

# BERND BICKEL

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AUSTRIA

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## PARTICULARS

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### EDUCATION

ETH Zurich Ph. D. in Computer Science	Zurich, Switzerland <i>05/2006-11/2010</i>
ETH Zurich M.Sc. in Computer Science <i>Focus: Scientific Computing</i>	Zurich, Switzerland <i>09/2001-03/2006</i>
Research Visit Harvard University, School of Engineering and Applied Sciences Graphics, Vision and Interaction Group, Prof. Hanspeter Pfister	Cambridge, MA <i>12/2009-01/2010</i>

### RESEARCH INTERESTS

Computer graphics, visual computing, and its applications in robotics, biomechanics, material science, and computational design. In particular: Data-driven modeling, physics-based simulation, animation, inverse problems, 3D printing and advanced fabrication methods, interactive design.

### DISSERTATION

Title: "Measurement-Based Modeling and Fabrication of Deformable Materials for Human Faces"  
Advisor: Prof. Markus Gross

## ACADEMIC AND RESEARCH POSITIONS

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Professor IST Austria	Klosterneuburg, Austria <i>since 04/2020</i>
Assistant Professor IST Austria	Klosterneuburg, Austria <i>01/2015-03/2020</i>
Researcher and Research Group Leader Disney Research	Zurich, Switzerland <i>02/2012-12/2014</i>
Visiting Professor TU Berlin, School IV Electrical Engineering and Computer Science	Berlin, Germany <i>03/2011-07/2012</i>
Postdoctoral Researcher Disney Research, Zurich	Zurich, Switzerland <i>11/2010-01/2012</i>
Research Assistant Disney Research, Zurich	Zurich, Switzerland <i>07/2009-10/2010</i>
Research Assistant ETH Zurich	Zurich, Switzerland <i>05/2006-06/2009</i>
Research Internship Mitsubishi Electric Research Laboratories (MERL)	Cambridge, MA <i>07/2005-03/2006</i>

## ACADEMIC HONORS AND AWARDS

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- Academy Award for Technical Achievement ("Tech-Oscar"), 02/2019.
- ACM SIGGRAPH 2017 Significant New Researcher Award, 07/2017.
- ERC Starting Grant, 08/2016.
- MICROSOFT Visual Computing Award, 06/2015.
- EUROGRAPHICS Best PhD Thesis, 05/2012.
- ETH Medal for outstanding dissertation, 11/2011.

## TEACHING AND SUPERVISION

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### Lecturer

Introduction to Data Science and Scientific Computing (IST Austria)	<i>Spring 2020</i>
Introduction to Data Science and Scientific Computing (IST Austria)	<i>Spring 2019</i>
Introduction to Data Science and Scientific Computing (IST Austria)	<i>Spring 2018</i>
Computational Aspects of Digital Fabrication (IST Austria and TU Wien)	<i>Spring 2018</i>
Intro to Physics-Based Simulation and Inverse Design of Solids (IST Austria)	<i>Spring 2018</i>
Introduction to Data Science And Scientific Computing (IST Austria)	<i>Spring 2017</i>
Introduction to Data Science and Scientific Computing (IST Austria)	<i>Spring 2016</i>
Computational Aspects of Digital Fabrication (IST Austria and TU Wien)	<i>Spring 2016</i>
Computer Graphics 2 (TU Berlin)	<i>Spring 2012</i>
Game Programming (Project, TU Berlin)	<i>Spring 2012</i>
Research Colloquium Computer Graphics (TU Berlin)	<i>Spring 2012</i>
Computer Graphics 1 (TU Berlin)	<i>Fall 2011</i>
Rapid Prototyping (Project, TU Berlin)	<i>Fall 2011</i>
Processing Digital Camera Images (Seminar, TU Berlin)	<i>Fall 2011</i>
Research Colloquium Computer Graphics (TU Berlin)	<i>Fall 2011</i>
Computer Graphics 2 (TU Berlin)	<i>Spring 2011</i>
Research Colloquium Computer Graphics (TU Berlin)	<i>Spring 2011</i>
Game Programming Laboratory (with B. Sumner and A. Hornung, ETH Zurich)	<i>Spring 2010</i>

