GAURAV CHAURASIA

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RESEARCH INTERESTS

Computer vision and machine learning for VR and related applications.
3D reconstruction and fitting to RGB-D data.
Neural networks for 2D/3D synthesis.
Hardware acceleration – compilers, GPGPU, ARM-optimisation.

EXPERIENCE

2018-till date **Oculus** *Zurich, Switzerland*
Computer Vision

2015-2017 **Disney Research Zurich** *Zurich, Switzerland*
Associate Research Scientist (computer vision)

2014-2015 **Massachusetts Institute of Technology** *Cambridge MA, USA*
Postdoctoral Associate (Adviser: Prof. Frédo Durand)

EDUCATION

2010-2014 **INRIA** *Sophia Antipolis, France*
Ph.D in Computer Science (Adviser: Dr. George Drettakis)
Algorithms and perceptual analysis for interactive free viewpoint image-based navigation

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

2005-2009 **Indian Institute of Technology Delhi** *New Delhi, India*
B.Tech in Computer Science (Adviser: Prof. Subodh Kumar)
Real time traffic simulation

VISITING POSITIONS

Aug 2013 **Massachusetts Institute of Technology** *Cambridge MA, USA*
Visiting student (Adviser: Prof. Frédo Durand)
Parallel execution of non-parallel recursive filters.

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

Feb-Jun 2010 **INRIA** *Sophia Antipolis, France*
Research intern (Adviser: Dr. George Drettakis)
Image-based rendering for urban scenes.

Summer 2008 **Nvidia** *Bangalore, India*
Intern (Embedded graphics group)
OpenGL-ES extensions for GPU driver for embedded systems, OpenGL-ES 2.0 conformance test suite bugs.

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

PUBLICATIONS

2018 **RNN-based generative model for fine-grained sketching**
A. Jenal, N. Savinov, T. Sattler, G. Chaurasia
European Conference on Computer Vision (under review)

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. Duchene, 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 [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, EA Cooper, G. Chaurasia, MS 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 (EGSR) [www] [doi]

Perception of visual artifacts in image-based rendering of facades
P. Vangorp, G. Chaurasia, PY Laffont, R. Fleming, G. Drettakis
Computer Graphics Forum (EGSR) [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, BR Selvamani, N. Gupta, S. Kumar
Indian Conference on Computer Vision, Graphics and Image Processing (ICVGIP) [www] [doi]

SUPERVISED THESES

Spring 2017 **RNN-based generative model for learning and synthesis of tree skeletons**
Andrin Jenal
Master's thesis, ETH Zurich

TEACHING

Autumn 2016 Advanced Topics in Computer Graphics and Vision Seminar 252-5701-00L . . ETH Zurich
Spring 2016 Advanced Topics in Computer Graphics Seminar 252-5704-00L . . . . . ETH Zurich
Spring 2015 Digital and Computational Photography 6.815/6.865 . . . . . MIT

PROFESSIONAL ACTIVITIES

Grant proposal reviews
National Science Foundation (USA) 2017
Agence Nationale de la Recherche (France) 2018

Journal reviews
ACM Transactions on Graphics 2016, 2017, 2018
ACM Transactions on Applied Perception 2014
IEEE Transations on Image Processing 2018
IEEE Transactions on Visualization and Computer Graphics 2015, 2016
Computer Graphics Forum 2015
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
CVPR 2018
ACCV 2018
SIGGRAPH 2012, 2016
SIGGRAPH Asia 2013, 2016, 2017, 2018
Eurographics 2012, 2016
Pacific Graphics 2014, 2015, 2016
High Performance Graphics 2016
Virtual Reality Science and Technology (VRST) 2016

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.

TECHNICAL SKILLS

C++, Matlab, Python, OpenGL, GLSL, CUDA, OpenCV, LaTeX, Git, SVN, Bash, Vim, Java, Visual Studio

REFERENCES Available on request