pfisterer, François Guimbretière, Patrick Baudisch. WirePrint: 3D printed previews for fast prototyping. *Proc. ACM UIST 2014*, 273-280.
- [3]  **Stefanie Mueller**, Tobias Mohr, Kerstin Guenther, Johannes Frohnhofen, Patrick Baudisch. faBrickation: fast 3D printing of functional objects by integrating construction kit building blocks. *Proc. ACM CHI 2014*, 3827-3834. **[BEST PAPER NOMINEE]**
- [2]  **Stefanie Mueller**, Bastian Kruck, Patrick Baudisch. LaserOrigami: laser-cutting 3D objects. *Proc. ACM CHI 2013*, 2585-2592. **[BEST PAPER AWARD]**
- [1] **Stefanie Mueller**, Pedro Lopes, Patrick Baudisch. Interactive construction: interactive fabrication of functional mechanical devices. *Proc. ACM UIST 2012*, 599-606.

Notes

- [2] David Eickhoff, **Stefanie Mueller**, and Patrick Baudisch. Destructive Games: Creating Value by Destroying Valuable Physical Objects. *Proc. ACM CHI 2016*, 3970-3974.
- [1] Liwei Chan, **Stefanie Mueller**, Anne Roudaut, and Patrick Baudisch. CapStones and ZebraWidgets: sensing stacks of building blocks, dials and sliders on capacitive touch screens. *Proc. ACM CHI 2012*, 2189-2192.

Workshops, Courses, Tutorials (as organizer)

- [3] **Stefanie Mueller**, Laura Devendorf, Stelian Coros, Yoichi Ochiai, Madeline Gannon, Patrick Baudisch. CrossFAB: Bridging the Gap between Personal Fabrication Research in HCI, Computer Graphics, Robotics, Design, Art, Architecture, and Material Science. *Workshop at ACM CHI 2016*, 3431-3437.
- [2] **Stefanie Mueller**, Patrick Baudisch. Personal Fabrication: State of the Art & Future Research. *Course at ACM CHI 2016*, 936-939.
- [1] **Stefanie Mueller**, Alexandra Ion, and Patrick Baudisch. Hot Topics in Personal Fabrication Research. Tutorial. *Proc. ACM ITS 2014*, 499-502.

Demonstrations and Workshop Submissions

- [11] Udayan Umaphathi, Hsiang-Ting Chen, **Stefanie Mueller**, Ludwig Wall, Anna Seufert, and Patrick Baudisch. LaserStacker: Fabricating 3D Objects by Laser Cutting and Welding. *ACM UIST 2015 Demonstration*.
- [10] Harshit Agrawal, Udayan Umaphathi, Robert Kovacs, Johannes Frohnhofen, Hsiang-Ting Chen, **Stefanie Mueller**, Patrick Baudisch. Protopiper: Physically Sketching Room-Sized Objects at Actual Scale. *ACM UIST 2015 Demonstration*.

