

Roberto Mecca

Selected Publications

Peer Reviewed Journal Papers

- (1) F. Logothetis, **R. Mecca**, I. Budvytis, , R. Cipolla, A CNN Based Approach for the Point-Light Photometric Stereo Problem, *International Journal of Computer Vision*, 2023.
- (2) S.D. Morad, **R. Mecca**, R.P.K. Poudel, S. Liwicki, R. Cipolla, Embodied Visual Navigation with Automatic Curriculum Learning in Real Environments, *IEEE Robotics and Automation Letters*, 2021 / IEEE International Conference on Robotics and Automation (ICRA 2021)
- (3) F. Logothetis, **R. Mecca**, F. Sgallari and R. Cipolla, A Differential Approach to Shape from Polarisation: a Level-Set Characterisation, *International Journal of Computer Vision*, 2019.
- (4) Y. Quèau, **R. Mecca**, J.D. Durou, X. Descombes, Photometric Stereo with Only Two Images: A Theoretical Study and Numerical Resolution, *Image and Vision Computing*, Vol. 57, pp. 175-191, 2017.
- (5) **R. Mecca**, Y. Quèau, F. Logothetis and R. Cipolla, A Single Lobe Photometric Stereo Approach for Heterogeneous Material, *SIAM Journal on Imaging Sciences*, Vol. 9, No. 4, pp. 1858-1888, 2016.
- (6) S. Tozza, **R. Mecca**, M. Duocastella and A. Del Bue, Direct Differential Photometric Stereo Shape Recovery of Diffuse and Specular Surfaces, *Journal of Mathematical Imaging and Vision*, Vol. 56, No. 1, Page 57, 2016.
- (7) **R. Mecca**, E. Rodolà and D. Cremers, Realistic photometric stereo using partial differential irradiance equation ratios, *Computers & Graphics*, Vol. 51, pp. 8-16, 2015.
- (8) **R. Mecca**, A. Wetzler, A. M. Bruckstein and R. Kimmel, Near Field Photometric Stereo with Point Light Sources, *SIAM Journal on Imaging Sciences*, Vol. 7, No. 4, pp. 2732-2770, 2014.
- (9) **R. Mecca**, A. Tankus, A. Wetzler and A. M. Bruckstein, A Direct Differential Approach to Photometric Stereo with Perspective Viewing, *SIAM Journal on Imaging Sciences*, Vol. 7, No. 2, pp. 579-612, 2014.
- (10) **R. Mecca** and M. Falcone, Uniqueness and approximation of a Photometric Shape-from-Shading model, *SIAM Journal on Imaging Sciences*, Vol. 6, No. 1, pp. 616-659, 2013.

Book Chapters

- (1) **R. Mecca** and S. Tozza, Shape Reconstruction of Symmetric Surfaces using Photometric Stereo, In book: *Innovations for Shape Analysis*, Publisher: Springer Berlin Heidelberg, Editors: Breuß, Michael and Bruckstein, Alfred and Maragos, Petros, pp.219-243 (2013).

Peer Reviewed Conference Publications

- (1) G. Ebmer, A. Loch, M. Nhat Vu, G. Haessig, **R. Mecca**, M. Vincze, C. Hartl-Nesic, A. Kugi, *Fast and Robust Pose Estimation with Event-based Cameras and Active LED Markers*, under review, 2023
- (2) S. Morad, S. Liwicki, R. Kortvelesy, **R. Mecca** and A. Prorok, Modeling Partially Observable

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Systems using Graph-Based Memory and Topological Priors, *Learning for Dynamics and Control, (L4DC)*, 2022

- (3) **R. Mecca**, F. Logothetis, I. Budvytis, R. Cipolla, LUCES: A Dataset for Near-Field Point Light Source Photometric Stereo, *British Machine Vision Conference (BMVC)*, 2021
- (4) F. Logothetis, I. Budvytis, **R. Mecca**, R. Cipolla, PX-NET: Simple, Efficient Pixel-Wise Training of Photometric Stereo Networks, *International Conference on Computer Vision (ICCV)*, 2021
- (5) F. Logothetis, I. Budvytis, **R. Mecca**, R. Cipolla, A CNN Based Approach for the Near-Field Photometric Stereo Problem, *British Machine Vision Conference (BMVC)*, 2020, **Best Industry Paper Award**
- (6) F. Logothetis, **R. Mecca**, R. Cipolla: A Differential Volumetric Approach to Multi-View Photometric Stereo, *International Conference on Computer Vision (ICCV)*, 2019
- (7) **R. Mecca**, F. Logothetis and R. Cipolla, A Differential Approach to Shape from Polarisation, *British Machine Vision Conference (BMVC)*, 2017.
- (8) F. Logothetis, **R. Mecca** and R. Cipolla, Semi-calibrated Near Field Photometric Stereo, *Proceedings of IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2017
- (9) F. Logothetis, **R. Mecca**, Y. Quèau and R. Cipolla, Near-Field Photometric Stereo in Ambient Light, *British Machine Vision Conference (BMVC)*, 2016.
- (10) Y. Quèau, **R. Mecca** and J.D. Durou, Unbiased Photometric Stereo for Colored Surfaces: A Variational Approach, *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2016
- (11) **R. Mecca** and Y. Quèau, Unifying Diffuse and Specular Reflections for the Photometric Stereo Problem, *IEEE Winter Conference on Applications of Computer Vision (WACV)*, 2016
- (12) **R. Mecca**, E. Rodolà and D. Cremers, Analysis of surface parametrizations for modern photometric stereo modeling, *Proceedings of the Twelfth International Conference on Quality Control by Artificial Vision (QCAV)*, 2015
- (13) A. Wetzler, **R. Mecca**, A. M. Bruckstein and R. Kimmel, Close-range Photometric Stereo with Point Light Sources, *3D Vision Conference (3DV)*, 2014
- (14) **R. Mecca**, A. Wetzler, R. Kimmel, and A. M. Bruckstein, Direct Shape Recovery from Photometric Stereo with Shadows, *Proceedings of 3D Vision Conference (3DV)*, 2013
- (15) **R. Mecca**, G. Rosman, R. Kimmel, and A. M. Bruckstein, Perspective Photometric Stereo with Shadows, *International Conference on Scale Space and Variational Methods in Computer Vision (SSVM)*, 2013
- (16) **R. Mecca**, A. Tankus and A. M. Bruckstein, Two-Image Perspective Photometric Stereo using Shape-from-Shading, *Asian Conference on Computer Vision (ACCV)*, 2012
- (17) S. Larnier and **R. Mecca**, Fractional-Order Diffusion for Image Reconstruction, *IEEE International Conference on Acoustic Speech and Signal (ICASSP)*, 2012
- (18) **R. Mecca**, Uniqueness for Shape from Shading via Photometric Stereo Technique, *IEEE International Conference on Image Processing (ICIP)*, 2011
- (19) **R. Mecca** and J.D. Durou, Unambiguous Photometric Stereo Using Two Images, *International Conference on Image Analysis and Processing (ICIAP)*, 2011