

MATTHIAS GRUNDMANN

PH.D. STUDENT

504 Granville CT NE
Atlanta, GA 30328
810.643.1383

grundman@cc.gatech.edu
www.mgrundmann.com

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| OBJECTIVE | Pursuing a Ph.D. in Computer Vision to develop new technologies advancing the way users and systems utilize and perceive videos. | |
| EDUCATION | Ph.D. Student in Computer Science | since August 2008 |
| | Advisor: Professor Irfan Essa | |
| | Master's Studies in Computer Science | August 2006 |
| | Thesis: Real-Time Content-Aware Resizing of Video | December 2008 |
| | GPA 4.0 | |
| | <i>Georgia Institute of Technology, Atlanta, GA</i> | |
| | Dual Pre-Degree in | November 2005 |
| | Computer Science | German GPA 1.5 |
| | Mathematics | German GPA 1.6 |
| | top 5% of students | |
| | <i>Technical University of Munich, Germany</i> | |
| | High School Diploma with GPA 1.0 - Valedictorian | June 2002 |
| | <i>Wilhelm-von-Humboldt, Rostock, Germany</i> | |
| | Subjects: Mathematics, Physics and Social Studies | |
| RESEARCH EXPERIENCE | Graduate Research Assistant with Professor Irfan Essa | August 2006 |
| | <i>Georgia Institute of Technology, Atlanta, GA</i> | - present |
| | Google Research Vision Group | May 2010 |
| | supervised by Vivek Kwatra | - Aug 2012 |
| | <i>Google Inc., Mountain View, CA</i> | |
| | Internship at Disney Research supervised by Irfan Essa, Arik Shamir and Jessica Hodgins | January 2009 |
| <i>Disney Research, Pittsburgh, PA</i> | - August 2009 | |
| Internship at Google Research Vision Group | May 2008 | |
| supervised by Vivek Kwatra and Mei Han | - August 2008 | |
| <i>Google Inc., Mountain View, CA</i> | | |
| Research Assistant with Professor Nassir Navab | January 2006 | |
| <i>Technical University of Munich, Germany</i> | - August 2006 | |

PUBLICATIONS

M. Grundmann, V. Kwatra, D. Castro, I. Essa
Calibration-Free Rolling Shutter Removal
IEEE Conference on Computational Photography (ICCP)
Seattle, USA, April 2012

Best paper award

M. Grundmann, V. Kwatra, I. Essa
Auto-Directed Video Stabilization with Robust LI Optimal Camera Paths
IEEE Conference on Computer Vision and Pattern Recognition (CVPR)
Colorado Springs, USA, June 2011

M. Grundmann, V. Kwatra, M. Han, I. Essa
Efficient Hierarchical Graph-Based Video Segmentation
IEEE Conference on Computer Vision and Pattern Recognition (CVPR)
San Francisco, USA, June 2010

M. Grundmann, V. Kwatra, M. Han, I. Essa
Discontinuous Seam-Carving for Video Retargeting
IEEE Conference on Computer Vision and Pattern Recognition (CVPR)
San Francisco, USA, June 2010

K. Kim, M. Grundmann, A. Shamir, I. Matthews, J. Hodgins, I. Essa
Motion Fields to Predict Play Evolution in Dynamic Sport Scenes
IEEE Conference on Computer Vision and Pattern Recognition (CVPR)
San Francisco, USA, June 2010

R. Hamid, R. Kumar, M. Grundmann, K. Kim, I. Essa, J. Hodgins
Player Localization Using Multiple Static Cameras for Sports Visualization
IEEE Conference on Computer Vision and Pattern Recognition (CVPR)
San Francisco, USA, June 2010

M. Grundmann, F. Meier and I. Essa
3D Shape Context and Distance Transform for Action Recognition (*oral*)
International Conference on Pattern Recognition (ICPR), Tampa, FL, December 2008

S. Benhimane, H. Najafi, M. Grundmann, E. Malis, Y. Genc, N. Navab
Real-time object detection and tracking for industrial applications (*oral*)
International Conference on Computer Vision Theory and Applications (VISAPP),
Funchal, Portugal, January 2008

PATENTS

US Patent 7873211: Content-aware video resizing using discontinuous seam carving

US Patent Appl. 13/075,947: System and Method for Utilizing Motion Fields to Predict Evolution in Dynamic Scenes

US Patent Appl. 20120105654 and WO Patent Appl. 2012058442: Methods and Systems for Processing a Video for Stabilization and Retargeting

5 pending

PRESS COVERAGE

The New York Times

gadgetwise.blogs.nytimes.com/2011/03/21/youtube-offers-free-image-stabilization/

Time Magazine

techland.time.com/2011/03/22/image-stabilization-comes-to-youtube/

MIT Technology Review

www.technologyreview.com/fromthelabs/425127/stabilizing-video/

Engadget

www.engadget.com/2011/09/15/youtube-unveils-post-production-suite-includes-instagram-like-e/