- [9] **Stefanie Mueller**, Patrick Baudisch et al. Low-Fidelity Fabrication: Speeding up Design Iteration of 3D Objects. *ACM CHI 2015 Extended Abstracts*, 327-330.
- [8] **Stefanie Mueller**. Interacting with Personal Fabrication Devices – Current challenges from an HCI perspective. *Computational Aspects of Fabrication (Dagstuhl Seminar 14361)*, *Dagstuhl Reports 2014*, Vol 4., No. 8, 138.
- [7] **Stefanie Mueller**, Sangha Im, Serafima Gurevich, Alexander Teibrich, Lisa Pfisterer, François Guimbretière, Patrick Baudisch. WirePrint: WirePrint: 3D printed previews for fast prototyping. *ACM UIST 2014 Demonstration*.
- [6] **Stefanie Mueller**, Tobias Mohr, Kerstin Guenther, Johannes Frohnhofen, Kai-Adrian Rollmann, Patrick Baudisch. faBrickation: fast 3D printing of functional objects by integrating construction kit building blocks. *ACM CHI 2014 Extended Abstracts*, 527 - 530.
- [5] **Stefanie Mueller**, Tobias Mohr, Kerstin Guenther, Johannes Frohnhofen, Kai-Adrian Rollmann, Patrick Baudisch. faBrickation: fast 3D printing of functional objects by integrating construction kit building blocks. *ACM CHI 2014 Extended Abstracts*, 187 - 188.
- [4] **Stefanie Mueller**, Pedro Lopes, Konstantin Kaefler, Bastian Kruck, Patrick Baudisch. constructable: Interactive Construction of Functional Mechanical Devices. *ACM SIGGRAPH 2013 Talks*, Article No. 39.
- [3] **Stefanie Mueller**, Bastian Kruck, Patrick Baudisch. LaserOrigami: Laser-Cutting 3D Objects. *ACM CHI 2013 Extended Abstracts*, 2851-2852.
- [2] **Stefanie Mueller**, Pedro Lopes, Konstantin Kaefler, Bastian Kruck, Patrick Baudisch. constructable: Interactive Construction of Functional Mechanical Devices. *ACM CHI 2013 Extended Abstracts*, 3107-3110.
- [1] **Stefanie Mueller**, David Eickhoff, Nils Kenneweg, Fabian Eckert, Johannes Villmow, Patrick Baudisch. Physically Destructive Games: Playing Games Inside a Laser Cutter. *ACM CHI 2013 Extended Abstracts, Workshop: FAB at CHI*.

Magazine Articles

- [5] **Stefanie Mueller**. 3D Printing for Human Computer Interaction. *ACM Interactions*.
- [4] **Stefanie Mueller**, Patrick Baudisch. Research for Practice: Personal Fabrication. *ACM Queue* 15, 2 (2017), 9-15.
- [3] **Stefanie Mueller**, Patrick Baudisch. Laser cutters: a new class of 2D output devices. *ACM Interactions* 22, 5 (2015), 72-74.
- [2] **Stefanie Mueller**, Bastian Kruck, and Patrick Baudisch. Laser origami: laser-cutting 3D objects. *ACM Interactions* 21, 2 (2014), 36-41.
- [1] Michal Rinott, Eran Gal-Or, Shachar Geiger, Luka Or, **Stefanie Mueller**, et al. Demo hour. *ACM interactions* 20, 6 (2013), 8-9.

Professional Activities

General Co-Chair

ACM Symposium on Computational Fabrication General Co-Chair 2017
ACM SIGCHI Summer School on Computational Fabrication and Smart Matter General Co-Chair 2017

Program Committee Member

ACM UIST program committee 2016, 2017
ACM CHI program committee 2015, 2016, 2017, 2018
ACADIA program committee 2017
ROB|ARCH program committee 2018

Chairing Poster, SV, SIC

ACM UIST demo co-chair 2018
ACM UIST doctoral symposium faculty panelist 2017
ACM UIST poster co-chair 2016/2017
ACM UIST student innovation contest co-chair 2015
ACM UIST student volunteer co-chair 2014

Editor

IEEE Pervasive Magazine, Editor of the Personal Fabrication Column
ACM XRDS Crossroads 01/2016, Guest Editor Special Issue: Personal Fabrication

Reviewer

UIST (2012 - 2017), CHI (2012 - 2018), SIGGRAPH (2013, 2015), SIGGRAPH Asia (2016), TEI (2013 - 2015), GI (2016), ITS/ISS (2015, 2016), DIS (2014), C&C (2015), MobileHCI (2011), WorldHaptics 2017, ACADIA (2017)

Invited Talks

2017

- [48] **Speaker RSS 2017 Women in Robotics III Workshop**, invited by Maya Cakmak
- [47] **FUSE conference, Panel: Leveraging Material Behavior in Design**, with Skylar Tibbits
- [46] **Northwestern University**, invited by Jake Pollock
- [45] **GI Dissertation Award Committee**, invited by Maya Cakmak
- [45] **Keynote Speaker at MIT's LevelUp: Career Pathways in STEM 2017**
- [44] **Keynote Speaker at RoboCon 2017**

