

Gaurav Bharaj

Email: gaurav.bharaj@gmail.com

Website: <http://www.gauravbharaj.com>

SUMMARY

I am a computer vision, and graphics researcher and engineer. I build tools to solve challenging visual computing problems through mathematical modeling, machine learning, and numerical optimization.

EDUCATION

Harvard University, Cambridge, MA

Ph.D. in Computer Science, Nov 2017

Advisor: Prof. Hanspeter Pfister

Thesis: Methods in Computational Design and Optimization

University of Pennsylvania, Philadelphia, PA

M.S. in Computer Science, May 2010

Concentrations: Computer Graphics and Game Technology

Punjabi University, Patiala, INDIA

B.Tech. in Computer Science, May 2007

WORK EXPERIENCE

Technicolor, New York, NY

Senior Researcher, Imaging Science Laboratory, Dec 2017 – Present

Developed a 3D face reconstruction and tracking tool from image/video data and co-lead a team of six PhD researchers, defining project goals, and technical direction. Maintained academic collaboration with MPI Informatics, Germany, publishing and pushing state-of-the-art technologies. Mentored MS and PhD students on computer vision and deep learning projects.

Intel Sports, Santa Clara, CA

Computer Vision and Graphics Intern, June 2017 – Aug 2017

Adobe Research, Seattle, WA

Research Intern, Creative Technologies Laboratory, June 2016 – Aug 2016

Disney Research, Zürich, CH

Research Intern, June 2013 – Aug 2013

Max-Planck Institute for Informatics, Saarbrücken, DE

Research Engineer, Computer Graphics Department, Aug 2010 – Aug 2012

Worked on 3D human shape/pose reconstruction research projects and build software tools for the multiview video data lab.

STMicroelectronics, Noida, IND

Software Intern, Jan 2007 – July 2007

PUBLICATIONS

Journals and Conferences

1. FML: Face Model Learning from Videos
Ayush Tewari, Florian Bernard, Pablo Garrido, **Gaurav Bharaj**, Mohamed Elgharib, Hans-Peter Seidel, Patrick Pérez, Michael Zollhöfer, and Christian Theobalt
In Proc. IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2019 (Oral)
2. Metamorphs: Computational Design of Example-based Shape Forms
Gaurav Bharaj, Danny Kaufman, Etienne Vouga, and Hanspeter Pfister
arXiv, 2018
3. Methods in Computational Design and Optimization
Gaurav Bharaj
Ph.D. Thesis, 2017
4. Computational Design of Metallophone Contact Sounds
Gaurav Bharaj, David Levin, James Tompkin, Yun Fei, Hanspeter Pfister, Wojciech Matusik, and Changxi Zheng
ACM Transactions on Graphics (Proc. SIGGRAPH Asia), 2015

5. Computational Design of Walking Automata
Gaurav Bharaj, Stelian Coros, Bernhard Thomaszewski, James Tompkin, Bernd Bickel, and Hanspeter Pfister
ACM SIGGRAPH/EUROGRAPHICS Proc. Symposium on Computer Animation (SCA), 2015
6. Personalization and Evaluation of a Real-time Depth-based Full Body Tracker
 Thomas Helten, Andreas Baak, **Gaurav Bharaj**, Meinard Müller, Hans-Peter Seidel, and Christian Theobalt
In Proc. International Conference on 3D Vision (3DV), 2013
7. Automatically Rigging Multi-Component Characters
Gaurav Bharaj, Thorsten Thormählen, Hans-Peter Seidel, and Christian Theobalt
Computer Graphics Forum, European Association Computer Graphics (EUROGRAPHICS), 2012
8. A Data-Driven Approach for Real-Time Full Body Pose Reconstruction from a Depth Camera
 Andreas Baak, Meinard Müller, **Gaurav Bharaj**, Hans-Peter Seidel, and Christian Theobalt
In Proc. International Conference on Computer Vision (ICCV), 2011
9. Video-based Characters - Creating New Human Performances from a Multi-view Video Database
 Feng Xu, Yebin Liu, Carsten Stoll, James Tompkin, **Gaurav Bharaj**, Qionghai Dai, Hans-Peter Seidel, Jan Kautz, and Christian Theobalt
ACM Transactions on Graphics (Proc. SIGGRAPH), 2011

Book Chapter

10. A Data-driven Approach for Real-time Full Body Pose Reconstruction from a Depth Camera
 Thomas Helten, Andreas Baak, **Gaurav Bharaj**, Meinard Müller, Hans-Peter Seidel, and Christian Theobalt
Consumer Depth Cameras for Computer Vision, 2013

Patents

11. Walking Machines
 Bernd Bickel, **Gaurav Bharaj**, Bernhard Thomaszewski, and Stelian Coros
US Patent, 2014

ACADEMIC EXPERIENCE

Massachusetts Institute of Technology, Cambridge, MA
 Visiting Research Fellow, May 2014 – Aug 2014

Harvard University, Cambridge, MA
 Teaching Fellow, Computer Vision, Sep 2017 – Dec 2017
 Teaching Fellow, Visualization, Jan 2013 – April 2013

University of Pennsylvania, Philadelphia, PA
 Research Fellow, Jan 2009 – April 2009

AWARDS AND HONORS

Outstanding Reviewer, Computers & Graphics Journal, Elsevier, Amsterdam, 2017
 Granted the prestigious Siebel Scholarship, 2016 - 2017
 Granted the Amartya Sen Fellowship for Students from India, 2012 – 2013

MENTORING

Christopher Aykroyd, École Polytechnique, 2019
 Ayush Tewari, Max-Planck Institute for Informatics, 2018-19

PROFESSIONAL ACTIVITIES

Reviewer

ACM SIGGRAPH, ACM SIGGAPH Asia, Conference on Computer Vision and Pattern Recognition (CVPR), International Conference on Computer Vision (ICCV), Computer Graphics Forum (EUROGRAPHICS), International Journal of Robotics Research, Scientific Instruments