

Joost van de Weijer

Curriculum Vitae

Personal Details

name: Joost van de Weijer
Gender: Male
Nationality: Dutch
Place of birth: Kisii, Kenya
Date of birth: November 18, 1974

Office

Computer Vision Center Barcelona
Edifici O, Campus UAB
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Research Interests

color constancy, photometric invariance, object recognition, color image processing, human vision based computer vision, color naming, image segmentation, machine learning for computer vision.

Education

Ph.D. in Computer Science: University of Amsterdam March, 2005
M.Sc. in Applied Physics: Delft University of Technology 1998

Research/Professional Experience

Ramon y Cajal Fellow (Postdoc): Computer Vision Center Barcelona 2008-present
Research on multiple projects which combine Color Imaging and Computer Vision theory.

Marie Curie Intra-European Fellow (Postdoc): INRIA Rhône-Alpes 2005-2007
Conducting research on the PHIOR (PHotometric Invariant Object Recognition) project in corporation with dr. C. Schmid. The project goal is to enrich the object recognition framework as developed in the LEAR team with photometric invariant color information.

Ph.D. Student: University of Amsterdam 1999-2005
Conducted PhD research in the group of Prof. dr. ir. A.W.M. Smeulders under the supervision of dr. T. Gevers on the subject of photometric invariance theory applied to feature extraction, visual saliency detection, and color image enhancement.

Assistant Researcher: Delft University of Technology 1998
Adapted M.Sc. thesis research for journal publication.

International Internship : Lawrence Berkeley National Laboratory 1997
Three month internship at the Life Sciences Division at Lawrence Berkeley National Laboratory in California. The project involved 3D fluorescent microscopy image processing.

M.Sc. Student: Delft University of Technology 1992-1998
Studied Applied Physics. Conducted thesis research in the field of image processing on the subject of curvature estimation in oriented patterns under the supervision of Prof. dr. ir. L.J. van Vliet, and Prof. dr. I.T. Young.

Teaching

Instructor: Universitat Autònoma de Barcelona 2008-present
Organize and teach in case-based object-recognition project at the master of Computer Vision and Artificial Intelligence.

Lecturer: Universitat Autònoma de Barcelona 2008-present
Teach several classes on machine learning and object recognition at the master of Computer Vision and Artificial Intelligence.

Teaching Assistant: University of Amsterdam 1999-2003
Organized and supervised several Computer Vision labs.

Master students:

Min Yong Yoon	2011
David Rojas Vigo	2009
Shida Beigpour	2009
Fahad Shahbaz Khan	2008
Juan Toledo	2008

PhD students:

Fahad Shahbaz Khan	2008-2011
ongoing:	
David Rojas Vigo	2009-2012
Shida Beigpour	2009-2012

Postgraduate Courses

Tutorial: Int. Conf. on Computer Vision (ICCV) in Barcelona. 2011
Instructor of the Color Image Understanding tutorial.

Invited Tutorial: Deutsche Arbeitsgemeinschaft für Mustererkennung (DAGM) in Darmstadt. .2010
Instructor of the Color in Computer Vision tutorial.

Tutorial: Int. Conference on Image Processing (ICIP) in Cairo. 2009
Instructor of the Color in Image and Video Processing tutorial.

Tutorial: Computer Vision Center Barcelona. 2008
Instructor at the New Trends in Pattern Recognition and Motion Analysis summer school.

Benchmark Events

VOC PASCAL Challenge: 2010
Organized the VOC PASCAL challenge 2010 submission with a team of 8 researchers from the Computer Vision Center. Winner of Image Segmentation. Winner of Action Recognition in Still Images.

VOC PASCAL Challenge: 2009
Organized the VOC PASCAL challenge 2009 submission with a team of 15 researchers from the Computer Vision Center. Honorably mention (2nd position) in image classification. Runner-up award (2nd position) in image segmentation.

VOC PASCAL Challenge: 2007
Winner of the VOC PASCAL challenge 2007 image classification benchmark. Complete team: M. Marszałek, C. Schmid, H. Harzallah, J. van de Weijer.

Grants, Principal Investigator

2010-2013: Spanish Ministry of Education and Science (85KEuro).

