

**José M. Álvarez**  
Computer vision researcher

email: [alvarezlopezjosem@gmail.com](mailto:alvarezlopezjosem@gmail.com)

Web: <http://www.josemalvarez.net>  
[Google Scholar](#) (h-index:13- 548 citations)

Researcher with focus on efficient data-driven methods (deep-learning and non-parametric algorithms) for mobile robotics and dynamic scene understanding.

## Relevant research / industrial experience

2012~now	<p><a href="#">NICTA</a> / <a href="#">Data61 CSIRO</a> (as 1st July 2016) <span style="float: right;"><i>Canberra, Australia</i></span></p> <p>Computer vision researcher in <b>large scale dynamic scene understanding and deep learning</b>.</p> <ul style="list-style-type: none"> <li>- Developed efficient networks for real time scene understanding on embedded platforms</li> <li>- Developed non-parametric methods for efficient large scale scene understanding.</li> <li>- Developed feature learning for facial characterization and efficient semantic segmentation.</li> <li>- Developed road scene understanding algorithms.</li> <li>- Co-advised PhD, visiting and 2 MSc. students.</li> <li>- Leading organizer of <a href="#">DeepVision</a> workshop at CVPR and co-organizing workshops on autonomous driving and representation learning.</li> </ul>
2011	<p><a href="#">New York University</a> <span style="float: right;"><i>New York, NY, USA</i></span></p> <p>Post-doctoral researcher in deep learning. Advisor: Yann LeCun</p> <ul style="list-style-type: none"> <li>- Developed <b>deep-learning</b> algorithms for dynamic scene understanding and object recognition, resulting in conference and workshop paper (ECCV12).</li> </ul>
2006~2011	<p><a href="#">Computer Vision Center</a> <span style="float: right;"><i>Barcelona, Spain</i></span></p> <p>Project leader/software developer of computer vision projects / Post-doctoral researcher</p> <ul style="list-style-type: none"> <li>- (<b>Patented</b>) Developed road scene understanding algorithms (large image-gps-lidar dataset).</li> <li>- Developed <i>4Cam acquisition platform</i>: multimodal mobile acquisition platform for driver assistance systems.</li> <li>- Developed <i>advanced headlight visualization software</i> for in-vehicle headlight comparison.</li> <li>- Developed <i>Galimplant3D</i>: software to assist in oral surgery.</li> <li>- Developed <i>Vision-based automatic roulette wheel winning number detection system</i></li> </ul>
2005~2006	<p><b>Self-employed</b> <span style="float: right;"><i>Barcelona, Spain</i></span></p> <p>Researched and developed computer vision and multi-modal systems, resulting in two patents.</p>
2001~2005	<p><a href="#">Electronic Engineering Solutions, S.L.</a> <span style="float: right;"><i>Barcelona, Spain</i></span></p> <p>Designed and developed hardware and software for embedded systems.</p>

## Education

2006~2010 PhD defense Oct. 2010	<p><b>PhD with Honors in Computer Science</b> Univ. Autònoma de Barcelona (UAB), Barcelona, Spain</p> <p><b>Topic:</b> Computer vision, driver assistance systems</p> <p><b>Thesis:</b> Combining context and appearance for road detection (advisors: <i>Prof. Theo Gevers, Prof. Antonio M. Lopez</i>)</p> <p><b>Merits:</b> <b>6 referred journal papers.</b> 12 publications in major conferences. <b>1 Patent.</b></p>	<p><b>Internships (sponsored):</b> 2010 Volkswagen A.G, Wolfsburg, Germany - Developed multimodal acquisition system. 2009 Univ. of Amsterdam. Amsterdam, The Netherlands (<i>sponsored from UAB grant</i>). - Developed algorithm for combining classifiers 2008 Univ. of Amsterdam. The Netherlands. - Developed learning for color invariance</p> <p><b>Awards:</b> - Extraordinary Doctorate award 2010-2011 - Doctor Europaeus certificate - Best poster award at IbPRIA 2007 - <b>Best PhD award 2010</b></p>
1996~2003 <i>Sponsored student</i>	<p><b>BD / MS Telecommunications Engineer.</b> La Salle School of Engineering, Spain, (major in comp. vision and electronic eng.)</p>	<p><b>Internship (sponsored):</b> 2003 Carnegie Mellon Univ., Pittsburgh, PA, USA. 2001 SONY Spain,</p>

