

Lukas Rambold

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Lukas is a PhD student advised by Patrick Baudisch at Hasso-Plattner-Institute. He works at the **intersection of HCI and Digital Fabrication**. His research enables novice users to design, fabricate and operate **large-scale inflatable structures**. In his projects *Trusscillator*, *AirTied* and *AirForce* he demonstrated how integrating non-linear optimization and physics simulations into interactive CAD tools enables novices to design large structures.

Education

Hasso-Plattner-Institute (HPI) PhD Candidate in Human-Computer-Interaction (advised by Patrick Baudisch)	08/2022- expected 08/2027 Potsdam, Germany
Hasso-Plattner-Institute (HPI) M.Sc. IT Systems Engineering	04/2019 - 08/2022 Potsdam, Germany
Ludwigs-Maximilians Universität (LMU) B.Sc. Computer Science & HCI, Honors Degree in Technology Management	10/2014 - 10/2017 Munich, Germany

Product Experience

Polyteia GmbH (>\$5M seed round, TechCrunch Disrupt Finalist) Co-Founder & Lead Developer	08/2017 - 04/2019 Berlin, Germany
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Full Paper Publications at ACM CHI and ACM UIST (20-25% acceptance rate)

- [6] **Lukas Rambold**, Robert Kovacs, Min Deng, Antonius Naumann, Konrad Gerlach, Horatio Hamkins, Helena Lendowski, Chiao Fang, Shohei Katakura, Conrad Lempert, Muhammad Abdullah, Patrick Baudisch
AirForce: Personal Fabrication of Large-Scale, Load-Bearing Animatronics Structures from a Single Tube (CHI '26)
- [5] **Lukas Rambold**, Robert Kovacs, Conrad Lempert, Muhammad Abdullah, Helena Lendowski, Lukas Fritzsche, Martin Taraz, Patrick Baudisch
AirTied: Automatic Personal Fabrication of Truss Structures (UIST '23)
- [4] Shohei Katakura, Martin Taraz, Muhammad Abdullah, Paul Methfessel, **Lukas Rambold**, Robert Kovacs, Patrick Baudisch
Kerfmeter: Automatic Kerf Calibration for Laser Cutting (CHI '23)
- [3] Robert Kovacs*, **Lukas Rambold***, Lukas Fritzsche, Dominik Meier, Jotaro Shigeyama, Shohei Katakura, Ran Zhang, and Patrick Baudisch
Trusscillator: a System for Fabricating Human-Scale Human-Powered Oscillating Devices (UIST '21)
(* authors contributed equally) 🏆 **Best Demo Honorable Mention**
- [2] Thijs Roumen, Conrad Lempert, Ingo Apel, Markus Brand, Erik Brendel, Laurenz Seidel, **Lukas Rambold** and Patrick Baudisch
autoAssembler: Automatic Reconstruction of Laser-Cut 3D Models (UIST '21)
- [1] Thijs Roumen, Yannis Kommana, Ingo Apel, Conrad Lempert, Markus Brand, Erik Brendel, Laurenz Seidel, **Lukas Rambold**, Carl Goedecken, Pascal Crenzin, Ben Hurdlehey, Muhammad Abdullah and Patrick

Baudisch

Assembler3: 3D Reconstruction of Laser-Cut Models (CHI '21)

Other Publications

- [3] Patrick Baudisch, Stefanie Mueller, Thijs Roumen, Pedro Lopes, Robert Kovacs, Jotaro Shigeyama, Shohei Katakura, Muhammad Abdullah, Conrad Lempert, Martin Taraz, and **Lukas Rambold**. Pushing Fabrication Research past the Makers. (CHI EA '23).
- [2] Christian Tietz, Eric Klieme, Rachel Brabender, Teresa Lasarow, **Lukas Rambold** and Christoph Meinel Under Pressure: Touch Sensitive Door Handle to Identify Users at Room Entry (SECRYPT '20)
- [1] Christian Mai, **Lukas Rambold**, and Mohamed Khamis TransparentHMD: Revealing the HMD User's Face to Bystanders (MUM '17)

Skills

Designing Devices

CAD (Fusion 360, Blender)

PCB design

Embedded Programming

Software Engineering

Python (general purpose & AI)

JavaScript & Web Technologies (web-development)

Julia (physics simulation)

Mechanical Prototyping

prototyping pneumatic textile-based actuators

mechanical evaluation of pneumatic actuators

soldering

fabrication (laser cutting, 3D printing, 80/20)

heat-sealing fabrics

Secured Funding

- [2] Fellowship of the Systems Design Research School at Hasso-Plattner-Institute >\$130k over 4yrs
- [1] IBB ProFIT Innovation Grant >\$300k for R&D grant for a startup

Service

Member of Program Committees

ACM UIST Poster Track (2025)

ACM CHI Late-Breaking-Work Track (2024, 2025)

ACM MuC Paper Track (2024)

Reviewer

CHI (2023, 2024, 2025)

UIST (2024, 2025)

TEI (2024, 2025)

IEEE VR (2023)

Nature Communications (2023)

Community Building

organized the HPI doctoral seminar 2023, 2024

co-organized fab lunch at CHI 2022

student volunteer at UIST 2020

Invited Talks

[2] Pro2 Hardware Prototyping Summer School, University of Lancaster (hosted by Steve Hodges) (2025)

[1] Matters of Activities, Humboldt University Berlin (2024)

Teaching & Mentoring

Primary Lecturer

[2] „Algorithmic Folding“ master class at HPI on computational fabrication (7x 90min lectures) (2024)

[1] „Algorithmic Folding“ master class at HPI on computational fabrication (7x 90min lectures) (2023)

Teaching Assistant

[1] Algorithmic Folding master class at HPI (2022)

Mentor for Master Theses, Interns (6 months full-time)

[3] Horatio Hamkins (2023)

[2] Helena Lendowski (2023)

[1] Menna Elnemr (2025)

Mentor for Project Seminar Students (3 months, 1 day/week)

[9] Konrad Gerlach (2025)

[8] Haruko Schmidt (2025)

[7] Tobias Görgens (2024)

[6] Menna Elnemr (2023)

[5] Tarik Alnawa (2021)

[4] An Nguyen (2024)

[3] Maximilian Franz (2024)

[2] Stefan Steppan (2024)

[1] Hendrik Wölert (2024)