### Supervised PhD Students and Postdocs (formal advisor)

Martin Hafskjold Thoresen (IST Austria) - <i>Soft Robotics</i>	since 02/2020
Christian Hafner (IST Austria) - <i>XFEM and Isogeometric Analysis</i>	since 06/2018
Jesus Perez Rodriguez (IST Austria) - <i>Shape Optimization</i>	12/2017-03/2019
Emmanuel Iarussi (IST Austria) - <i>Adv. Interaction Techniques for Fabrication</i>	10/2016-02/2017
Thomas Auzinger (IST Austria) - <i>Optical Metamaterials</i>	since 10/2015
Ruslan Guseinov (IST Austria) - <i>Spacetime Shape Morphing</i>	since 07/2015
Ran Zhang (IST Austria) - <i>Interactive Design of Mechanical Mechanism</i>	since 07/2015
Eder Miguel (IST Austria) - <i>Computational Design of Soft Robots</i>	02/2015-01/2016
Moritz Baecher (Disney Research) - <i>Optimization for Digital Fabrication</i>	08/2013-12/2014

### Collaborator and daily mentor (not formal advisor)

Kazutaka Nakashima (Tokyo University) - <i>Computational Mold Design</i>	since 06/2017
Christian Schumacher (Disney Research) - <i>Computational Methods for Elasticity</i>	04/2013-08/2015
Amit Bermanno (Disney Research) - <i>Realistic Facial Augmentation</i>	06/2011-10/2015
Krisitan Hildebrand (TU Berlin) - <i>Geometry Processing and Shape Abstraction</i>	03/2011-07/2012
Melina Skouras (ETH Zurich) - <i>Computational Design of Deformable Objects</i>	02/2010-09/2014
Moritz Baecher (Harvard University) - <i>Interactive Design of Mechanical Mechanism</i>	01/2010-07/2013
Thabo Beeler (ETH Zurich) - <i>Passive Spatio-Temporal Geometry Reconstruction of Human Faces at Very High Fidelity (ETH Medal)</i>	06/2009-09/2012

### MEMBER OF PHD THESIS COMMITTEES

- Katharina Ölsböck (IST Austria): Isogeometry for 3D Printing, 01/2020.
- Romain Prévost (ETH Zurich): Physics-based optimization for assisted creation of tangible artifacts, 10/2016.
- Amit Bermanno (ETH Zurich): Geometric methods for realistic facial animation, 10/2015.
- Eder Miguel (URJC Madrid): Measurement-based model estimation for deformable objects, 11/2014.
- Melina Skouras (ETH Zurich): Computational design and fabrication of deformable objects, 09/2014.
- Kristian Hildebrand (TU Berlin): Digital fabrication of shape: Abstraction, data structures and optimization, 03/2014.

### INVITED TALKS AND PANELS (Selection)

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1. Computational Design for Physical Reproduction of Material Properties. Invited Talk Principal Speaker, Past, Present and Future of Shitsukan Science and Technologies Symposium, Kyoto, Japan, 12/2019.
2. Computational and Data-Driven Design for Manufacturing. Invited Talk, State Key Lab of CAD&CG, Zhejiang University, Hangzhou, China, 11/2019.
3. Computational and Data-Driven Design for Manufacturing. Keynote, EUROGRAPHICS 2019, Genova, Italy, 05/2019.
4. Fusing Computation and Advanced Manufacturing. Invited Talk, Interdisciplinary Research Center (IRC), School of Computer Science and Technology, Shandong University in Qingdao, China, 07/2018.