2008-2011: European Re-integration Grant of the Commission of the European Union (45 KEuro).

2007-2013: Ramon y Cajal Fellowship, research Fellowship of the Spanish Ministry of Science (189 KEuro).

2005-2007: Marie-Curie Intra-European Fellowship of the Commission of the European Union (140 KEuro).

Participation in Research Projects

Consolider project: Multimodal Interaction in Pattern Recognition and Computer Vision (MIPRCV) 2008-2012
A national research project combining groups from Spain on the topic of multimodal interaction (5.5MEuro).

AMIS project: NWO (Netherlands Organisation for Scientific Research) project 2000-2004
A national research initiative to broaden and deepen the understanding of methods for indexing and searching in multimedia databases. Conducted PhD research within the AMIS project (550k Euro).

Professional Service

Tutorial chair, Iberian conference on Pattern Recognition and Image Analysis, IBPRIA 2011.

Organizer:

Workshop chair / Organiser, 1st IEEE Color and Photometry in Computer Vision Workshop in conjunction with ICCV, CPCV 2011.

Workshop chair / Organiser, 2nd Color and Reflectance in Imaging and Computer Vision Workshop in conjunction with ECCV, CRICV 2010.

Workshop chair / Organiser, 1st IEEE Color and Reflectance in Imaging and Computer Vision Workshop in conjunction with ICCV, CRICV 2009.

Technical Program Committees:

Computer Vision and Pattern Recognition (CVPR): 2007, 2009-2012

European Conf. on Computer Vision (ECCV): 2008, 2010

Int. Conf. on Computer Vision (ICCV): 2009, 2011

Int. Conf. on Image Processing (ICIP): 2004-2011

Int. Conf. on Pattern Recognition (ICPR): 2008

Neural Information Processing Systems (NIPS): 2007

Asian Conference on Computer Vision (ACCV): 2007, 2010

Conf. on Colour and Graphics (CGIV): 2010, 2012

Int. Conf. on Imaging and Theory and Applications (IMAGAPP) : 2011,2012

Int. Conf. on Computer Vision Theory and Application (VISAPP) : 2012

Int. Conf. on Multimedia & Expo (ICME05): 2005

Workshop on Feature Detectors and Descriptors, (in conjuncture CVPR): 2009

Computational Color Imaging Workshop (CCIW): 2011

Keynote Lectures: The Dichromatic Reflection Model - Future Research Directions and Applications, Int. Joint Conf. on Computer Vision, Imaging and Computer Graphics Theory and Applications (VISIGRAPP 2011), Vilamoura, Portugal, 2011.

Presentations and seminars:

Combining color and shape information for image classification, Ecole Normale Superior, Paris, 2010.

Bottom-up and top-down color attention for object recognition, Universitat de Valencia, 2010.

Applying bottom-up and top-down color attention for improved bag-of-words based object recognition, INRIA, Grenoble, 2010.

Photometric invariant color image understanding , Xerox Research Center Europe, Grenoble, 2010.

Color in bag-of-words based object recognition, Multimedia and Geometry, Universiteit Utrecht, 2010.

Coloring local feature extraction for object recognition, Computer Vision Center, Barcelona, 2006.

Photometric invariant features, Lear Team, INRIA Alpes, 2005

Color features and local structure in images, Quantitative Imaging Group, Delft University of Technology, 2005.

PhD Committees:

Javier Vazquez-Corral at the Universitat Autònoma de Barcelona, 2011

Jose M. Alvarez at the Universitat Autònoma de Barcelona, 2010

Arnau Ramisa at the Artificial Intelligence Research Institute de Barcelona, 2009

Robert Benavente Vidal at the Universitat Autònoma de Barcelona, 2007

Francesc Tous Terrades at the Universitat Autònoma de Barcelona, 2006

Authored Books

1. T. Gevers, A. Gijsenij, J. van de Weijer, J.M. Geusebroek, "Color in Computer Vision: Fundamentals and Applications." Wiley, in press 2012.