## Teaching experience

2016-2017	<b>Australian National University</b> (English) Deep Learning: Semantic perception for robots and autonomous Systems	Canberra, Australia
2016	<b>Universitat Autònoma de Barcelona</b> Deep Learning course at <a href="#">Master in Computer Vision</a> (English)	Barcelona, Spain
2012-2013	<b>Universitat Oberta de Catalunya</b> Teaching assistant (online system)	Barcelona, Spain
2005~2010	<b>Universitat Autònoma de Barcelona</b> Teacher and coordinator, teaching assistant, advisor of final degree projects of engineering.	Barcelona, Spain
1999~2002	<b>La Salle School of Engineering</b> Research in computer vision and image processing at Digital Signal Processing department.	Barcelona, Spain

## Relevant Invited Talks

2016	Large-scale scene understanding in constrained platforms. <a href="#">NVIDIA RoadShow</a> .	Canberra, Aus.
2015	Compacting ConvNets for end to end learning. <a href="#">Deep Learning workshop ACRA'15</a> , Canberra, Aus.	

## Professional activities

Organization Committee	<ul style="list-style-type: none"><li>- <a href="#">DeepVision'14-16</a>: Deep learning for computer vision (with CVPR14/15/16)</li><li>- <a href="#">CVVT'15/16</a>: Computer Vision in Vehicle Technology (with CVPR15/16)</li><li>- <a href="#">CPCV'13/14/15</a>: Color in computer vision (in conjunction with ICCV13 / ECCV14).</li><li>- <a href="#">CVRSUAD'14/15/16</a>: Comp. Vision for Road Scene Understanding &amp; Autonomous Driving</li><li>- <a href="#">RD'14/15</a>: Benchmarking road detection algorithms (with IEEE-IV14/15)</li></ul>	
Editorial Board	<b>Associate Editor</b> for IEEE Trans. in Intelligent Transportation Systems (T-ITS), since 2012 <b>Area Chair</b> for WACV 2016. <b>Area Chair</b> for ICRA15. <b>Chair</b> of IEEE-ACT Computer Science.	
Reviewer	Journals: IEEE T-PAMI, IEEE T-NN, IEEE T-ITS, IEEE T-IP, IEEE T-MM, IEEE T-CSVT, CVIU. Conferences: ICCV, ECCV, CVPR, IV, ITSC, ICRA, IROS, ICML	

## Patents

2013	- <i>System to detect drivable road area.</i>	
2009	- <i>Dynamic headlight comparison system.</i>	
2006	- <i>Load volume measuring system for use in platform or box open vehicles.</i>	

## Relevant Publications (full list at [www.josemalvarez.net](http://www.josemalvarez.net))

[Google Scholar](#) (h-index:13)

Arxiv 2016	- DecomposeMe: Simplifying ConvNets for end to end Learning <b>Álvarez</b> , and Petersson	
To appear	- Model Selection in Convolutional Neural Networks <b>Álvarez</b> and Salzmann	
T-ITS'16 / WACV'14	- <a href="#">Large Scale Co-labeling of image Sets</a> . <b>Álvarez</b> , Salzmann and Barnes	
CVIU '16 / ICCVw'13 ECCV'12	- <a href="#">Exploiting Sparsity for Real-time Video Labeling (best paper award)</a> Horne, <b>Álvarez</b> and Barnes	
	- <a href="#">Road Scene Understanding from a Single Image</a> . <b>Álvarez</b> , Gevers, Lopez and Yann LeCun	
T-ITS'14 / CVPR'10	- <a href="#">Combining Priors, Context and Appearance for Road Detection</a> . <b>Álvarez</b> , Gevers, Lopez and Lumbrellas	
T-ITS'11 / IEEE-IV'09	- <a href="#">Road Detection using Illuminant Invariance</a> . <b>Álvarez</b> and Lopez	

## Awards

Awards	Best PhD award'10, Best paper/poster'13-'07, ERC-fellow grant'11, Ramon y Cajal fellow'16.	
Research Accredit.	Assoc. Prof. Accreditation by the Agency for the Quality of Higher Education in Catalonia (AQU). Assoc. Prof. Accreditation by the Spanish Agency for the Quality of Higher Education (ANECA).	