5. Fusing Computation and Advanced Manufacturing. Keynote, International Conference on Geometric Modeling and Processing, Aachen, Germany, 04/2018.
6. Computational Fabrication: Creating Virtual Content for the Real World. Invited Talk, IC Colloquium, EPFL, Lausanne, Switzerland, 10/2017.
7. Computational Fabrication: Creating Virtual Content for the Real World. Keynote, VMV 2017, Bonn, Germany, 09/2017.
8. 3D Druck: Trends, Entwicklungen und neue Herausforderungen für die Informatik. Invited Talk, Fraunhofer 30 Years Fraunhofer IGD, Darmstadt, Germany, 06/2017.
9. Creating Virtual Content for the Real World. SIGGRAPH 2017 Awards Talk, Los Angeles, USA, 07/2017.
10. Computational Functional Model Creation. Invited Talk, Add+it 2016 Symposium on Additive Manufacturing and Innovative Technologies, Steyr, Austria, 09/2016.
11. Bridging the World of Real and Virtual Characters. Invited Talk, PIXELvienna, Vienna, Austria, 09/2016.
12. 3D Printing: Trends and Challenges from a Computational Perspective Keynote, GraDiFab 2016, Eurographics Workshop on Graphics for Digital Fabrication for Arts and Culture, Lisbon, Portugal, 05/2016.
13. Computational Design of Mechanical Characters. Invited Talk, INRIA, Rennes, France, 12/2015.
14. Computational Design of Mechanical Characters. Invited Talk, Meeting of the International Interdisciplinary Thematic Network (RTP-I), CNRS: From Humans and Non-Human Primates to Robots: Motion, Rousset-sur-Arc, France, 12/2015.
15. 3D Printing: Trends and Emerging Computational Challenges. Invited Talk, GDC Symposium on Geometry and Computational Design, Vienna, Austria, 11/2015.
16. Computational Challenges in Designing Virtual Models for Fabrication Keynote, CAD/Graphics 2015, Xi'an, China, 08/2015.
17. 3D Druck: Trends, Entwicklungen und neue Herausforderungen für die IKT. Invited Talk, Themennetzwerk IKT, Deutsche Akademie der Technikwissenschaften, Düsseldorf, Germany, 04/2015.
18. Computational Challenges in Designing Virtual Models for Fabrication Keynote, MEIS Mathematical Progress in Expressive Image Synthesis 2014, Fukuoka, Japan, 11/2014.
19. 3D Printing: Trends and Developments. Invited Talk and Panel, MEDIENTAGE MUNICH 2014, Munich, Germany, 10/2014.
20. Computer Graphics, BioCAD, and Computational Tissue Fabrication Invited Panel Discussion, ISAT/DARPA Workshop on Computational Tissue Fabrication (COTIF 2014), MIT Endicott House, Boston, USA, 08/2014.
21. Computational Design and Fabrication. Invited Talk, IBT Seminar ETH, Zurich, Switzerland, 02/2014.
22. Computational Design and Fabrication. Keynote, CIMST Summer School on Biomedical Imaging 2013, Zurich, Switzerland, 09/2013.
23. Computational Design and Fabrication. Keynote, MIRAGE 2013, Berlin, Germany, 06/2013.
24. Computational Design and Fabrication: From Acquisition to Simulation and Beyond! Invited Talk, IST Austria, Klosterneuburg, Austria, 06/2013.
25. Bringing Virtual Characters to the Real World. Invited Talk, SCCG Spring Conference on Computer Graphics, Smolenice, Slovak Republic, 05/2013.
26. Bringing Virtual Characters to the Real World. Invited Talk, FMX 2013 Conference on Animation, Effects, Games and Transmedia, Stuttgart, Germany, 04/2013.
27. Computational Design and Fabrication. Invited Talk, ETH Computer Science Faculty Lunch, Zurich, Switzerland, 04/2013.
28. Bringing Virtual Characters to the Real World. Invited Talk, Max-Planck-Institut für Informatik, Saarbrücken, Germany, 2/2013.
29. Computer Graphics – From Reality to Reality. Invited Talk, Trinity Week Symposium on Creative Technologies, Trinity College, Dublin, Ireland, 04/2012.
30. Computer Graphics – From Reality to Reality Invited Talk, Berliner Kolloquium für Wiss. Visualisierung, ZIB Konrad-Zuse-Institut, Berlin, Germany, 04/2012.
31. Computer Graphics and Digital Fabrication. Invited Talk, Hybrid Talks and Prototyping Symposium, Universität der Künste, Berlin, Germany, 11/2011.
32. Human Faces - From Acquisition towards Fabrication. Invited Talk, Vienna University of Technology and Austrian Computer Society, Vienna, Austria, 06/2011.