Journal Publications

1. F. Khan, J. van de Weijer, M. Vanrell. "Modulating Shape Features by Color Attention for Object Recognition." *International Journal of Computer Vision*, accepted 2011.
2. Arjan Gijsenij, Theo Gevers, Joost van de Weijer. "Improving Color Constancy by Photometric Edge Weighting." *IEEE Transactions Pattern Analysis and Machine Intelligence*, accepted 2011.
3. Noha M. Elfiky, Fahad Shahbaz Khan, Joost van de Weijer, Jordi Gonzalez. "Discriminative Compact Pyramids for Object and Scene Recognition." *Pattern Recognition*, vol. 45(4):1627-1636, 2012.
4. Xavi Boix, Josep Gonfaus, J. van de Weijer, Andrew Bagdanov, Joan Serrat, Jordi Gonzalez. "Harmony Potentials: Fusing Global and Local Scale for Semantic Image Segmentation." *International Journal of Computer Vision*, vol. 96(1):83-102, January 2012.
5. A. Gijsenij, Th. Gevers, J. van de Weijer. "Computational Color Constancy; Survey and Experiments." *IEEE Transaction on Image Processing*, vol. 20(9):2475-2489, 2011.
6. E. Vazquez, R. Baldrich, J. van de Weijer, M. Vanrell, "Describing Reflectance for Colour Segmentation Robust to Shadows, Highlights, and Textures." *IEEE Transactions Pattern Analysis and Machine Intelligence*, vol. 33(5):917-930, May 2011.
7. E. Vazquez, Th. Gevers, M. Lucassen, J. van de Weijer, R. Baldrich "Saliency of Color Image Derivatives: A Comparison between Computational Models and Human Perception." *Journal of the Optical Society of America A*, vol. 27(3): 1-20, March 2010.
8. A. Gijsenij, Th. Gevers, J. van de Weijer. "Generalized Gamut Mapping using Derivative Structures for Color Constancy." *International Journal of Computer Vision*, vol. 86(2-3):140-151, January 2010.
9. J. van de Weijer, C. Schmid, J. Verbeek, D. Larlus. "Learning Color Names for Real-World Applications." *IEEE Transaction on Image Processing*, vol. 18(7):1512-1524, July 2009.
10. J. van de Weijer, Th. Gevers, A. Gijsenij. "Edge-Based Color Constancy." *IEEE Transaction on Image Processing*, vol. 16(9):2207-2214, September 2007.
11. J. van de Weijer, T. Gevers, A.D. Bagdanov. "Boosting Color Saliency in Image Features." *IEEE Transactions Pattern Analysis and Machine Intelligence*, vol. 28(1):150-156, January 2006.
12. J. van de Weijer, T. Gevers and A.W.M. Smeulders. "Robust Photometric Features from the Color Tensor." *IEEE Transaction on Image Processing*, vol. 15(1):118-127, January 2006.
13. J. van de Weijer and R. van den Boomgaard. "Least Squares and Robust Estimation of Local Image Structure." *International Journal on Computer Vision*, vol. 64(2/3):143-155, September 2005.
14. J. van de Weijer, T. Gevers and J.M. Geusebroek. "Edge and Corner Detection by Photometric Quasi-Invariants." *IEEE Transactions Pattern Analysis and Machine Intelligence*, vol. 27(4):625-630, April 2005.
15. J.M. Geusebroek, A.W.M. Smeulders and J. van de Weijer. "Fast Anisotropic Gauss Filtering." *IEEE Transaction on Image Processing*, vol. 12(8): 938-943, August 2003.
16. J. van de Weijer and L.J. van Vliet and P.W. Verbeek and M. van Ginkel. "Curvature Estimation in Oriented Patterns Using Curvilinear Models Applied to Gradient Vector Fields." *IEEE Transactions Pattern Analysis and Machine Intelligence*, 23(9):1035-1042, September 2001.

Book Chapters and Thesis

1. T. Gevers, J. van de Weijer, H. Stokman. "Color Feature Detection: An Overview." In R. Lukac and K.N. Plataniotis (Eds.): *Color Image Processing: Methods and Applications*. CRC Press, 2006.

