

# Curriculum Vitae – Jakob Verbeek

## Academic Background

- 2004 • Doctorate Computer Science (best thesis award), Informatics Institute, University of Amsterdam. Advisors: Prof. Dr. Ir. F. Groen, Dr. Ir. B. Kröse, and Dr. N. Vlassis. Thesis: *Mixture models for clustering and dimension reduction*.
- 2000 • Master of Science in Logic (with honours), Institute for Language, Logic, and Computation, University of Amsterdam. Advisor: Prof. Dr. M. van Lambalgen. Thesis: *An information theoretic approach to finding word groups for text classification*.
- 1998 • Master of Science in Artificial Intelligence (with honours), Dutch National Research Institute for Mathematics and Computer Science & University of Amsterdam. Advisors: Prof. Dr. P. Vitányi, Dr. P. Grünwald, and Dr. R. de Wolf. Thesis: *Overfitting using the minimum description length principle*.

## Awards

- 2011 • Outstanding Reviewer Award, IEEE Conference on Computer Vision and Pattern Recognition.
- 2009 • Outstanding Reviewer Award, IEEE Conference on Computer Vision and Pattern Recognition.
- 2006 • Biannual E.S. Gelsema Award of the Dutch Society for Pattern Recognition and Image Processing for best PhD thesis and associated international journal publications.
- 2000 • Regional winner of yearly best MSc thesis award Dutch Society for Computer Science.

## Employment

- since-2007 • Researcher (CR1), LEAR project, INRIA Rhône-Alpes, Grenoble.
- 2005-2007 • Postdoc, LEAR project, INRIA Rhône-Alpes, Grenoble.
- 2004-2005 • Postdoc, Intelligent Autonomous Systems group, Informatics Institute, University of Amsterdam.

## Professional Activities

### Participation in Research Projects

- 2011-2014 • *AXES: Access to Audiovisual Archives*, European integrated project, 7th Framework Programme.
- 2010-2013 • *Quaero Consortium for Multimodal Person Recognition*, funded by French national research agency (ANR).
- 2009-2012 • *Modeling multi-media documents for cross-media access*, funded by Xerox Research Centre Europe (XRCE) and French national research agency (ANR).
- 2008-2010 • *Interactive Image Search*, funded by French national research agency (ANR).
- 2006-2009 • *Cognitive-Level Annotation using Latent Statistical Structure (CLASS)*, funded by European Union Sixth Framework Programme.
- 2000-2005 • *Tools for Non-linear Data Analysis*, funded by Dutch Technology Foundation (STW).

### Teaching

- 2008-2012 • Lecturer in MSc course *Machine Learning and Category Representation*, École Nationale Supérieure d'Informatique et de Mathématiques Appliquées (ENSIMAG), Grenoble, France.
- 2003-2005 • Lecturer in MSc course *Machine learning: pattern recognition*, University of Amsterdam, The Netherlands.
- 2003-2005 • Lecturer in graduate course *Advanced issues in neurocomputing*, Advanced School for Imaging and Computing, The Netherlands.
- 1997-2000 • Teaching assistant in courses MSc Artificial Intelligence, University of Amsterdam, The Netherlands.

### Supervision of MSc and PhD Students

- since 2011 • Dan Oneata, PhD, *Large-scale machine learning for video analysis*.

## Professional Activities (continued)

- since 2010 • Gokberk Cinbis, PhD, *Person identification in static images and videos*.
- since 2009 • Thomas Mensink, PhD, *Modeling multi-media documents for cross-media access*.
- 2008-2011 • Josip Krapac, PhD, *Image search using combined text and image content*.
- 2006-2010 • Matthieu Guillaumin, PhD, *Learning models for visual recognition from weak supervision*.
- 2009 • Gaspard Jankowiak, intern, *Decision tree quantization of image patches for image categorization*.
- 2007-2008 • Thomas Mensink, intern, *Finding people in captioned news images*.
- 2005 • Markus Heukelom, MSc, *Face detection and pose estimation using part-based models*.
- 2003 • Jan Nunnink, MSc, *Large scale mixture modelling using a greedy expectation-maximisation algorithm*.
- 2003 • Noah Laith, MSc, *A fast greedy k-means algorithm*.

### Associate Editor

- since 2011 • Image and Vision Computing Journal.

### Area Chair for International Conferences

- 2012 • British Machine Vision Conference.
- 2012 • European Conference on Computer Vision.