33. From Capture and Modeling of Human Faces to Fabrication Keynote, FAA ACM / SSPNET 2nd International Symposium on Facial Analysis and Animation in Dublin, Edinburgh, UK, 10/2010.
34. Practical Motion Capture Systems. Invited Talk and Panel, IMAGINA 2008, Monte-Carlo, Monaco, 01/2008.
35. Multi-Scale Capture of Facial Geometry and Motion. Invited Talk, CVMP European Conference On Visual Media Production (CVMP2007), London, UK, 11/2007.

## PROFESSIONAL ACTIVITIES

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### Organizer

- Steering Committee, ACM Symposium on Computational Fabrication, 2017, 2018, 2019, and 2020.
- Co-organizer Dagstuhl Seminar on Computational Aspects of Fabrication, 09/2014 and 10/2018.
- Co-organizer Mini-symposium on Expanding the Frontiers of Engineering Design using Computation at the World Congress on Computational Mechanics, 07/2018.
- Co-organizer MIT Symposium on Computational Fabrication, 04/2016.

### Editor

- Associate Editor Transactions on Graphics, since 2017.
- Editorial Board Journal of Computer Graphics Techniques, since 2014.
- Guest co-editor Computer Graphics and Applications, special issue on Graphics and Fabrication 2013.

### Program Chair

- Pacific Graphics Technical Co-Papers Chair 2016.
- Eurographics Short Papers 2015.

### Program Committee

- ACM SIGGRAPH Technical Papers 2012, 2013, 2015, 2018.
- ACM UIST Technical Papers 2014.
- Symposium on Computer Animation 2010, 2011, 2012, 2013, 2014, 2016.
- Eurographics 2015, 2019.
- Eurographics Symposium on Geometry Processing 2016, 2017, 2018, 2019.
- Eurographics Symposium on Rendering 2013, 2014.
- Eurographics Short Papers IPC 2013, 2014.
- Eurographics Tutorials 2017.
- Computer Graphics International 2013.
- International Program Committee for Pacific Graphics 2013, 2014.
- Spring Conference on Computer Graphics 2013.
- CASA 2017.
- ACM / SSPNET International Symposium on Facial Analysis and Animation 2012.
- International Conference and Exhibition on 3D Body Scanning Technologies 2012.
- International Conference on Computer Graphics Theory and Applications GRAPP 2013, 2014.
- International Conference on Computer-Aided Design and Computer Graphics 2015.

### Reviewer

- **Journals:** ACM Transaction on Graphics, International Journal of Robotics Research, Computer Graphics Forum, IEEE Transactions on Visualization and Computer Graphics, IEEE Computer Graphics and Applications, Computers & Graphics, Computer Aided Design, Signal Processing: Image Communication, Sensors, Optical Engineering, Applied Bionics and Biomechanics.
- **Conferences:** ACM SIGGRAPH, ACM SIGGRAPH Asia, Eurographics, ACM CHI, ACM UIST, Computer Graphics International, IEEE Visualization, Pacific Graphics, CVMP, CAD/Graphics, World Haptics.
- **Grants:** WWTF, SNSF

## Initiator

- Co-Founder (with Prof. Wojciech Matusik) of the Symposium on Computational Fabrication.
- Co-Initiator of the Hybrid Plattform, a transdisciplinary project-laboratory, network, and initiative of the Berlin University of the Arts and the Technical University of Berlin, to support common projects in research and education.

