

Gaurav Chaurasia

EMAIL: gchauras@mit.edu

URL: <http://people.csail.mit.edu/gchauras/>

Research Interests

Image-based rendering, 3D reconstruction, image warping, computational photography, GPU accelerated image processing

Experience

2015– Postdoctoral Associate, *Disney Research Zurich, Switzerland*
ADVISOR: Prof. Paul Beardsley

2014–2015 Postdoctoral Associate, *Massachusetts Institute of Technology, Cambridge MA, USA*
ADVISOR: Prof. Fredo Durand

Education

2010–2014 Ph.D in Computer Science, *INRIA Sophia Antipolis, France*
ADVISOR: Dr. George Drettakis
THESIS: Algorithms & perceptual analysis for interactive free viewpoint image-based navigation

2009–2010 M.Sc in Computer Science, *ENSIMAG, Grenoble, France*

2005–2009 B.Tech in Computer Science, *Indian Institute of Technology Delhi, India*
ADVISOR: Dr. Subodh Kumar
THESIS: Real time traffic simulation

Visiting Positions

Aug 2013 Visiting student, *Massachusetts Institute of Technology, MA, USA* (Advisor: Dr. Fredo Durand)
Parallel execution of non-parallel recursive or IIR filters.

Aug 2012 Visiting student, *University of California Berkeley, CA, USA* (Advisor: Dr. Ravi Ramamoorthi)
Procedural noise functions for synthesizing non-Gaussian textures.

Feb–Jun 2010 Intern, *INRIA Sophia Antipolis, France* (Advisor: Dr. George Drettakis)
Image-based rendering for urban scenes.

Summer 2008 Intern, *NVIDIA Bangalore, India*
OpenGL-ES extensions for GPU driver for embedded systems, OpenGL-ES 2.0 conformance test suite bugs.

Summer 2007 Intern, *Dublin City University, Ireland* (Advisor: Dr. Derek Molloy)
Memory exercises as 3D games and user studies to test effect of 3D user interfaces on human recall.

Publications

2015 M. Gharbi, Y. Shih, G. Chaurasia, J. Ragan-Kelley, S. Paris, F. Durand. “Transform recipes for efficient cloud photo enhancement”, *ACM Trans. Graph. (SIGGRAPH Asia 2015)*. [www] [doi]

2015 G. Chaurasia, J. Ragan-Kelley, S. Paris, G. Drettakis, F. Durand. “Compiling high performance recursive filters”, *High Performance Graphics*. [www] [doi]

2015 S. Duchene, C. Riant, G. Chaurasia, J. Lopez-Moreno, PY Laffont, S. Popov, A. Bousseau, G. Drettakis. “Multi view intrinsic decomposition & relighting”, *ACM Trans. Graph. (to be presented at SIGGRAPH 2016)*. [www]

2015 M. Benoit, R. Guerchouche, PD Petit, E. Chapoulie, V. Manera, G. Chaurasia, G. Drettakis, P. Robert. “Is it possible to use highly realistic virtual reality in the elderly? A feasibility study with image-based rendering”, *Journal of Neuropsychiatric Disease and Treatment*. [www] [doi]

2014 E. Chapoulie, R. Guerchouche, PD Petit, G. Chaurasia, P. Robert, G. Drettakis. “Reminiscence therapy using

image-based rendering in VR”, *IEEE Virtual Reality*. [\[www\]](#) [\[doi\]](#)

- 2013 G. Chaurasia, S. Duchene, O. Sorkine-Hornung, G. Drettakis. “Depth synthesis and local warps for plausible image-based navigation”, *ACM Trans. Graph.* 32(3) (presented at SIGGRAPH 2013). [\[www\]](#) [\[doi\]](#)
- 2013 P. Vangorp, C. Richardt, E.A. Cooper, G. Chaurasia, M.S. Banks, G. Drettakis. “Perception of perspective distortions in image-based rendering”, *ACM Trans. Graph.* 32(4) (SIGGRAPH 2013). [\[www\]](#) [\[doi\]](#)
- 2011 G. Chaurasia, O. Sorkine, G. Drettakis. “Silhouette-aware warping for image-based rendering”, *Comput. Graph. Forum* 30(4): 1223-1232 (EGSR 2011). [\[www\]](#) [\[doi\]](#)
- 2011 P. Vangorp, G. Chaurasia, PY Laffont, R. Fleming, G. Drettakis. “Perception of visual artifacts in image-based rendering of façades”, *Comput. Graph. Forum* 30(4): 1241-1250 (EGSR 2011). [\[www\]](#) [\[doi\]](#)
- 2011 M. Cabral, P. Vangorp, G. Chaurasia, E. Chapoulie, M. Hachet, G. Drettakis. “A multimode immersive conceptual design system for architectural modeling & lighting”, *IEEE Symposium on 3D User Interfaces (3DUI 2011)*. [\[www\]](#) [\[doi\]](#)
- 2010 G. Chaurasia, B.R. Selvamani, N. Gupta, S. Kumar. “Virtual chaotic traffic simulation”, *Indian Conference on Computer Vision, Graphics & Image Processing (ICVGIP 2010)*. [\[www\]](#) [\[doi\]](#)

Talks

- Jul 2013 Algorithms and perception for interactive free-viewpoint image-based navigation, *Microsoft Research Redmond (eXtreme Computing Group)*. [\[Talk\]](#)
- Sept 2013 Algorithms for interactive free-viewpoint image-based navigation, *MIT CSAIL (Graphics Lunch)*. [\[Abstract\]](#)

Professional Activities

- Journals Reviewer for [IEEE Signal Processing Letters 2015](#), [Computers & Graphics 2015](#), [IEEE Transactions on Visualization and Computer Graphics 2015](#), [ACM Transactions on Applied Perception 2014](#), [Journal of Signal, Image and Video Processing 2013](#)
- Conferences Reviewer for [Eurographics 2016](#), [Pacific Graphics 2015](#), [Pacific Graphics 2014](#), [SIGGRAPH Asia 2013](#), [SIGGRAPH 2012](#), [Eurographics 2012](#)

Supervision & Teaching

- 2015 TA: course 6.815/6.865 Digital & Computational Photography by Prof. Fredo Durand (MIT)
- 2013 Co-supervised Kritarth Anand (*undergraduate thesis, IIT Delhi/INRIA Sophia Antipolis*)
- 2013 Co-supervised Arunim Samat (*undergraduate thesis, IIT Delhi/INRIA Sophia Antipolis*)

Scholarships & Awards

- Aug 2010 PhD fellowship (*Allocation de Recherche*) by the French ministry for 3 years of PhD studies.
- Aug 2009 Scholarship of Excellence (*Bourse d'Excellence*) by ENSIMAG for one year of Master's studies.
- May 2007 Scholarship for 12 week research internship ‘ODCSSS-07’ in Dublin by Science Foundation of Ireland.
- Jun 2005 All India Rank 54 in IIT-JEE 2005 (entrance examination for Indian Institutes of Technology) amongst nearly 300,000 aspirants.

Technical Skills

C++, MATLAB, OpenGL, GLSL, CUDA, OpenCV, Java, \LaTeX , SVN, Git, Bash, Vim, Visual Studio

References

Available on request.