### Programme Committee Member for International Conferences, including

- since 2009 • IEEE International Conference on Computer Vision.
- since 2008 • European Conference on Computer Vision.
- since 2006 • IEEE Conference on Computer Vision and Pattern Recognition.
- since 2006 • Neural Information Processing Systems.

### Reviewer for International Journals, including

- since 2008 • International Journal of Computer Vision.
- since 2005 • IEEE Transactions on Neural Networks.
- since 2004 • IEEE Transactions on Pattern Analysis and Machine Intelligence.

## Miscellaneous

### Summer School & Workshop Participation

- 2011 • 2nd IST Workshop on Computer Vision and Machine Learning, Institute of Science and Technology, invited presentation, October 7, Vienna, Austria.
- Workshop on 3D and 2D Face Analysis and Recognition, Ecole Centrale de Lyon / Lyon University, invited presentation, January 28 2011
- 2010 • NIPS Workshop on Machine Learning for Next Generation Computer Vision Challenges, co-organizer, December 10, Whistler BC, Canada.
- ECCV Workshop on Face Detection: Where are we, and what next?, invited presentation, September 10, Hersonissos, Greece.
- INRIA Visual Recognition and Machine Learning Summer School, 1h lecture, July 26–30, Grenoble, France.
- 2008 • International Workshop on Object Recognition, poster presentation, May 16–18 2008, Moltrasio, Italy.

### Research Visits

- 2011 • Visiting researcher Statistical Machine Learning group, NICTA Canberra, Australia, May 2011.
- 2003 • Machine Learning group University of Toronto, Prof. Sam Roweis, Canada, May–September 2003.

### Invited Seminars

- 2012 • TEXMEX Team, INRIA, Rennes, France, *Image categorization using Fisher kernels of non-iid image models*, April 20.
- 2011 • Statistical Machine Learning group, NICTA, Canberra, Australia, *Modelling spatial layout for image classification*, May 26.
- Canon Information Systems Research Australia, Sydney, Australia, *Learning structured prediction models for interactive image labeling*, May 20.
- 2010 • Laboratoire TIMC-IMAG, Learning: Models and Algorithms team, Grenoble, *Metric learning approaches for image annotation and face verification*, October 7.
- University of Oxford, Visual Geometry Group, Oxford, *TagProp: a discriminatively trained nearest neighbor model for image auto-annotation*, February 1.

## Miscellaneous (continued)

- 2009
  - Laboratoire Jean Kuntzmann, Grenoble, *Machine learning for semantic image interpretation*, June 11.
  - University of Amsterdam, Intelligent Systems Laboratory, *Discriminative learning of nearest-neighbor models for image auto-annotation*, April 28.
  - Université de Caen, Laboratoire GREYC, *Improving People Search Using Query Expansions*, February 5.
  - Colloquium “Statistiques pour le traitement de l’image”, Université Paris 1 Panthéon-Sorbonne, *Apprentissage semi-supervisé pour la classification d’images*, January 23.
- 2008
  - Computer Vision Center, Autonomous University of Barcelona, *Improving People Search Using Query Expansions*, September 26.
  - Computer Vision Lab, Max Planck institute for Biological Cybernetics, *Scene Segmentation with CRFs Learned from Partially Labeled Images*, July 31.
  - Textual and Visual Pattern Analysis team, Xerox Research Centre Europe, *Scene Segmentation with CRFs Learned from Partially Labeled Images*, April 24.
- 2006
  - Parole group, LORIA Nancy, *Unsupervised learning of low-dimensional structure in high-dimensional data*.
  - Content Analysis group, Xerox Research Centre Europe, *Manifold learning: unsupervised, correspondences, and semi-supervised*.
- 2005
  - Learning and Recognition in Vision group, INRIA Rhône-Alpes, *Manifold learning & image segmentation*.
  - Computer Engineering Group, Bielefeld University, *Manifold learning with local linear models and Gaussian fields*.
- 2004
  - Algorithms and Complexity group, Dutch Center for Mathematics and Computer Science, *Semi-supervised dimension reduction through smoothing on graphs*.
- 2003
  - Machine Learning team, Radboud University Nijmegen, *Spectral methods for dimension reduction and non-linear CCA*.
- 2002
  - Information and Language Processing Systems group, University of Amsterdam, *A generative model for the Self-Organizing Map*.