## THIRDPARTY FUNDING

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- Materializable: Intelligent fabrication-oriented Computational Design and Modeling, approved 08/2016. ERC Starting Grant, sole PI, EUR 1.5 Mio.
- Soft-bodied Intelligence for Manipulation Horizon 2020 - Research and Innovation Framework Programme, H2020-ICT-2014-1, approved 09/2014. Joint proposal with TU Berlin, Universita di Pisa, Fondazione Istituto Italiano di Tecnologia, Deutsches Zentrum fuer Luft- und Raumfahrt, Ocado Ltd, The Walt Disney Company. Co-PI IST Austria EUR 260k, total volume EUR 7.1 Mio.
- Distributed 3D Object Design. Horizon 2020 - Research and Innovation Framework Programme, H2020-MSCA-ITN-2014, approved 09/2014. Joint proposal with University College London, ETH Zurich, Deutsches Forschungszentrum fuer Kuenstliche Intelligenz, Max Planck Gesellschaft, Studio Gobo, Universitaet des Saarlandes, Edinburgh Napier University. Co-PI IST Austria EUR 256k, total volume EUR 3.8 Mio.
- 3D medical scanner and virtual patient framework for computer assisted assessment and evaluation of prosthetic and cranio-maxillofacial treatment and surgery. Kommission für Technologie und Innovation KTI, approved 09/2013. Joint proposal Disney Research Zurich, ETHZ and University of Zurich. Project manager, CHF1.45 Mio.
- Rethinking Prototyping. Einstein Stiftung, Berlin, approved 06/2012. Joint proposal with colleagues from Universität der Künste Berlin, Technische Universität Berlin, Fraunhofer Institut für Produktionsanlagen und Konstruktionstechnik (IPK) Berlin, Deutsche Telekom Laboratories Berlin, and the Institute of Electronic Business Berlin. Computer graphics group EUR 114k, total volume EUR 1 Mio.