## Relevant Publications

### Edited research books

1. Lopez, Padjla, Imiya and **José M. Álvarez** eds., Computer Vision in Vehicle Technology. Wiley, accepted October 2015. To appear in 2016

### Scholarly Book Chapters

2. **José M. Álvarez**, T. Gevers, A. M. López. Photometric Invariance by Machine Learning. Color in Computer Vision: Fundamental and applications. Wiley, August 2012.

### Refereed Journal Articles

3. Z. Lou, F. Alnajar, **José M. Álvarez**, N. Hu, T. Gevers. Expression-Invariant Age Estimation Using Structured Learning. Under review in IEEE Trans. On Pattern Anal & Mach. Intel (minor review), 2016
4. G. Ros, **José M. Álvarez** and J. Guerrero. Motion Estimation via Robust Decomposition with Constrained Rank. Under Review in Pattern Recognition Letters, 2016
5. **José M. Álvarez**, M. Salzmann and Nick Barnes. Exploiting Large Scale Image Sets for Road Scene Understanding. IEEE Trans. on Intel. Transportation Systems, Jan 2016. [Q1; 2014-IF 2.377]
6. L. Horne, **José M. Álvarez**, C. McCarthy, M. Salzmann and N. Barnes. Semantic Labeling for Prosthetic Vision, Computer Vision and Image Understanding, Feb 2016. [Q2; 2014-IF 1.540]
7. F. Alnajar, T. Gevers, **José M. Álvarez**. Deep-aging Features. Under review in Computer Vision and Image Understanding, 2016
8. **José M. Álvarez** and A. M. López. Road Detection Based on Illuminant Invariance. In IEEE Trans. Intelligent Transportation Systems, March 2011. Volume 12: Issue 1. 184-193. [Q1; 2011-IF 3.452, Cited 127]
9. **José M. Álvarez**, A. M. López, T. Gevers and F. Lumbreras. Combining Priors, Appearance and Context for Road Detection. In IEEE Trans. Intelligent Transportation Systems, Jan. 2014. Vol. 15: Issue 3. 1168-1178 [Q1; IF 2.935; Cited 16]
10. **José M. Álvarez**, T. Gevers, F. Diego and A. M. López. Road Geometry Classification by Adaptive Shape Models. In IEEE Trans. Intelligent Transportation Systems, March 2013. Volume 14: Issue 1. 459-221 [Q1; IF 2.935]
11. J. López-López, **Jose M. Álvarez**, E. Jané-Salas, A. Estrugo-Devesa, R. Ayuso-Montero, E. Velasco-Ortega, Computer-Aided System for Morphometric Mandibular Index Computation (using dental panoramic radiographs). Dentistry, Oral Surgery & Medicine. Sep 2011. Volume 17: Issue 4. 624-632 [Q3; IF 1.224]
12. F. Dornaika, **José M. Álvarez**, A. D. Sappa and A. M. Lopez. A New Framework for Stereo Sensor Pose through Road Segmentation and Registration. IEEE Trans. Intelligent Transportation Systems, Dec. 2011. Volume 12: Issue 4 [Q1; IF 2.935]
13. **José M. Álvarez**, T. Gevers and A. M. López. Learning Photometric Invariance for Object Detection. International Journal of Computer Vision March 2010. Volume 90: Issue 1 [Q1; 2011-IF 5.151]
14. J. López-López, E. Chimenos-Küstner, C. Manzanares-Céspedes, J. Muñoz-Sánchez, P. Castañeda-Vega, E. Jané-Salas, **José M. Álvarez**, A. Gimeno-Sanding. Histomorphological study of the bone regeneration capacity of platelet-rich plasma, bone marrow and tricalcium phosphate Experimental Study on pigs. Oral Medicine and Pathology. 1;14(12):e620-7 Dec 2009. [Q3; IF 1.224]
15. J. Serrat, F. Diego, F. Lumbreras, **José M. Álvarez**, A. M. López and C. Elvira. Dynamic comparison of headlights. In Journal of Automobile Engineering, Proc. of the Institution of Mechanical Engineers, Part D, June 2007. [Q3; IF 0.700]

