Alexandre Chapiro

I am interested in image and video processing. In particular: computational capture and display, stereo 3D, HDR, applied perception, user experience, virtual reality.

Professional Experience

2017-now	**Dolby Laboratories, Sunnyvale**
Senior Researcher	Conduct research and obtain experimental results on human perception factors relevant to business needs
affiliation	Applied Vision Science group, managed by Robin Atkins
2011-2016	**Disney Research, Zurich**
Researcher	Conducted research on novel displays, stereo 3D, high dynamic range, high framerate and human perception resulting in four patent applications and several publications
affiliation	Stereo and Displays group, managed by Aljoša Smolić

Education

2011-2015	**PhD in Computer Science**
institution	Federal Institute of Technology Zurich (ETHZ), Zurich, Switzerland
thesis title	*Perceptual Enhancements for Novel Displays*
affiliation	Computer Graphics Laboratory
supervisors	Prof. Markus Gross. Co-Advisor: Dr. Aljoša Smolić
2010-2011	**Masters' Degree in Applied Mathematics**
institution	Institute of Pure and Applied Mathematics (IMPA), Rio de Janeiro, Brazil
thesis title	*Improving Mobile Video*
affiliation	Visgraf laboratory
supervisors	Prof. Paulo Cezar Pinto Carvalho. Co-Advisor: Prof. Luiz Velho
2007–2009	**Undergraduate Degree in Mathematics**
institution	Federal University of Juiz de Fora (UFJF), Juiz de Fora, Brazil
thesis title	*An Introduction to Degree Theory*
affiliation	Computer Graphics Laboratory
supervisors	Prof. Luiz Faria, Marcelo Bernardes Vieira

2016-2016	**Dolby Laboratories, Sunnyvale**
Intern	Conducted research on the human visual system guided by business unit needs
affiliation	Applied Vision Science group, managed by Robin Atkins

Teaching

Feb.2014 to Jun.2014	**Teaching assistant**, *Math. Foundations of Computer Graphics and Vision*, ETHZ. Graduate class teaching mathematical techniques in visual computing
Feb.2015 to Jun.2015	**Teaching assistant**, *Math. Foundations of Computer Graphics and Vision*, ETHZ.
Feb.2012 to Jun.2012	**Teaching assistant**, *Informatik 1*, ETHZ. Undergradute class teaching fundaments of informatics to engineering students
Feb.2013 to Jun.2013	**Teaching assistant**, *Informatik 1*, ETHZ.

Academic Honors

2015	Second youngest PhD to ever graduate from the Computer Science department at ETH Zurich at 25
2011	Finished 2-year Master's program at the National Institute of Pure and Applied Mathematics in 18 months
2009	Finished 4-year undergraduate program at the Federal University of Juiz de Fora in Mathematics in 3 years with the highest GPA in the graduating class
2007	Ranked 1st in admission examinations, Federal University of Juiz de Fora
2006	Gold Medalist, Brazilian Astronomy Olympiad
2006	Gold Medalist, Brazilian Mathematics Olympiad for Public School Students. 95th place among approximately 5.3 million students
2005	Gold Medalist, Brazilian Mathematics Olympiad for Public School Students. 9th place among approximately 3.8 million students

Academic Reviewing

conferences:	**2017**, *SIGGRAPH*.
	2016, *SIGGRAPH Asia, Graphics Interface*.
	2015, *SIGGRAPH, SIGGRAPH Asia, ICIP*.
	2014, *Pacific Graphics*.
	2012, *3DV*.
journals:	**2017**, *IEEE TIP*.
	2016, *IEEE TIP*, JOSA.
	2015, *IEEE CG&A, IEEE TVCG*.
	2014, *CG Forum*.

Awards and Funding

Oct.2011 to Oct.2013	**Participant**, *European Commission Program FP7*.
Mar.2010 to Jul.2011	**Awarded**, *Master program fellowship, CNPq*.
Jan.2009 to Dec.2009	**Awarded**, *Undergraduate research scholarship, FAPEMIG*.
Jan.2008 to Dec.2008	**Awarded**, *Undergraduate research scholarship, CNPq*.
Mar.2007 to Jan.2008	**Awarded**, *Scholarship for winners OBMEP 2006 mathematics olympics, CNPq*.
Mar.2006 to Jan.2007	**Awarded**, *Scholarship for winners OBMEP 2005 mathematics olympics, CNPq*.
Jan.2005 to Dec.2005	**Awarded**, *High-school research scholarship, CNPq*.

o Obs.: CNPq is the Brazilian national funding agency. FAPEMIG is the funding agency for the state of Minas Gerais, Brazil

Invited Talks and Presentations

invited talk:	**Perceptual Enhancements for Novel Displays**. IBM 2017, Rio de Janeiro, hosted by Emilio Vital Brazil
invited talk:	**Computer Graphics**, *(popular lecture)*. IF Sudeste MG 2017, Juiz de Fora, hosted by Elena Konstantinova
invited talk:	**Computer Graphics**, *(popular lecture)*. IF Sudeste MG 2016, Rio Pomba, hosted by Lucas Lattari
invited talk:	**Perceptual Enhancements for Novel Displays**. Dolby Laboratories 2016, Sunnyvale, hosted by Timo Kunkel
invited talk:	**Perceptual Enhancements for Novel Displays**. Technicolor 2015, Rennes, hosted by Erik Reinhard
invited talk:	**Perceptual Enhancements for 3D Displays**. Max Planck Institut 2015, Saarbrucken, hosted by Piotr Didyk
paper talk:	**Stereo from Shading**. EGSR 2015
paper talk:	**Perceptual Evaluation of Cardboarding in 3D Content Visualization**. SAP 2015
paper talk:	**Optimizing Stereo-to-Multiview Conv. for Autostereo. Displays**. Eurographics 2015

Languages

Portuguese	Fluent	*Native speaker*
Russian	Fluent	*Native speaker*
English	Fluent	*TOEFL iBT 117/120, Cambridge FCE and CAE exams with A grades*
Spanish	Fluent	*3 years of school in Spain*
French	Advanced	*Alliance Française DELF diplome - 2005*
German	Beginner	*Approximately A2 level*

References

Prof. Dr. Markus Gross,
Director of Disney Research Zurich. Full Professor, ETH Zurich.

