

# Manuel Martinello Ph.D.

Mountain View, CA 94041  
United States

Phone (US): (650) 496-5726  
Email: [manuel.martinello@gmail.com](mailto:manuel.martinello@gmail.com)  
Homepage: [www.manemarty.com](http://www.manemarty.com)

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## Professional Experience

**Ricoh Innovations**, Cupertino, CA, United States Jun 2016 – Present

Senior Research Scientist - Project Leader

- Supervise and lead the technology of the project;
- Identify shortcomings, propose and evaluate hardware modification to mitigate issues;
- Optimize algorithm and code on 3D reconstruction from light-field images;
- Propose learning-based classification able to outperform doctors by using light-field data;
- Participate in development of intellectual property;

**Canon USA**, Innovation Centre, San Jose, CA, United States Sep 2014 – May 2016

Senior Scientist - Project Chief

- Supervise and lead the technology of the project;
- Design and develop technologies for 3D reconstruction of very challenging objects;
- Identify, plan, and manage project tasks to achieve targets;
- Participate in development of intellectual property;
- Keep abreast about the latest work in computational imaging.

**Dual Aperture, Inc.**, Palo Alto, CA, United States Sep 2012 – Sep 2014

Staff Scientist (Nov 2013 – Sep 2014)

Consultant (Sep 2012 – Oct 2013)

- Design and develop depth and motion sensing solutions for innovative mobile cameras;
- Participate in development of intellectual property;
- Design and analyze novel procedures to evaluate image and depth estimation performance;
- Participate to identify and develop applications that exploit the novelty of the product;

**University of York**, Department of Theatre, Film and Television, York, UK Jan 2012 – Jun 2013

Part-time Lecturer

- Plan, build, and deliver teaching material for two undergraduate courses;
- Mentor and motivate students during their projects;

**Univeristy of Bern**, Computer Vision Group, Bern, Switzerland Jul 2012 – Aug 2012

Research Visitor

- Study the use of asymmetric masks in coded aperture imaging.

**Selex Galileo**, Edinburgh, UK Jun 2010 – May 2011

Research Collaborator

- Develop real-time depth estimation algorithms for videos with moving objects;
- Design novel metrics to search for optimal coded aperture patterns.

**Heriot-Watt University**, Edinburgh, UK Sep 2008 – May 2012

Teaching Assistant

## Education

- Ph.D. degree** in Computational Photography May 2012  
 Visionlab, Heriot-Watt University, Edinburgh, UK.
- *Project:* [Coded Aperture Imaging](#) (shortlisted for the MacFarlane PhD prize 2012).
- M.Sc. degree** in Computer Engineering Apr 2007  
 University of Padua, Padua, Italy.
- *Dissertation:* [3-D Shape Reconstruction from Retinal Images](#)
  - *Final mark:* 106/110 - 1<sup>st</sup> Class Honours
- Visiting Scholar** in Medical Imaging Oct 2006 – Apr 2007  
 Visionlab, Heriot-Watt University, Edinburgh, UK.
- Erasmus Exchange Student** in Engineering / Computer Science Sep 2005 – Jun 2006  
 University of Aberdeen. Aberdeen, UK.

## Programming Languages

- Strong experience with Matlab (including GPU computing);
- Good experience with Python, C/C++, and Processing.

## Teaching

### *Courses at University of York*

- Systems Design for Sound and Image, 2011/12 - 2012/13, Lecturer.  
 Production Systems Design Project, 2012/13, Lecturer.

### *Courses at Heriot-Watt University*

- Digital Signal Processing, 2008/09 - 2009/10 - 2010/11 - 2011/12, Teaching Assistant.  
 Software Engineering 1, 2008/09 - 2009/10 - 2011/12, Teaching Assistant.  
 Software Engineering 2, 2008/09 - 2009/10 - 2010/11 - 2011/12, Teaching Assistant.  
 Image Processing, 2009/10 - 2010/11 - 2011/12, Teaching Assistant.  
 C Programming for Engineers, 2010/11 - 2011/12, Teaching Assistant.  
 Numerical Computation and Statistics, 2008/09 - 2009/10, Lab Demonstrator.

### *Supervision and Student Mentoring*

- Interns: Evan Levine (Stanford University, 2015),  
 Can Chen (University of Delaware, 2015/16).
- M.Sc Students: Riccardo Mazzon (M.Sc. thesis, 2008/09),  
 Tahir Habib Nawaz (M.Sc thesis, 2009).
- Mentor for undergraduate students at University of York (BSc in Film and Television Production), 2012.

## Research

### *Research Interests*

My main area of interest is Computational Photography, a field that examines computational imaging techniques in order to enhance or extend the capabilities of digital photography. My main expertise in this area includes: coded aperture imaging, light-field imaging, depth estimation, image deblurring, refocusing, 3D reconstruction from images and videos, and structured light. Other areas of interest and personal experience also include: camera calibration, color correction, graph cuts algorithms, non-local mean approaches, multi-view geometry, and machine learning.

