

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*
Computer vision group
- 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: Prof. 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

- 2016 ST Digumarti, A. Taneja, A. Thomas, G. Chaurasia, R. Siegwart, P. Beardsley. Underwater 3D capture using a low-cost commercial depth camera, *IEEE Winter Conference on Applications of Computer Vision (WACV)*. [\[www\]](#) [\[doi\]](#)
- 2015 M. Gharbi, Y. Shih, G. Chaurasia, J. Ragan-Kelley, S. Paris, F. Durand. Transform recipes for efficient cloud photo enhancement, *ACM Trans. Graph.* 34(6) (*SIGGRAPH Asia 2015*). [\[www\]](#) [\[doi\]](#)
- 2015 S. Duchêne, C. Riant, G. Chaurasia, J. Lopez-Moreno, PY Laffont, S. Popov, A. Bousseau, G. Drettakis. Multi view intrinsic decomposition & relighting, *ACM Trans. Graph.* 34(5) (*SIGGRAPH 2016*). [\[www\]](#) [\[doi\]](#)
- 2015 G. Chaurasia, J. Ragan-Kelley, S. Paris, G. Drettakis, F. Durand. Compiling high performance recursive filters, *High Performance Graphics*. [\[www\]](#) [\[doi\]](#)
- 2015 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) (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) (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)*. [\[www\]](#) [\[doi\]](#)

Professional Activities

| | | |
|--------------------|--|-----------|
| Journal reviews | ACM Transactions on Graphics | 2016 |
| | ACM Transactions on Applied Perception | 2014 |
| | Computer Graphics Forum | 2015 |
| | IEEE Transactions on Visualization and Computer Graphics | 2015 |
| | The Visual Computer | 2016 |
| | Computers & Graphics | 2015 |
| | IEEE Signal Processing Letters | 2015 |
| Conference reviews | Journal of Signal Image & Video Processing | 2013 |
| | SIGGRAPH | 2012,2016 |
| | SIGGRAPH Asia | 2013 |
| | Eurographics | 2012,2016 |
| | High Performance Graphics | 2016 |
| | Pacific Graphics | 2014,2015 |

Supervision & Teaching

| | | |
|-------------|--|----------------------------------|
| Spring 2016 | TA: Advanced Methods in Computer Graphics Seminar 252-5704-00L | ETH Zurich |
| Spring 2015 | TA: Digital & Computational Photography 6.815/6.865 | MIT |
| Spring 2013 | Co-supervised Kritarth Anand (undergraduate thesis) | INRIA Sophia Antipolis/IIT Delhi |
| Spring 2013 | Co-supervised Arunim Samat (undergraduate thesis) | INRIA Sophia Antipolis/IIT Delhi |

Scholarships & Awards

| | |
|----------|--|
| Aug 2010 | PhD fellowship (<i>Allocation de Recherche</i>) by the French ministry for PhD studies. |
| Aug 2009 | Scholarship of Excellence (<i>Bourse d'Excellence</i>) by ENSIMAG for 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, L^AT_EX, SVN, Git, Bash, Vim, Visual Studio

References

Available on request.