2. T. Brox, R. van den Boomgaard, F. Lauze, J. van de Weijer, J. Weickert, P. Mrzek, P. Kornprobst. "Adaptive structure tensors and their applications." In J. Weickert, H. Hagen (Eds.): *Visualization and Processing of Tensor Fields*. Springer, Berlin, 2006.
3. J. van de Weijer. "Color Features and Local Structure in Images.", *PhD thesis*, University of Amsterdam, 2005.

International Conference Publications

1. F.Shahbaz Khan, J. van de Weijer, M. Vanrell, "Portmanteau Vocabularies for Multi-Cue Image Representation", In *Neural Information Processing Systems(NIPS)*, Granada, Spain, 2011.
2. S. Beigpour, J. van de Weijer, "Recoloring based on Intrinsic Image Estimation", In *Proceedings International Conference on Computer Vision (ICCV)*, Barcelona, Spain, 2011.
3. D. Rojas Vigo, F. Shahbaz Khan, J. van de Weijer, "The impact of Color on Bag-of-Words based Object Recognition", In *Proceedings International Conference on Pattern Recognition (ICPR)*, Istanbul, Turkey, 2010.
4. D. Rojas Vigo, J.van de Weijer, Th. Gevers, "Color Edge Saliency Boosting using Natural Image Statistics", In *IS&T European Conference on Colour and Graphics, Image, and Vision (CGIV)*, Joensuu, Finland, 2010.
5. J. M. Gonfaus, X. Boix, J.van de Weijer, A. Bagdanov, J. Serrat, J. Gonzalez, "Harmony Potentials for Joint Segmentation and Classification", In *Computer Vision and Pattern Recognition (CVPR)*, San Fransisco, USA, 2010.
6. F.Shahbaz Khan, J. van de Weijer, M. Vanrell, "Top-down Color Attention for Object Recognition", In *Proceedings International Conference on Computer Vision (ICCV)*, Kyoto, Japan, 2009.
7. A. Gijsenij, T. Gevers, J. van de Weijer, "Physics-based Edge Evaluation for Improved Color Constancy.", In *Computer Vision and Pattern Recognition (CVPR)*, Miami, Florida, USA, 2009.
8. E. Vazquez, J. van de Weijer, R. Baldrich, "Image Segmentation in the Presence of Shadows and Highlights.", In *Proceedings of the European Conference on Computer Vision (ECCV)*, Marseille, France, 2008.
9. A. Gijsenij, T. Gevers, J. van de Weijer "Edge-Classification for Color Constancy.", In *IS&T European Conference on Colour and Graphics, Image, and Vision (CGIV)*, Terrassa, Spain, 2008.
10. J.van de Weijer, C. Schmid, J.J. Verbeek. "Using High-Level Visual Information for Color Constancy.", In *Proceedings International Conference on Computer Vision (ICCV)*, Rio de Janeiro, Brazil, 2007.
11. J.van de Weijer, C. Schmid. "Applying Color Names for Image Description.", In *Proceedings of the International Conference on Image Processing (ICIP)*, San Antonio, Texas, USA, 2007.
12. J.van de Weijer, C. Schmid, J.J. Verbeek. "Learning Color Names from Real-World Images.", In *Computer Vision and Pattern Recognition (CVPR)*, Minneapolis, Minnesota, USA, 2007.
13. N. Sebe, T. Gevers, J. van de Weijer, S. Dijkstra. "Corners Detectors for Affine Invariant Salient Regions: Is Color Important?", In *Proceedings of International Conference on Image and Video Retrieval (CIVR)*, Arizona State, USA, 2006.
14. J. van de Weijer, C. Schmid. "Blur Robust and Color Constant Image Description." In *Proceedings of the International Conference on Image Processing (ICIP)*, Atlanta, USA, 2006.
15. J. van de Weijer, C. Schmid, "Coloring Local Feature Extraction.", In *Proceedings of the European Conference on Computer Vision (ECCV)*, Graz, Austria, 2006.
16. J. van de Weijer, T. Gevers. "Boosting Saliency in Color Image Features." In *Proceedings on Computer Vision and Pattern Recognition (CVPR)*, San Diego, California, USA, 2005.
17. J. van de Weijer, T. Gevers. "Color Constancy based on the Grey-Edge Hypothesis." In *Proceedings of the International Conference on Image Processing (ICIP)*, Genoa, Italy, 2005.
18. J. van de Weijer, T. Gevers and A.W.M. Smeulders. "Tensor Based Feature Detection for Color Images." In *Proceedings of the IS&T/SID Color Imaging Conference, Technologies and Applications (CIC)*, Scottsdale, Arizona, USA, 2004.