### *Publications*

E. Levine, **M. Martinello**, M. Nezamabadi, *High-precision multi-view camera calibration using a rotating stage*, IEEE International Conference on Image Processing, 2016.

S. Skaff, S.-K. Tin, **M. Martinello**, *Learning Optimal Incident Illumination using Spectral BRDF Images for Material Classification*, Journal of Imaging Science and Technology, 2016.

C. Liu, S. Skaff, **M. Martinello**, *Learning Discriminative Spectral Bands for Material Classification*, Advances in Visual Computing, LNCS 9474, pp. 671-681, Springer, 2015.

**M. Martinello**, A. Wajs, S. Quan, H. Lee, C. Lim, T. Woo, W. Lee, S. Kim, D. Lee, *Dual Aperture Photography: Image and Depth from a Mobile Camera*, IEEE International Conference on Computational Photography, 2015.

**M. Martinello** and P. Favaro, *Depth Estimation from a Video Sequence with Moving and Deformable Objects*, IET Image Processing Conference, 2012.

**M. Martinello** and P. Favaro, *Single Image Blind Deconvolution with Higher-Order Texture Statistics*, Video Processing and Computational Video, LNCS 7082, pp. 124-151, Springer-Verlag, 2011.

**M. Martinello** and P. Favaro, *Fragmented Aperture Imaging for Motion and Defocus Deblurring*, IEEE International Conference on Image Processing, 2011.

**M. Martinello**, T. E. Bishops, P. Favaro, *A Bayesian Approach to Depth from Coded Aperture*, IEEE International Conference on Image Processing, 2010.

**M. Martinello**, P. Favaro, G. Muyo Nieto, A. Harvey, E. Grisan, F. Scarpa, A. Ruggeri, *3-D Retinal Surface Inference: Stereo or Monocular Fundus Camera?*, IEEE Engineering in Medicine and Biology Society, 2007.

### *Demos*

**M. Martinello** and P. Favaro, *Coded Aperture Videography*, IEEE Computer Vision and Pattern Recognition, 2011.

### *Patents*

5 non-provisional patent applications filed in 2015/16.

6 provisional patent applications submitted in 2015/16.

### *Membership of Societies*

IEEE member, IEEE Signal Processing Society member, BMVA member, OSA member.

Reviewer for IEEE International Conference on Computer Vision (ICCV), IEEE Transaction on Image Processing (TIP), Computer Graphics Forum, Journal of Imaging Science & Technology (JIST), and International Journal of Computational Vision and Robotics (JCVR).

## Awards & Scholarships

- Silver medal at Set for Britain (£ 2,000 - \$ 3,400), Westminster Parliament, London, 2011
- 3 British Machine Vision Association bursaries, to attend ICIP 2010, ICIP 2011, and CVPR 2011.
- Royal Academy of Engineers travel grant, to attend ICIP 2010.
- Vision Video and Graphics Network bursary, 2007.
- Erasmus scholarship (€ 4,000 - \$ 5,500), University of Padua, Italy, 2005.
- 5 merit-based scholarships (€ 4,000 - \$ 5,500 each), University of Padua, Italy, 2000–2004.

## Conference and Seminar Presentations

Invited speaker at CenterVue

CenterVue Headquarters, Padua, Italy (Nov 19, 2013).

IET Image Processing Conference (IPR)

University of Westminster. London, UK (Jul 3, 2012).

Invited Speaker at EPFL

Ecole Polytechnique Fédérale de Lausanne, Lausanne, Switzerland (Feb 8, 2012).

Invited Speaker at Philips

Philips Research, Eindhoven, The Netherlands (Sep 16, 2011).

International Conference on Image Processing (ICIP)

Square Brussels Meeting Center, Brussels, Belgium (Sep 14, 2011).

Computer Vision and Pattern Recognition (CVPR)

Colorado Springs, Colorado, US (Jun 22, 2011).

Set for Britain 2011

Westminster Parliament, London, UK (Mar 14, 2011).

International Conference on Image Processing (ICIP)

Hong Kong Convention and Exhibition Centre, Hong Kong (Sep 29, 2010).

International Computer Vision Summer School (ICVSS)

Hotel Village Baia Samuele, Ragusa, Italy (Jul 8, 2009)

## Languages

Italian (native speaker), English (highly fluent), Spanish (basic).

Police and court interpreter (English-Italian) for [Global Language Services Ltd.](#) (2009 – 2013).

## Wider Interests

*Soccer Player* (1992-2012)

- winner of the Italian University Championship with University of Padua team, 2003.
- winner of the King Cup with Heriot-Watt University team, 2009.

*Charity Projects*

- Funder and administrator of the charity society [Lo Stelliere](#).
- Padua (Italy) - Alicante (Spain): solo mountain-bike trip, June 2008.
- Padua (Italy) - Cologne (Germany): mountain-bike trip, August 2005.

*Passionate about Digital Photography.*

Last updated: March 13, 2017