



Alexandre Chapiro

I am interested in applied perception and psychophysics as related to computational display, as well as image and video processing techniques. In particular, I've worked on topics in stereo 3D, high dynamic range, brightness and color, frame rate and motion, user experience and virtual reality.

Professional Experience

2018-now **Apple Inc., Cupertino**

Senior Display Engineer Help identify and cultivate new display and image processing technologies and experiences for future Apple products
affiliation Core Display Incubation Team, managed by Nicolas Bonnier

2017-2018 **Dolby Laboratories, Sunnyvale**

Senior Researcher Conducted research and obtained 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 **Teaching assistant**, *Math. Foundations of Computer Graphics and Vision*, ETHZ.
to Jun.2014 Graduate class teaching mathematical techniques in visual computing

Feb.2015 **Teaching assistant**, *Math. Foundations of Computer Graphics and Vision*, ETHZ.
to Jun.2015

Feb.2012 **Teaching assistant**, *Informatik 1*, ETHZ.
to Jun.2012 Undergraduate class teaching fundamentals of informatics to engineering students

Feb.2013 **Teaching assistant**, *Informatik 1*, ETHZ.
to Jun.2013

Academic Honors

- 2015 Second youngest PhD to graduate from the CS 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 in Mathematics at the Federal University of Juiz de Fora 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 Service

Committee **2019**, *SIBGRAPI Journal Track International Program Committee*.

2018, *SIBGRAPI International Program Committee*.

Reviewing **2019**, *SIGGRAPH, Eurographics*.

2018, *SIBGRAPI, Eurographics*.

2017, *SIGGRAPH, Pacific Graphics, IEEE TIP*.

2016, *SIGGRAPH Asia, Graphics Interface, IEEE TIP, JOSA*.

2015, *SIGGRAPH, SIGGRAPH Asia, ICIP, IEEE CG&A, IEEE TVCG*.

2014, *Pacific Graphics, CG Forum*.

2012, *3DV*.

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*.

○ 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: **Cinematic Motion**.
NAB show 2018, Las Vegas, invited by Jaclyn Pytlarz

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

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.

Scott Daly,
Senior Member of Science Staff, Dolby Laboratories, Sunnyvale.

Publications

Papers

A Luminance-Aware Model of Judder Perception,
ACM Transactions on Graphics (TOG) , 2019,
Chapiro, A., Atkins, R., Daly, S.

Influence of Screen Size and Field of View on Perceived Brightness,
ACM Transactions on Applied Perception (TAP) , 2018,
Chapiro, A., Kunkel, T., Atkins, R., Daly, S.

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,
Computers & 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

Systems and methods for automatic key frame extraction and storyboard interface generation for video,

US Patent US9552520 B1, 2017 (Related to our 2015 paper)
Smolic, A., Martin, M., Pont-Tuset, J., [Chapiro, A.](#), Guiu, M.

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.

Visual salience of online video as a predictor of success,

US20170061235 A1, 2015 (Related to our 2015 poster)
Frey, S., Accardo, AM., Sumner, R., Huber, R., [Chapiro, A.](#)

Depth modification for display applications,

US20150348273 A1, 2015 (Related to our 2014 paper)
[Chapiro, A.](#), Aydin, T., Poulakos, S., Heinzle, S., Smolic, A.

Three additional patents currently in review

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 Saliency 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 Differential 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.