

# gaurav chaurasia

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## research interests

Image-based rendering and 3D reconstruction  
Model extraction from RGB-D data  
Compilers and GPU acceleration for image synthesis  
Convolutional Neural networks for computational photography  
Neural networks for 2D/3D synthesis

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## experience

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| 2015–till date | <b>DISNEY RESEARCH ZURICH</b><br><i>Postdoctoral Associate (computer vision)</i>                            | <i>Zurich, Switzerland</i> |
| 2014–2015      | <b>MASSACHUSETTS INSTITUTE OF TECHNOLOGY</b><br><i>Postdoctoral Associate (Adviser: Prof. Frédo Durand)</i> | <i>Cambridge MA, USA</i>   |

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## education

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| 2010–2014 | <b>INRIA</b><br><i>Ph.D in Computer Science (Adviser: Dr. George Drettakis)</i><br>DISSERTATION: Algorithms and perceptual analysis for interactive free viewpoint image-based navigation | <i>Sophia Antipolis, France</i> |
| 2009–2010 | <b>ENSIMAG</b><br><i>M.Sc in Computer Science</i>   | <i>Grenoble, France</i>         |
| 2005–2009 | <b>INDIAN INSTITUTE OF TECHNOLOGY DELHI</b><br><i>B.Tech in Computer Science (Adviser: Prof. Subodh Kumar)</i><br>DISSERTATION: Real time traffic simulation                              | <i>New Delhi, India</i>         |

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## visiting positions

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| Aug 2013     | <b>MASSACHUSETTS INSTITUTE OF TECHNOLOGY</b><br><i>Visiting student (Adviser: Prof. Frédo Durand)</i><br>Parallel execution of non-parallel recursive filters.              | <i>Cambridge MA, USA</i>        |
| Aug 2012     | <b>UNIVERSITY OF CALIFORNIA BERKELEY</b><br><i>Visiting student (Adviser: Prof. Ravi Ramamoorthi)</i><br>Procedural noise functions for synthesizing non-Gaussian textures. | <i>Berkeley CA, USA</i>         |
| Feb–Jun 2010 | <b>INRIA</b><br><i>Research intern (Adviser: Dr. George Drettakis)</i><br>Image-based rendering for urban scenes.   | <i>Sophia Antipolis, France</i> |
| Summer 2008  | <b>NVIDIA</b><br><i>Intern (Embedded graphics group)</i><br>OpenGL-ES extensions for GPU driver for embedded systems, OpenGL-ES 2.0 conformance test suite bugs.            | <i>Bangalore, India</i>         |

Memory exercises as 3D games and user studies to test effect of 3D user interfaces on human recall.