Gigaom

gigaom.com/video/youtube-image-stabilization/

Geek.com

www.geek.com/articles/news/youtube-editor-adds-video-stabilization-20110323/

YouTube Blog (3x)

youtube-global.blogspot.com/2011/03/lights-camera-edit-new-features-for.html

youtube-global.blogspot.com/2011/09/edit-your-videos-with-youtube.html

youtube-global.blogspot.com/2012/03/improving-video-awesomeness-with-one.html

Google Research Blog (3x)

googleresearch.blogspot.com/2010/09/discontinuous-seam-carving-for-video.html

googleresearch.blogspot.com/2011/06/auto-directed-video-stabilization-with.html

googleresearch.blogspot.com/2012/05/video-stabilization-on-youtube.html

INVITED TALKS

Google Tech Talk: Video Stabilization on YouTube

9/20/2011

MSR Redmond: Video Segmentation

7/18/2011

Stanford MS&E 130: Introduction to LP with Applications

5/13/2011

UNC Chapel Hill: Video Segmentation and Stabilization

4/15/2011

UIUC: Video Segmentation and Stabilization

3/14/2011

FELLOWSHIPS /
GRANTS

| | |
|---|--------------------------|
| Google US/Canada Fellowship in Computer Vision | June 2011 |
| Graduate Research Assistantship <i>Georgia Institute of Technology</i> | August 2006 - present |
| \$2000 Travel Grant <i>Georgia Institute of Technology</i> | February 2010 |
| Abroad Study Grant <i>Technical University of Munich, Germany</i> | October 2006 |

ACHIEVEMENTS

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| Excellent Paper Recognition in Multimedia/Computer Vision Auto-Directed Video Stabilization with Robust LI Optimal Camera Paths googleresearch.blogspot.com/2012/03/excellent-papers-for-2011.html <i>Google Inc., Mountain View, CA</i> | March 2012 |
| Google Certificate of Excellence for contributions to the video stabilization launch on YouTube <i>Google Inc., Mountain View, CA</i> | November 2011 |
| Foley Scholar Finalist | October 2011 |
| NVIDIA Graduate Fellowship Finalist | April 2011 |
| YouTube Certificate of Excellence for launching Video Stabilization in YouTube Video Editor <i>Google Inc., Mountain View, CA</i> | March 2011 |
| Excellent Paper Recognition in Computer Vision Discontinuous Seam-Carving for Video Retargeting googleresearch.blogspot.com/2010/09/discontinuous-seam-carving-for-video.html <i>Google Inc., Mountain View, CA</i> | July 2010 |
| Oustanding Poster Presentation Award (\$2000 grant) Efficient Hierarchical Graph-Based Video Segmentation - Research competition, 300+ Ph.D. students - <i>Georgia Tech Research and Innovation Conference, Atlanta, GA</i> | February 2010 |

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| ACHIEVEMENTS | Best project award in Machine Learning class Instructor: Charles Isbell <i>Georgia Institute of Technology, Atlanta, GA</i> | May 2007 |
| | Ranked first in Computer Animation class Instructor: Jarek Rossignac <i>Georgia Institute of Technology, Atlanta, GA</i> | December 2006 |
| | Best group in lab course 3D Computer Vision Instructor: Nassir Navab <i>Technical University of Munich, Germany</i> | August 2006 |
| | "Pearls of Computer Science" , honors program <i>Technical University of Munich, Germany</i> | October 2003 - August 2005 |
| REVIEWING EXPERIENCE | ICCV 2011 (Programm Committee) ECCV 2012 (Reviewer) CVPR 2011, 2012 (Reviewer) SIGGRAPH Asia 2010, 2011, 2012, SIGGRAPH 2011 (Reviewer) | |
| PROGRAMMING SKILLS | Programming Languages C++, Matlab, Python, Javascript, Objective-C, Java Libraries OpenCV, OpenMP, OpenGL, GLSL, Qt, Boost ProtoBuffers, iPhone SDK, IPP, LAPACK | |
| ACCREDITATION | Teaching Assistant Linear Algebra <i>Technical University of Munich, Germany</i> | October 2005 - February 2006 |
| | Participation in three college classes during high school Topics: Groups and Fields, Graph Theory and CG | |
| VOLUNTEER EXPERIENCE | Developed real-time updated Google Earth Layer used by US Marines (USS Bataan) to coordinate help during 2010 Haiti Earthquake | January 2010 |
| | High School Student Teacher for "Game programming with C++" | November 2001 - February 2002 |
| LANGUAGES | English German French (basics) | |