### Refereed Conference Papers

16. **Jose M. Alvarez**, M. Salzmann. Model Selection in Convolutional Neural Networks. Under peer Review
17. **Jose M. Alvarez** and Lars Petersson. DecomposeMe: Simplifying ConvNets for end to end Learning. Under Review ([arXiv:1606.05426](#))
18. H. Zhou, **Jose M. Alvarez** and Fatih Porikli. Compact CNNs. Under Review
19. M. Sadegh, L. Petersson and **José M. Álvarez**. Semantic Segmentation under varying lighting conditions. Under peer review.
20. F. Saleh, M. Sadegh, M. Salzmann, L. Petersson, **Jose M. Alvarez** and Stephen Gould. Weakly-Supervised Semantic Segmentation. Under Review
21. G. Long, L. Kneip, **Jose M. Alvarez** and Hongdong Li. Learning Image Matching by Simply Watching Videos. Under peer review, 2016 ([arXiv:1603.06041](#)).
22. Shahin R. Namin, **Jose M. Alvarez**, Laurent Kneip, Lars Petersson. Latent Structural SVM with Marginal Probabilities for Weakly Labeled Structured Learning. IEEE-ICIP, Phoenix, USA, 2016 [CORE2014 - B]
23. **José M. Álvarez**, M. Salzmann and N. Barnes. Efficient Transductive Semantic Segmentation. IEEE-Winter Applications Computer Vision, Lake Placid NY, 2016 [CORE2014 - A]