Prof. Dr. Aljoša Smolić,
SFI Research Professor of Creative Technologies, Trinity College Dublin.

Robin Atkins,
Group leader, Dolby Laboratories, Sunnyvale.

Dr. Tunç Aydın,
Research Scientist, Disney Research Zurich.

Publications

*Obs.: * Patent application in progress.*

Papers

Unfolding the 8-bit Era,
European Conference on Visual Media Production 2015,
Zund, F., Berard, P., Chapiro, A., Schmid, S., Ryffel, A., Bermano, A., Gross, M., Sumner, R.

Art-Directable Continuous Dynamic Range Video,
Compters & Graphics, Elsevier, 2015,
Chapiro, A., Aydin, T., Stefanoski, N., Croci, S., Smolic, A., Gross, M.

Video Content and Structure Description Based on Keyframes, Clusters and Storyboards,
IEEE International Workshop on Multimedia Signal Processing, Xiamen-China, 2015,
Junyent, M., Beltran, P., Farre, M., Pont-Tuset, J., Chapiro, A., Smolic, A.

Stereo from Shading,
Eurographics Symposium on Rendering, Darmstadt-Germany, 2015. (E&I track),
Chapiro, A., O'Sullivan, C., Jarosz, W., Gross, M., Smolic, A.

Perceptual Evaluation of Cardboarding in 3D Content Visualization,
ACM Symposium on Applied Perception, Vancouver-Canada, 2014. (Short paper),

Chapiro, A., Diamanti, O., Poulakos, S., O'Sullivan, C., Smolic, A., Gross, M.

Optimizing Stereo-to-Multiview Conversion for Autostereoscopic Displays,
Eurographics, Strasbourg-France, 2014,
Chapiro, A., Heinzle, S., Aydin, T., Poulakos, S., Zwicker, M., Smolic, A., Gross, M.

Towards Mobile HDR Video,
Eurographics, Llandudno-UK, 2011. (Extended abstract)
Castro, T.K., Chapiro, A., Cicconet, M., Velho, L.

Detection of High Frequency Regions in Multiresolution,
International Conference on Image Processing, Cairo-Egypt, 2009.
Mota, V.F., Perez, E.A., Castro, T.K., Chapiro, A., Vieira, M.B.

High Frequency Assessment from Multiresolution Analysis,
International Conference on Computational Science, Baton Rouge-USA, 2009
Castro, T.K., Perez, E. A. , Mota, V. F. , Chapiro, A. , Vieira, M. B. , Freire, W. P.

Patents

Methods for creating and distributing art-directable continuous dynamic range video,
US20160353164 A1, 2016 (Related to our 2015 paper)
Smolic, A., Chapiro, A., Croci, S., Aydin, T., Stefanoski, N., Gross, M.

**Systems and methods for automatic key frame extraction
and storyboard interface generation for video**,
US Patent US9552520 B1, 2015 (Related to our 2015 paper)
Smolic, A., Martin, M., Pont-Tuset, J., Chapiro, A., Guiu, M.

Depth modification for display applications,
US20150348273 A1, 2015 (Related to our 2014 paper)
Chapiro, A., Aydin, T., Poulakos, S., Heinzle, S., Smolic, A.

Book Chapters

Discrete Wavelets on Edges,
InTech open publisher, 2011
Chapiro, A. , Knop, T., Mota, V., Perez, E., Bernardes, M., Freire W. P.

Posters

**The Influence of Visual Salience on Video Consumption Behavior
A Survival Analysis Approach***,

ACM Web Science, Oxford-United Kingdom, 2015
Huber, R., Scheibehenne, B., Chapiro, A., Frey, S., Sumner, R.

Filter Based Deghosting for Exposure Fusion Video,
SIGGRAPH, Vancouver-Canada, 2011. *Student Research Competition Semi-Finalist*
Chapiro, A., Cicconet, M., Velho, L.

Towards Mobile HDR Video,
International Conference on Computational Photography, Pittsburg-USA, 2011
Castro, T.K., Chapiro, A., Cicconet, M., Velho, L.

Mountain's Pass Theorem,
Minas-Gerais Meeting of Partial Diferential Equations, Itajuba-Brazil, 2009
Chapiro, A., Pereira, F.

Other

Image Domain Warping for Advanced 3D Video Applications,
IEEE COMSOC MMTC E - Letter, 2014. (Invited letter)
Smolic A., Wang, O., Lang, M., Stefanoski, N., Farre, M., Greisen, P., Heinzle, S., Schaffner, M.,Chapiro, A., Sorkine-Hornung, A., Gross, M.

Computational Photography,
IMPA, Rio de Janeiro-Brazil, 2011. (Technical report)
Castro, T.K., Chapiro, A., Velho, L.