## PUBLICATIONS

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### JOURNALS

1. Programming temporal morphing of self-actuated shells. R. Guseinov, C. McMahan, J. Perez, C. Daraio, B. Bickel. *Nature Communications* 11, 237, January 2020.
2. Computational Fabrication of Skinned Quad-Robots. Y. Wang, Y. Yang, H. Wang, H. Bao, B. Bickel, W. Xu. *IEEE Transactions on Visualization and Computer Graphics* 2019 (accepted).
3. X-CAD: Optimizing CAD Models with Extended Finite Elements. C. Hafner, C. Schumacher, E. Knoop, T. Auzinger, B. Bickel, M. Bächer. *ACM Transactions on Graphics (Proc. SIGGRAPH Asia)* 2019).
4. Volume-Aware Design of Composite Molds. T. Alderighi, L. Malomo, D. Giorgi, B. Bickel, P. Cignoni, N. Pietroni. *ACM Transactions on Graphics (Proc. SIGGRAPH)* 2019), vol. 38, no. 4, August 2019.
5. Geometry-Aware Scattering Compensation for 3D Printing. D. Sumin, T. Rittig, V. Babaei, A. Wilkie, P. Didyk, B. Bickel, J. Krivanek, K. Myszkowski, T. Weyrich. *ACM Transactions on Graphics (Proc. SIGGRAPH)* 2019), vol. 38, no. 4, August 2019.
6. FlexMaps: Computational Design of Flat Flexible Shells For Shaping 3D Objects. L. Malomo, J. Perez, E. Iarussi, N. Pietroni, E. Miguel, P. Cignoni, B. Bickel. *ACM Transactions on Graphics (Proc. SIGGRAPH Asia)* 2018).
7. Computational Design of Nanostructural Color for Additive Manufacturing. T. Auzinger, W. Heidrich, B. Bickel. In *ACM Transactions on Graphics (Proc. SIGGRAPH)* 2018), vol. 37, no. 4, July 2018.
8. CoreCavity: Interactive Shell Decomposition for Fabrication with Two-Piece Rigid Molds. K. Nakashima, T. Auzinger, E. Iarussi, R. Zhang, T. Igarashi, B. Bickel. In *ACM Transactions on Graphics (Proc. SIGGRAPH)* 2018), vol. 37, no. 4, July 2018.
9. Metamolds: Computational Design of Silicone Molds. T. Alderighi, L. Malomo, D. Giorgi, N. Pietroni, B. Bickel, P. Cignoni. In *ACM Transactions on Graphics (Proc. SIGGRAPH)* 2018), vol. 37, no. 4, July 2018.
10. Learning Three-Dimensional Flow for Interactive Aerodynamic Design. N. Umetani, B. Bickel. In *ACM Transactions on Graphics (Proc. SIGGRAPH)* 2018), vol. 37, no. 4, July 2018.
11. Efficient FEM-based Simulation of Soft Robots Modeled as Kinematic Chains. M. Pozzi, E. Miguel, R. Deimel, M. Malvezzi, B. Bickel, O. Brock, D. Prattichizzo. *IEEE International Conference on Robotics and Automation (ICRA)* 2018.
12. State of the Art on Stylized Fabrication. B. Bickel, P. Cignoni, L. Malomo, N. Pietroni. In *Computer Graphics Forum (State of the Art Report)*, vol. 37, no. 6, September 2018.
13. Scattering-aware Texture Reproduction for 3D Printing. O. Elek, D. Sumin, R. Zhang, T. Weyrich, K. Myszkowski, B. Bickel, A. Wilkie, J. Krivanek. In *ACM Transactions on Graphics (Proc. SIGGRAPH Asia)* 2017), vol. 36, no. 6, November 2017.
14. CurveUps: Shaping Objects from Flat Plates with Tension-Actuated Curvature. R. Guseinov, E. Miguel, B. Bickel. In *ACM Transactions on Graphics (Proc. SIGGRAPH)* 2017), vol. 36, no. 4, July 2017.
15. Functionality-aware Retargeting of Mechanisms to 3D Shapes. R. Zhang, T. Auzinger, D. Ceylan, W. Li, B. Bickel. In *ACM Transactions on Graphics (Proc. SIGGRAPH)* 2017), vol. 36, no. 4, July 2017.
16. Spin-It: Optimizing Moment of Inertia for Spinnable Objects (ACM Research Highlight). M. Bächer, E. Whiting, B. Bickel, O. Sorkine-Hornung. In *Communications of the ACM*, vol. 60, no. 8, August 2017.
17. FlexMolds: Automatic Design of Flexible Shells for Molding. L. Malomo, N. Pietroni, B. Bickel, P. Cignoni. In *ACM Transactions on Graphics (Proc. SIGGRAPH Asia)* 2016), vol. 35, no. 6, December 2016.
18. Computational Multicopter Design. T. Du, B. Zhu, A. Schulz, B. Bickel, W. Matusik. In *ACM Transactions on Graphics (Proc. SIGGRAPH Asia)* 2016), vol. 35, no. 6, December 2016.
19. Computational Design of Planar-Rod Structures. E. Miguel, M. Lepoutre, B. Bickel. In *ACM Transactions on Graphics (Proc. SIGGRAPH)* 2016), vol. 35, no. 4, July 2016.
20. OmniAD: Data-driven Omni-directional Aerodynamics. T. Martin, N. Umetani, B. Bickel. In *ACM Transactions on Graphics (Proc. SIGGRAPH)* 2015), vol. 34, no. 4, August 2015.
21. 3D Printing Elasticity using Microstructures. C. Schumacher, B. Bickel, S. Marschner, J. Rys, C. Daraio, M. Gross. In *ACM Transactions on Graphics (Proc. SIGGRAPH)* 2015), vol. 34, no. 4, August 2015.
22. Detailed Spatio-Temporal Reconstruction of Eyelids. A. Bermano, T. Beeler, Y. Kozlov, D. Bradley, B. Bickel, M. Gross. In *ACM Transactions on Graphics (Proc. SIGGRAPH)* 2015), vol. 34, no. 4, August 2015.