19. J. van de Weijer, T. Gevers. "Robust Optical Flow from Photometric Invariants." In *Proceedings of the International Conference on Image Processing (ICIP)*, Singapore, 2004.
20. J. van de Weijer, T. Gevers, J. M. Geusebroek. "Color Edge Detection by Photometric Quasi-Invariants." In *Proceedings International Conference on Computer Vision (ICCV)*, Nice, France, 2003.
21. R. van den Boomgaard and J. van de Weijer. "Least Squares and Robust Estimation of Local Image Structure." In *Proceedings International Conference on Scale-Space*, Isle of Skye, UK, 2003.
22. R. van den Boomgaard and J. van de Weijer. "On the equivalence of local-mode finding, robust estimation and mean-shift analysis as used in early vision tasks." In *Proceedings International Conference on Pattern Recognition (ICPR)*, Quebec City, Canada, 2002.
23. J. M. Geusebroek, A. W. M. Smeulders, and J. van de Weijer. "Fast anisotropic gauss filtering" In *Proceedings European Conference on Computer Vision (ECCV)*, Copenhagen, Denmark, 2002.
24. J. van de Weijer and R. van den Boomgaard. "Local Mode Filtering." In *Proceedings on Computer Vision and Pattern Recognition (CVPR)*, Kauai, Hawaii, USA, 2001.
25. J. van de Weijer and T. Gevers. "Color Mode Filtering." In *Proceedings of the International Conference on Image Processing (ICIP)*, Thessaloniki, Greece, 2001.
26. T. Gevers, H.M.G. Stokman and J. van de Weijer. "Color Constancy from Hyper-Spectral Data." In *Proceedings of British Machine and Vision Conference (BMVC)*, Bristol, UK, 2000.
27. T. Gevers, P. Vreman and J. van de Weijer. "Color Constant Texture Segmentation." In *Proceedings of SPIE*, San Jose, California, USA, 2000.
28. M. van Ginkel, J. van de Weijer, L.J. van Vliet and P.W. Verbeek. "Curvature Estimation from Orientation Fields." In *Proceedings Scandinavian Conference on Image Analysis (SCIA)*, Kangerlussuaq, Greenland, 1999.
29. P.W. Verbeek, L.J. van Vliet and J. van de Weijer. "Improved Curvature and Anisotropy Estimation for Curved Line Bundles." In *Proceedings International Conference on Pattern Recognition (ICPR)*, Brisbane, Australia, 1998.

International Workshops

1. A. Gijsenij, T. Gevers, J. van de Weijer. "Color Constancy by Derivative-based Gamut Mapping.", In *Workshop Photometric Analysis for Computer Vision*, in conjunction with ICCV, Rio de Janeiro, Brazil, 2007.
2. N. Sebe, T. Gevers, S. Dijkstra, J. van de Weijer, "Evaluation of Intensity and Color Corner Detectors for Affine invariant Salient Regions", In *Beyond Patches Workshop*, in conjunction with CVPR, New York, USA, 2006.
3. D. Knossow, J. Van de Weijer, R. Horaud, R. Ronfard, "Articulated-body Tracking through Anisotropic Edge Detection." In *Workshop on Dynamical Vision*, in conjunction with ECCV, Graz, Austria, 2006.
4. R. van den Boomgaard and J. van de Weijer. "Robust estimation of orientation for texture analysis." In *International Workshop on Texture Analysis and Synthesis* in conjunction with ECCV, Copenhagen, Denmark, 2002.

Skills **Programming:**

C, Windows, Unix, Linux, Matlab, Mathematica

Languages:

Dutch (native), English (fluent), French (advanced), German (advanced), Spanish (advanced).