2016

- [43] **Max Planck Institute for Informatics**, hosted by Juergen Steimle
- [42] **FabCon 3.D.**, hosted by Florian Horsch
- [41] **Technion (Israel Institute of Technology)**
- [40] **Cornell Tech**, hosted by Shiri Azenkot
- [39] **Cornell University**, hosted by François Guimbretière
- [38] **Columbia University**, hosted by Steven K. Feiner
- [37] **Princeton University**, hosted by Szymon Rusinkiewicz
- [36] **Carnegie Mellon University**, hosted by Chris Atkeson
- [35] **University of Michigan Ann Arbor**, hosted by Mark Ackerman

- [34] **Brown University**, hosted by Jeff Huang
- [33] **University of Illinois Urbana Champaign**, hosted by Karrie Karahalios
- [32] **University of Toronto**, hosted by Daniel Wigdor
- [31] **Harvard University**, hosted by Krzysztof Gajos
- [30] **University of California San Diego**, hosted by Scott Klemmer
- [29] **University of British Columbia**, hosted by Karon McLean
- [28] **University of Washington**, hosted by James Fogarty
- [27] **MIT EECS**, hosted by Srinivas Devadas
- [26] **MIT Mechanical Engineering**, hosted by David Wallace
- [25] **Yale University**, hosted by Holly Rushmeier
- [24] **Stanford University**, hosted by James Landay
- [23] **UC Berkeley**, hosted by Bjoern Hartmann
- [22] **Max Planck Research Group Symposium**
- [21] **Adobe Research, CTL**, hosted by Mira Dontcheva

2015

- [20] **Royal College of Art**, hosted by Kevin Walker
- [19] **University of California San Diego**, hosted by Scott Klemmer
- [18] **FXPAL**, hosted by Daniel Avrahami
- [17] **MIT CSAIL**, hosted by Wojciech Matusik
- [16] **MIT Media Lab**, hosted by Hiroshi Ishii
- [15] **Cornell Tech**, hosted by Shiri Azenkot
- [14] **Carnegie Mellon University**, hosted by Scott Hudson
- [13] **Newcastle University**, hosted by Patrick Olivier
- [12] **University of Bristol**, hosted by Mike Fraser
- [11] **Institute of Science and Technology Austria (IST)**, hosted by Bernd Bickel
- [10] **The Hebrew University of Jerusalem**, hosted by Amit Zoran
- [9] **Adobe Research San Francisco**, hosted by David Salesin

2013/2014

- [8] **University of Tokyo**, hosted by Jun Rekimoto
- [7] **Rakuten Institute of Technology**, hosted by Adiyanto Mujibiya
- [6] **École Polytechnique Fédérale de Lausanne (EPFL)**, hosted by Mark Pauly
- [5] **Disney Research Zürich / ETH Zürich**, hosted by Stelian Coros
- [4] **University of Washington**, dub lunch talk
- [3] **Microsoft Research Redmond**, Natural Interaction Group
- [2] **University of Applied Sciences Upper Austria**, hosted by Michael Haller
- [1] **Microsoft Research Cambridge**

Awards and Honors

ACM Conference Founder: Symposium on Computational Fabrication 2017

Forbes 30 under 30 in Science, 2017

Best Paper Nominee, ACM CHI 2015

Best Paper Nominee, ACM CHI 2014

Best Paper Award, ACM CHI 2013

Stefanie Mueller – CV

Deans Gold Medal for Highest Final Grade, 2013
 Best Undergraduate Thesis of Woman in Engineering Germany, 2011
 Winner Business Plan Competition Liechtenstein, Category High Technology, 2011
 German Academic Exchange Service Scholarship for Studying Abroad, 2010

Funding

\$70k	Skoltech	2017
\$100k	NSF Eager: Cybermanufacturing (together with Emmanuel Sachs)	2017

Workshop Participant and Panelist:

Federal Ministry of Education and Research Germany: HCI Thinktank, 2015-2016
 NSF/CCC workshop: Programmable Matter and Things, 2014

Selected Press

Creative Applications. New software Platener speeds up prototyping process.	2015
Wired Design. Cool 3-D Printing Software Just Makes the Skeletons of Your Stuff	2014
Gizmodo. 3D Printing Just Wireframe Models Can Vastly Speed Up Prototyping.	2014
3Dprintingindustry. When Rapid Prototyping Isn't Rapid Enough Try Low-Fi Fab	2014
MAKE Magazine. faBrickation: 3D Printing + Lego for Fast Prototyping.	2014
The Atlantic. 3D Printing and Legos: Perfect Together.	2014
BBC. LaserOrigami: How lasers are quicker on the draw than 3D printing.	2013
New Scientist. Freehand laser cutter creates instant flat-pack design.	2012