24. P. Dhar, P. Roy and **José M. Álvarez**. Efficient Framework for Human Activity Recognition. International Conference on Computer Vision and Image Processing, IIT Roorkee, India, 2016
25. J. Qiu, Y. Dai, **José M. Álvarez**. Hierarchical Aggregation based Deep Aging Features for Age Prediction, DICTA, Adelaide (Australia), 2015 [CORE2014 - B]
26. C. Dong and **José M. Álvarez**. Spatial Deep Networks for Outdoor Scene Classification, DICTA 2015 Adelaide, (Australia) 2015 [CORE2014 - B]
27. G. Ros and **José M. Álvarez**. Unsupervised Image Transformation for Outdoor Semantic Labelling. IEEE Intelligent Vehicle Symposium (IV), Seoul, Korea, 2015 [CORE2014 - B]
28. L. Horne, **José M. Álvarez**, M. Salzmann and N. Barnes. Efficient Scene Parsing by Sampling Unary Potentials in a Fully-Connected CRF, IEEE Intelligent Vehicle Symposium (IV), Seoul, Korea, 2015 [CORE2014 - B]
29. L. Horne, **José M. Álvarez**, C. McCarthy and N. Barnes. Semantic Labelling to Aid Navigation in Prosthetic Vision. IEEE-EMBC, Italy 2015. [CORE2014 - C]
30. F. Alnajar, Z Lou, **José M. Álvarez**, T. Gevers. Expression-Invariant Age Estimation. British Machine Vision Conference (BMVC) 2014. [ERA2010 – B acceptance rate 7.5%]
31. A. Shahriari, **José M. Álvarez**, A. Robles-Kelly. Class-driven color transformation for semantic labeling. Asian Conference Computer Vision (ACCV) 2014. [CORE2014 - B]
32. H Zhou, H Kong, **José M. Álvarez**, D Creighton. Fast Road Detection and Tracking in Aerial Videos. IEEE Intelligent Vehicles Symposium (IV) 2014. [CORE2014 - B]
33. **José M. Alvarez**, M. Salzmann, N. Barnes. Data-Driven Road Detection. IEEE Winter Conference on Applications of Computer Vision (WACV) 2014. [CORE2014 - A]
34. **José M. Alvarez**, M. Salzmann, N. Barnes. Large-Scale Semantic Co-Labeling of Image Sets. IEEE Winter Conf. on Applications of Computer Vision (WACV) 2014. [CORE2014 - A]
35. **José M. Álvarez**, T Gevers, A. M Lopez. Evaluating Color Representations for On-Line Road Detection. Computer Vision in Vehicle Technology workshop at IEEE International Conference on Computer Vision Workshops (ICCV), 2013
36. L Horne, **José M. Álvarez** N Barnes. Exploiting Sparsity for Real Time Video Labelling. Computer Vision in Vehicle Technology workshop at IEEE International Conference on Computer Vision Workshops (ICCV), 2013
37. **José M. Álvarez**, M. Salzmann, N. Barnes. Learning Appearance Models for Road Detection. IEEE Intelligent Vehicle Symposium (IV), Sydney, Australia. 2013. [CORE2014 - B]
38. **José M. Álvarez**, Y. LeCun, T. Gevers and A. M. López. [Road Scene Segmentation from a Single Image](#). Proc. European Conf. on Computer Vision (ECCV), Florence, 2012. [CORE2014 - A]
39. **José M. Álvarez**, Y. LeCun, T. Gevers and A. M. López. [Semantic Road Scene Segmentation via Multi-Scale Ensembles of Learned Features](#). Computer Vision in Vehicle Technology workshop at Proc. European Conf. on Computer Vision (ECCV), Florence, 2012
40. **José M. Álvarez**, T. Gevers and A. M. López. [3D Scene Priors for Road Detection](#). In Proc. IEEE Int. Conf. on Computer Vision and Pattern Recognition (CVPR), San Francisco, CA, 2010. [CORE2014 - A]
41. F. Diego, **José M. Álvarez**, J. Serrat and A. M. López. [Vision based Road Detection via On-line Video Registration](#). In Proc. IEEE Int. Conf. on Intelligent Transportation Systems, 2010.
42. **José M. Álvarez**, F. Lumbreras, T. Gevers and A. M. López. Geographic Information for Vision-Based Road Detection. IEEE Intelligent Vehicle Symposium (IV), San Diego, CA. 2010. [CORE2014 – B]
43. **José M. Álvarez**, T. Gevers and A. M. López. [Learning Photometric Invariance from Diversified Color Model Ensembles](#). In Proc. IEEE Int. Conf. on Computer Vision and Pattern Recognition (CVPR), Miami, 2009. [CORE2014 - A]
44. **José M. Álvarez**, F. Diego, J. Serrat, A. M. López and D. Ponsa. Automatic Ground-truthing using Video Registration for On-Board Detection Algorithms. International Conference in Image Processing (ICIP), El Cairo, 2009. [CORE2014 - B]
45. **José M. Álvarez**, T. Gevers and A. M. López. Vision based road detection using road models. International Conference in Image Processing (ICIP), El Cairo, 2009. [CORE2014 - B]
46. **José M. Álvarez**, A. M. López. Novel Index for Objective Evaluation of Road Detection Algorithms. Intelligent Transportation Systems (ITSC). Beijing China, 2008
47. **José M. Álvarez**, A. M. López, and R. Baldrich. [Illuminant Invariant Model-Based Road Segmentation](#). In 2008 IEEE Intelligent Vehicles Symposium (IV), Eindhoven, The Netherlands. 2008. [CORE2014 - B]
48. **José M. Álvarez**, A. M. López, and R. Baldrich. Shadow Resistant Road Segmentation from a Mobile Monocular System. Iberian Conference on Pattern Recognition and Image Analysis. (IbPRIA), Girona, Spain. 2007. [ERA2010 - C]
49. J. Serrat, F. Diego, F. Lumbreras, **José M. Álvarez**. Alignment of videos recorded from moving vehicles. International Conference on Image Analysis and Processing (ICIAP), Modena, Italy. 2007. [CORE2014 - B]
50. C. Elvira, F. Dorca, **José M. Álvarez**. System for Night Video Acquisition and Synchronization. International Symposium on Automotive Lighting (ISAL). Darmstadt, Germany. 2007

Other

51. **José M. Álvarez**, F. Lumbreras. Method for Obtaining Drivable Road Areas. EP patent 2583217 A1, 2013
52. J. Carrasco, F. Dorca, M. Paredes, **José M. Álvarez**, A. Lopez, F. Lumbreras, J. Serrat. Headlight evaluation process. EP Patent 1970690 A2, 2008
53. I. Maluquer, **José M. Álvarez**. Load volume measuring system for use in platform or box open vehicles, comprises structure under which vehicle is parked during measurement, where laser beam probe is arranged in structure. ES patent 2301327 A1, 2008.