## Selected Publications

### In peer reviewed international journals

- 2012
  - M. Guillaumin, T. Mensink, J. Verbeek, C. Schmid. *Face recognition from caption-based supervision*. International Journal of Computer Vision, 96(1), pp. 64–82, January 2012.
  - T. Mensink, J. Verbeek, G. Csurka. *Tree-structured CRF models for interactive image labeling*. IEEE Transactions on Pattern Analysis and Machine Intelligence, to appear, accepted April 2012.
- 2010
  - H. Jégou, C. Schmid, H. Harzallah, and J. Verbeek. *Accurate image search using the contextual dissimilarity measure*. IEEE Transactions on Pattern Analysis and Machine Intelligence 32(1), pp. 2–11, January 2010.
  - D. Larlus, J. Verbeek, F. Jurie. *Category level object segmentation by combining bag-of-words models with Dirichlet processes and random fields*. International Journal of Computer Vision 88(2), pp. 238–253, June 2010.
- 2009
  - J. van de Weijer, C. Schmid, J. Verbeek, and D. Larlus. *Learning color names for real-world applications*. IEEE Transactions on Image Processing 18(7), pp. 1512–1523, July 2009.
- 2006
  - J. Verbeek, J. Nunnink, and N. Vlassis. *Accelerated EM-based clustering of large data sets*. Data Mining and Knowledge Discovery 13(3), pp. 291–307, November 2006.
  - J. Verbeek and N. Vlassis. *Gaussian fields for semi-supervised regression and correspondence learning*. Pattern Recognition 39(10), pp. 1864–1875, October 2006.
  - J. Verbeek. *Learning nonlinear image manifolds by global alignment of local linear models*. IEEE Transactions on Pattern Analysis and Machine Intelligence 28(8), pp. 1236–1250, August 2006.
- 2005
  - J. Porta, J. Verbeek, B. Kröse. *Active appearance-based robot localization using stereo vision*. Autonomous Robots 18(1), pp. 59–80, January 2005.
  - J. Verbeek, N. Vlassis, and B. Kröse. *Self-organizing mixture models*. Neurocomputing 63, pp. 99–123, January, 2005.
- 2003
  - J. Verbeek, N. Vlassis, and B. Kröse. *Efficient greedy learning of Gaussian mixture models*. Neural Computation 15(2), pp. 469–485, February 2003.
  - A. Likas, N. Vlassis, and J. Verbeek. *The global k-means clustering algorithm*. Pattern Recognition 36(2), pp. 451–461, February 2003.
- 2002
  - J. Verbeek, N. Vlassis, and B. Kröse. *A k-segments algorithm for finding principal curves*. Pattern Recognition Letters 23(8), pp. 1009–1017, June 2002.

### In peer reviewed international conferences

- 2012
  - G. Cinbis, J. Verbeek, C. Schmid. *Image categorization using Fisher kernels of non-iid image models*. Proceedings IEEE Conference on Computer Vision and Pattern Recognition, June 2012.
- 2011
  - J. Krapac, J. Verbeek, F. Jurie. *Fisher vectors to model spatial layout for image categorization*. Proceedings IEEE International Conference on Computer Vision, November 2011.