Mentoring

Postdocs

[3] Paul Worgan	2017
[2] Antonio Gomes	2017
[1] Parinya Punpongsanon	2017

PhD Students

[2] Junyi Zhu	2017
[1] Martin Nisser	2017

Master Thesis Students

[3] Yini Kelly Qi	2017
[2] Yasaman Tahouni	2017
[1] Scott Penman	2017

Interns

[4] Dishita Turakhia	2017
[3] Kevin Reuss	2017
[2] Mustafa Doga Dogan	2017
[1] Jiamin He	2017

UROPs

[4] Xin Wen	2017
[3] Megan Chao	2017
[2] Carolyn Lu	2017
[1] Zoe Lu	2017

Previously at Hasso Plattner Institute (2011 – 2016)

Master thesis (6 month fulltime)

[8]	Anna Seufert				2016
[7]	Saiganesh Swaminathan (Paper at CHI'16)				2015
[6]	Alexander Teibrich (Paper at UIST'15)				2015
[5]	Dustin Beyer (Paper at CHI'15, Best Paper Nominee)				2014
[4]	Bernhard Rabe				2014
[3]	Tobias Mohr (Paper at CHI'14, Best Paper Nominee)				2014
[2]	David Eickhoff (Note at CHI'16)				2013
[1]	Konstantin Kaefer				2013

Bachelor thesis / project (12 month fulltime in student team)

[10]	Sven Mischkewitz	2016	[5]	Arthur Silber	2015
[9]	Lukas Wagner	2016	[4]	Stefan Neubert	2015
[8]	Klara Seitz	2016	[3]	Adrian Sieber	2015
[7]	Amadeus Glöckner	2016	[2]	Yannis Kommana	2015
[6]	Dimiti Schmid	2016	[1]	Johannes Deselaers	2015

Research project students (semester course, approximately 1 day per week)

[25]	Carl Goedecken	2016	[10]	Lisa Pfisterer	2013
[24]	Kevin Reuss	2016	[9]	Maximilian Schneider	2013
[23]	Tobias Wollowski	2016	[8]	Martin Fritzsche	2013
[22]	Anna Seufert	2014, 2015	[7]	Jan Kossmann	2013
[21]	Kai-Adrian Rollmann	2014, 2015	[6]	Konstantin Kaefer	2012
[20]	Sijing You	2015	[5]	Bastian Kruck	2012
[19]	Steffen Kötte	2015	[4]	David Eickhoff	2012
[18]	Maximilian Brehm	2015	[3]	Nils Kenneweg	2012
[17]	Markus Dücker	2015	[2]	Johannes Villmow	2012
[16]	Alexander Franke	2014	[1]	Fabian Eckert	2012
[15]	Elina Zarisheva	2014			
[14]	Pascal Crenzin	2014			
[13]	Jonathan Striebel	2013			
[12]	Kerstin Guenther	2013			
[11]	Alexander Teibrich	2013			

Teaching at MIT

6.813 / 6.138 User Interface Design and Implementation

spring 2017

co-instructor with Robert C. Miller
ca. 300 students (undergrad, master, PhD)

Covers design principles, prototyping techniques, evaluation techniques, and the implementation of graphical user interfaces. Deliverables include short programming assignments and a semester-long group project.

- 6.S063** **Engineering Interactive Technologies** **fall 2017**
main instructor & course developer
ca. 30 students (undergrad, master)
Teaches how to build cutting edge interactive technologies and provides an overview of each field. Topics covered include multitouch, augmented reality, haptics, wearables, brain computer interfaces, tangibles, fabrication, and more.
- IAP 2017** **Build your own Multi-touch Pad** **January 2017**
main instructor
ca. 15 students (undergrad, master, PhD)
Teaches laser cutting, electronics breadboard prototyping, soldering, and computer vision in only two afternoons. Students build a multi-touch pad using the principles of FTIR.