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**publications**

- 2017 **Editable parametric dense foliage from 3D capture**  
G. Chaurasia, P. Beardsley  
*IEEE International Conference on Computer Vision (ICCV)* [www] [doi]
- 2016 **Deep joint demosaicking and denoising**  
M. Gharbi, G. Chaurasia, S. Paris, F. Durand  
*ACM Transactions on Graphics (SIGGRAPH Asia)* [www] [doi]
- Underwater 3D capture using a low-cost commercial depth camera**  
ST Digumarti, G. Chaurasia, A. Taneja, A. Thomas, R. Siegwart, P. Beardsley  
*IEEE Winter Conference on Applications of Computer Vision (WACV)* [www] [doi]
- 2015 **Transform recipes for efficient cloud photo enhancement**  
M. Gharbi, Y. Shih, G. Chaurasia, J. Ragan-Kelley, S. Paris, F. Durand  
*ACM Transactions on Graphics (SIGGRAPH Asia)* [www] [doi]
- Multi view intrinsic decomposition and relighting**  
S. Duchêne, C. Riant, G. Chaurasia, J. Lopez-Moreno, PY Laffont, S. Popov, A. Bousseau, G. Drettakis  
*ACM Transactions on Graphics (presented at SIGGRAPH)* [www] [doi]
- Compiling high performance recursive filters**  
G. Chaurasia, J. Ragan-Kelley, S. Paris, G. Drettakis, F. Durand  
*High Performance Graphics* [www] [doi]
- Is it possible to use highly realistic virtual reality in the elderly? A feasibility study with image-based rendering**  
M. Benoit, R. Guerchouche, PD Petit, E. Chapoulie, V. Manera, G. Chaurasia, G. Drettakis, P. Robert  
*Journal of Neuropsychiatric Disease and Treatment* [www] [doi]
- 2014 **Reminiscence therapy using image-based rendering in VR**  
E. Chapoulie, R. Guerchouche, PD Petit, G. Chaurasia, P. Robert, G. Drettakis  
*IEEE Virtual Reality (IEEE VR)* [www] [doi]
- 2013 **Depth synthesis and local warps for plausible image-based navigation**  
G. Chaurasia, S. Duchene, O. Sorkine-Hornung, G. Drettakis  
*ACM Transactions on Graphics (presented at SIGGRAPH)* [www] [doi]
- Perception of perspective distortions in image-based rendering**  
P. Vangorp, C. Richardt, E.A. Cooper, G. Chaurasia, M.S. Banks, G. Drettakis  
*ACM Transactions on Graphics (SIGGRAPH)* [www] [doi]
- 2011 **Silhouette-aware warping for image-based rendering**  
G. Chaurasia, O. Sorkine, G. Drettakis  
*Computer Graphics Forum (Eurographics Symposium on Rendering)* [www] [doi]
- Perception of visual artifacts in image-based rendering of façades**  
P. Vangorp, G. Chaurasia, PY Laffont, R. Fleming, G. Drettakis  
*Computer Graphics Forum (Eurographics Symposium on Rendering)* [www] [doi]

## A multimode immersive conceptual design system for architectural modeling and lighting

M. Cabral, P. Vangorp, G. Chaurasia, E. Chapoulie, M. Hachet, G. Drettakis

*IEEE Symposium on 3D User Interfaces (IEEE 3DUI)* [www] [doi]

## 2010 Virtual chaotic traffic simulation

G. Chaurasia, B.R. Selvamani, N. Gupta, S. Kumar

*Indian Conference on Computer Vision, Graphics and Image Processing (ICVGIP)* [www] [doi]

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## supervised theses

Spring 2017 RNN-based generative model for learning and synthesis of tree skeletons

Andrin Jenal

*Master's thesis, ETH Zurich*

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## teaching

Autumn 2016 Advanced Topics in Computer Graphics & Vision Seminar 252-5701-00L ... ETH Zurich

Spring 2016 Advanced Topics in Computer Graphics Seminar 252-5704-00L ..... ETH Zurich

Spring 2015 TA: Digital & Computational Photography 6.815/6.865 ..... MIT

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## professional activities

Journal reviews ACM Transactions on Graphics ..... 2016, 2017

ACM Transactions on Applied Perception ..... 2014

Computer Graphics Forum ..... 2015

IEEE Transactions on Visualization and Computer Graphics ..... 2015, 2016

The Visual Computer ..... 2016, 2017

Computers and Graphics ..... 2015, 2017

IEEE Signal Processing Letters ..... 2015

Journal of Signal Image and Video Processing ..... 2013

Conference reviews SIGGRAPH ..... 2012, 2016

SIGGRAPH Asia ..... 2013, 2016, 2017

Eurographics ..... 2012, 2016

High Performance Graphics ..... 2016

Pacific Graphics ..... 2014, 2015, 2016

Virtual Reality Science & Technology ..... 2016

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## scholarships and awards

Aug 2010 PhD fellowship (*Allocation de Recherche*) by the French ministry for PhD studies.

Aug 2009 Scholarship of Excellence (*Bourse d'Excellence*) 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.

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## technical skills

C++, MATLAB, Python, OpenGL, GLSL, CUDA, OpenCV, Java, L<sup>A</sup>T<sub>E</sub>X, SVN, Git, Bash, Vim, Visual Studio

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## references

Available on request.