23. Design and Fabrication of Flexible Rod Meshes. J. Perez, B. Thomaszewski, S. Coros, B. Bickel, J. Canabal, R. Sumner, M. Otaduy. In *ACM Transactions on Graphics (Proc. SIGGRAPH 2015)*, vol. 34, no. 4, August 2015.
24. Recent Advances in Facial Appearance Capture. O. Klehm, F. Rousselle, M. Papas, D. Bradley, C. Hery, B. Bickel, W. Jarosz, T. Beeler. In *Computer Graphics Forum (Proc. Eurographics 2015 – State of the Art Reports)*, vol. 34, no. 2, May 2015.
25. Spin-It: Optimizing Moment of Inertia for Spinnable Objects. M. Baecher, E. Whitting, B. Bickel, O. Sorkine-Hornung. In *ACM Transactions on Graphics (Proc. SIGGRAPH 2014)*, vol. 33, no. 4, August 2014.
26. Designing Inflatable Structures. M. Skouras, B. Thomaszewski, P. Kaufmann, A. Garg, B. Bickel, E. Grinspun, M. Gross. In *ACM Transactions on Graphics (Proc. SIGGRAPH 2014)*, vol. 33, no. 4, August 2014.
27. Augmenting Physical Avatars using Projector-Based Illumination. A. Bermano, P. Brünschweiler, A. Grundhöfer, D. Iwai, B. Bickel, M. Gross. In *ACM Transactions on Graphics (Proc. SIGGRAPH Asia 2013)*, vol. 32, no. 6, November 2013.
28. Modeling and Estimation of Internal Friction in Cloth. E. Miguel, R. Tamstorf, D. Bradley, S. Schwartzman, B. Thomaszewski, B. Bickel, W. Matusik, S. Marschner, M. Otaduy. In *ACM Transactions on Graphics (Proc. SIGGRAPH Asia 2013)*, vol. 32, no. 6, November 2013.
29. 3D Printing Spatially Varying BRDFs. O. Roullier, B. Bickel, J. Kautz, W. Matusik, M. Alexa. In *IEEE Computer Graphics and Applications*, vol. 33, no. 6, September 2013.
30. Orthogonal Slicing for Additive Manufacturing. K. Hildebrand, B. Bickel, M. Alexa. In *Computers & Graphics (Shape Modeling International SMI 2013)*, vol. 37, no. 6, October 2013.
31. Facial Performance Enhancement using Dynamic Shape Space Analysis. A. Bermano, D. Bradley, T. Beeler, F. Zünd, D. Nowrouzezahrai, I. Baran, O. Sorkine-Hornung, H. Pfister, B. Sumner, B. Bickel, M. Gross. In *ACM Transactions on Graphics*, vol. 33, no. 2, March 2014.
32. Computational Design of Mechanical Characters. S. Coros, B. Thomaszewski, G. Noris, S. Sueda, M. Forberg, B. Sumner, W. Matusik, B. Bickel. In *ACM Transactions on Graphics (Proc. SIGGRAPH 2013)*, vol. 32, no. 3, July 2013.
33. Computational Design of Actuated Deformable Characters. M. Skouras, B. Thomaszewski, S. Coros, B. Bickel, M. Gross. In *ACM Transactions on Graphics (Proc. SIGGRAPH 2013)*, vol. 32, no. 3, July 2013.
34. Fabricating Translucent Materials using Continuous Pigment Mixtures. M. Papas, C. Regg, W. Jarosz, B. Bickel, S. Marschner, P. Jackson, W. Matusik, M. Gross. In *ACM Transactions on Graphics (Proc. SIGGRAPH 2013)*, vol. 32, no. 3, July 2013.
35. Physical Face Cloning. B. Bickel, P. Kaufmann, M. Skouras, T. Beeler, B. Thomaszewski, D. Bradley, P. Jackson, S. Marschner, W. Matusik, M. Gross. In *ACM Transactions on Graphics (Proc. SIGGRAPH 2012)*, vol. 31, no. 3, August 2012.
36. Coupled 3D Reconstruction of Sparse Facial Hair and Skin. T. Beeler, B. Bickel, G. Norris, P. Beardsley, B. Sumner, M. Gross. In *ACM Transactions on Graphics (Proc. SIGGRAPH 2012)*, vol. 31, no. 3, August 2012.
37. Fabricating Articulated Characters from Skinned Meshes. M. Baecher, B. Bickel, D. James, H. Pfister. In *ACM Transactions on Graphics (Proc. SIGGRAPH 2012)*, vol. 31, no. 3, August 2012.
38. crdbrd: Shape Fabrication by Sliding Planar Slices. K. Hildebrand, B. Bickel, M. Alexa. In *Computer Graphics Forum (Eurographics 2012)*, vol. 31, no. 2, May 2012.
39. Computational Design of Rubber Balloons. M. Skouras, B. Thomaszewski, B. Bickel, M. Gross. In *Computer Graphics Forum (Eurographics 2012)*, vol. 31, no. 2, May 2012.
40. Data-Driven Estimation of Cloth Simulation Models. E. Miguel, D. Bradley, B. Thomaszewski, B. Bickel, W. Matusik, M. Otaduy, S. Marschner. In *Computer Graphics Forum (Eurographics 2012)*, vol. 31, no. 2, May 2012.
41. High-Quality Passive Facial Performance Capture using Anchor Frames. T. Beeler, F. Hahn, D. Bradley, B. Bickel, P. Beardsley, C. Gotsman, B. Sumner, M. Gross. In *ACM Transactions on Graphics (Proc. SIGGRAPH 2011)*, vol. 30, no. 3, August 2011.
42. Design and Fabrication of Materials with Desired Deformation Behavior. B. Bickel, M. Baecher, M. A. Otaduy, H. R. Lee, H. Pfister, M. Gross, W. Matusik. In *ACM Transactions on Graphics (Proc. SIGGRAPH 2010)*, vol. 29, no. 3, July 2010.