## Selected Publications (continued)

- G. Cinbis, J. Verbeek, C. Schmid. *Unsupervised metric learning for face identification in TV video*. Proceedings IEEE International Conference on Computer Vision, November 2011.
- J. Krapac, J. Verbeek, F. Jurie. *Learning tree-structured descriptor quantizers for image categorization*. Proceedings British Machine Vision Conference, September 2011.
- T. Mensink, J. Verbeek, G. Csurka. *Learning structured prediction models for interactive image labeling*. Proceedings IEEE Conference on Computer Vision and Pattern Recognition, June 2011.
- 2010 • M. Guillaumin, J. Verbeek, C. Schmid. *Multiple instance metric learning from automatically labeled bags of faces*. Proceedings European Conference on Computer Vision, September 2010.
- M. Guillaumin, J. Verbeek, C. Schmid. *Multimodal semi-supervised learning for image classification*. Proceedings IEEE Conference on Computer Vision and Pattern Recognition, June 2010. (oral)
- J. Krapac, M. Allan, J. Verbeek, F. Jurie. *Improving web-image search results using query-independent classifiers*. Proceedings IEEE Conference on Computer Vision and Pattern Recognition, June 2010.
- T. Mensink, J. Verbeek, G. Csurka. *Trans Media Relevance Feedback for Image Autoannotation*. Proceedings British Machine Vision Conference, September 2010.
- T. Mensink, J. Verbeek, H. Kappen. *EP for efficient stochastic control with obstacles*. Proceedings European Conference on Artificial Intelligence, August 2010. (oral)
- J. Verbeek, M. Guillaumin, T. Mensink, C. Schmid. *Image Annotation with TagProp on the MIRFLICKR set*. Proceedings ACM International Conference on Multimedia Information Retrieval, March 2010. (invited paper)
- 2009 • M. Guillaumin, T. Mensink, J. Verbeek, C. Schmid. *TagProp: Discriminative metric learning in nearest neighbor models for image auto-annotation*. Proceedings IEEE International Conference on Computer Vision, September 2009. (oral)
- M. Guillaumin, J. Verbeek, C. Schmid. *Is that you? Metric learning approaches for face identification*. Proceedings IEEE International Conference on Computer Vision, September 2009.
- M. Allan, J. Verbeek. *Ranking user-annotated images for multiple query terms*. Proceedings British Machine Vision Conference, September 2009.
- 2008 • M. Guillaumin, T. Mensink, J. Verbeek, C. Schmid. *Automatic face naming with caption-based supervision*. Proceedings IEEE Conference on Computer Vision and Pattern Recognition, pp. 1–8, June 2008.
- T. Mensink, and J. Verbeek. *Improving people search using query expansions: How friends help to find people*. Proceedings European Conference on Computer Vision, pp. 86–99, October 2008. (oral)
- J. Verbeek and B. Triggs. *Scene segmentation with CRFs learned from partially labeled images*. Advances in Neural Information Processing Systems 20, pp. 1553–1560, January 2008. (oral)
- H. Cevikalp, J. Verbeek, F. Jurie, and A. Kläser. *Semi-supervised dimensionality reduction using pairwise equivalence constraints*. Proceedings International Conference on Computer Vision Theory and Applications, pp. 489–496, January 2008.
- 2007 • J. van de Weijer, C. Schmid, and J. Verbeek. *Learning color names from real-world images*. Proceedings IEEE Conference on Computer Vision and Pattern Recognition, pp. 1–8, June 2007.
- J. Verbeek and B. Triggs. *Region classification with Markov field aspect models*. Proceedings IEEE Conference on Computer Vision and Pattern Recognition, pp. 1–8, June 2007.
- J. van de Weijer, C. Schmid, and J. Verbeek. *Using high-level visual information for color constancy*. Proceedings IEEE International Conference on Computer Vision, pp. 1–8, October 2007.
- 2006 • Z. Zivkovic and J. Verbeek. *Transformation invariant component analysis for binary images*. Proceedings IEEE Conference on Computer Vision and Pattern Recognition, pp. 254–259, June 2006.
- 2004 • J. Verbeek, S. Roweis, and N. Vlassis. *Non-linear CCA and PCA by alignment of local models*. Advances in Neural Information Processing Systems 16, pp. 297–304, January 2004. (oral)
- 2003 • J. Porta, J. Verbeek, and B. Kröse. *Enhancing appearance-based robot localization using non-dense disparity maps*. Proceedings International Conference on Intelligent Robots and Systems, pp. 980–985, October 2003.
- J. Verbeek, N. Vlassis, and B. Kröse. *Self-organization by optimizing free-energy*. Proceedings 11th European Symposium on Artificial Neural Networks, pp. 125–130, April 2003.
- 2002 • J. Verbeek, N. Vlassis, and B. Kröse. *Coordinating principal component analyzers*. Proceedings International Conference on Artificial Neural Networks, pp. 914–919, August 2002. (oral)
- J. Verbeek, N. Vlassis, and B. Kröse. *Fast nonlinear dimensionality reduction with topology preserving networks*. Proceedings 10th European Symposium on Artificial Neural Networks, pp. 193–198, April 2002. (oral)
- 2001 • J. Verbeek, N. Vlassis, and B. Kröse. *A soft k-segments algorithm for principal curves*. Proceedings International Conference on Artificial Neural Networks, pp. 450–456, August 2001.

### Book chapters

- 2012 • R. Benavente, J. van de Weijer, M. Vanrell, C. Schmid, R. Baldrich, J. Verbeek, and D. Larlus. *Color Names*. In: T. Gevers, A. Gijsenij, J. van de Weijer, J. Geusebroek, *Color in Computer Vision*, Wiley. To appear.