43. High-Quality Single-Shot Capture of Facial Geometry. T. Beeler, B. Bickel, P. Beardsley, B. Sumner, M. Gross. In *ACM Transactions on Graphics (Proc. SIGGRAPH 2010)*, vol. 29, no. 3, July 2010.
44. Subsurface Scattering using Splat-Based Diffusion in Point-Based Rendering. H.J. Kim, B. Bickel, M. Gross, S.M. Choi. In *Science China Information Science*, 53: 1–9, April 2010.
45. Capture and Modeling of Non-Linear Heterogeneous Soft Tissue. B. Bickel, M. Baecher, M. Otaduy, W. Matusik, H. Pfister, M. Gross. In *ACM Transactions on Graphics (Proc. SIGGRAPH 2009)*, vol. 28, no. 3, August 2009.
46. Texturing Internal Surfaces from a Few Cross-Sections. N. Pietroni, M. Otaduy, B. Bickel, F. Ganovelli, M. Gross. In *Computer Graphics Forum (Proc. Eurographics 2007)*, vol. 26, no. 3, September 2007.
47. Multi-Scale Capture of Facial Geometry and Motion. B. Bickel, M. Botsch, R. Angst, W. Matusik, M. Otaduy, H. Pfister, M. Gross. In *ACM Transactions on Graphics (Proc. SIGGRAPH 2007)*, vol. 26, no. 3, August 2007.
48. Analysis of Human Faces using a Measurement-Based Skin Reflectance Model. T. Weyrich, W. Matusik, H. Pfister, B. Bickel, C. Donner, C. Tu, J. McAndless, J. Lee, A. Ngan, H. W. Jensen, M. Gross. In *ACM Transactions on Graphics (Proc. SIGGRAPH 2006)*, vol. 25, no. 3, July 2006.

### PEER-REVIEWED INTERNATIONAL CONFERENCES

49. FlexMaps Pavilion: A Twisted Arc Made of Mesostructured Flat Flexible Panels. F. Laccone, L. Malomo, J. Perez, N. Pietroni, F. Ponchio, B. Bickel, P. Cignoni. *Proc. IASS Annual Symposium 2019 - Structural Membranes 2019*, Oct 2019.
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