

# Curriculum Vitae

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## Personal Information

**Name** Matteo Poggi  
**Date of Birth** January 12th, 1990  
**Email** m.poggi@unibo.it / matteo.poggi6@gmail.com  
**Website** <https://vision.disi.unibo.it/~mpoggi/>  
**Github** <https://github.com/mattpoggi>  
**Scholar** <https://scholar.google.it/citations?user=bve0VwgAAAAJ&hl=it>  
**ResearchGate** [https://www.researchgate.net/profile/Matteo\\_Poggi](https://www.researchgate.net/profile/Matteo_Poggi)  
**ASN (09/H1, II Fascia)** <https://asn18.cineca.it/pubblico/miur/esito/09%252FH1/2/6>



## Research Area and Expertises

Machine Learning, Deep Learning, Computer Vision and 3D sensing, Image Processing

## Education

- 2014 – 2018 **PhD** in Computer Science and Engineering (*Bologna, Italy*)  
Theses: "Machine learning techniques applied to stereo vision"  
**Honorable mention** at CVPL 2018  
Supervisor: Prof. Stefano Mattoccia
- 2012 – 2014 **Master Degree – 110/110 cum laude** in Computer Engineering (*Bologna, Italy*)  
Thesis: "Improvements to a fast algorithm for accurate stereo matching"  
Advisors: Prof. Stefano Mattoccia, Dr. David Dermidjian, Prof. Roberto Manduchi
- 2009 – 2012 **Bachelor Degree – 110/110 cum laude** in Computer Engineering (*Bologna, Italy*)  
Thesis: "Porting di software e sviluppo di una interfaccia grafica multiplatforma per telecamera stereo real-time"  
Supervisor: Prof Giovanni Neri, Prof. Stefano Mattoccia, Dr. Marco Casadio
- 2004 – 2009 **High School Diploma - 100/100** at Liceo Scientifico Tecnologico (*Imola, Italy*)

## Intenships

- April – August 2017 **Visiting PhD student** at CVG Group (*ETH Zurich, Switzerland*)  
Supervisors: Prof. Torsten Sattler, Prof. Andreas Geiger
- June – September 2014 **Internship** at Aquifi Inc. (*Palo Alto, California, US*)  
Topic: "Improvements to a fast algorithm for accurate stereo matching"  
Supervisors: Dr. David Dermidjian, Prof. Roberto Manduchi

## Skills & Background Knowledge

**Other languages** English, *B2 certificate*  
**Coding languages** Python, C/C++, Lua, Java, C#, GoLang, VHDL  
**Frameworks** PyTorch, Tensorflow, OpenCV, scikit-learn

## Teaching Experience

- 2020 – Now **Adjunct Professor** "Digital Systems M (Module 2) - Master Degree in Computer Science Engineering", University of Bologna – (<https://www.unibo.it/it/didattica/insegnamenti/insegnamento/2020/385380>)
- 2019 – Now **2nd Level Master course** "Depth sensing technologies for autonomous vehicles - Master in Sustainable and Integrated Mobility In Urban Regions", at University of Bologna

- 2019 **PhD course**, “Learning-based dense depth estimation from stereo and monocular images Phd in Computer Science and Engineering”, at University of Bologna
- 2018 – Now **Training course**, “Machine Deep Learning with applications to computer vision”, at Fondazione Aldini Valeriani (FAV), Scuola di Industrial Management
- 2014 – Now **Teaching assistant**, “Computer architectures T - Bachelor Degree in Computer Engineering”, at University of Bologna with Prof. Stefano Mattocchia

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## Academic service

- 2018 **Membro esperto aggregato**, Esami di stato per l’abilitazione all’esercizio della Professione di Ingegnere, Settore informazione – informatica

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## Research projects and role

- Nov. 2020 - “Metodo di determinazione della profondità da immagini e relativo sistema” – Guided stereo matching, a research project funded by University of Bologna, PoC UNIBO 2nd edition (**Scientific supervisor**)
- Nov. 2017 - Nov. 2018 “3D vision for safety applications”, a research project funded by FAAC Group (**Research Fellow**)
- Mar. 2017 - Mar. 2018 “Study, design, and development of a new vision-based measurement system”, a research project funded by Snap-On Equipment (**Participant**)

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## Grants

- 2020 **Proof of Concept Ministero Dello Sviluppo Economico** (30.000 €)
- 2020 **Proof of Concept d’Ateneo**, PoC UNIBO 2nd edition (28.500 €)

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## Acknowledgements

- Finalists (eycan unicorns)**, OpenCV AI Competition, 2021
- Outstanding Reviewer**, CVPR 2018, 2019, 2020, 2021
- Outstanding Reviewer**, ACCV 2020
- Emergency Reviewer**, CVPR 2019, 2021
- Honorable Mention**, PhD Thesis presentation at CVPL 2018

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## Professional service

- Guest Editor**, Special Issue on “Traditional Computer Vision in the Age of Deep Learning”, International Journal on Computer Vision (**IJCV**) (URL: <https://www.springer.com/journal/11263/updates/19335400>)
- Guest Editor**, Special Issue on “Computer Vision for 3D Perception and Applications”, MPDI Sensors Journal (URL: [https://www.mdpi.com/journal/sensors/special\\_issues/computer\\_vision\\_3d\\_perception](https://www.mdpi.com/journal/sensors/special_issues/computer_vision_3d_perception))

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## Organization of Workshops/Tutorials

### Workshops

- [W1] “1st Workshop on Traditional Computer Vision in the Age of Deep Learning”, **M. Poggi**, F. Arrigoni, A. Fusiello, S. Mattocchia, A. Bartoli, T. Sattler, T. Pajdla. **ICCV 2021**

### Tutorials

- [T4] “Facing depth estimation in-the-wild with deep networks”, **M. Poggi**, F. Tosi, F. Aleotti, K. Batsos, P. Mordohai, S. Mattocchia, **ECCV 2020** (URL: <https://sites.google.com/view/eccv-2020-robust-depth/home>)
- [T3] “Learning and understanding single image depth estimation in the wild”, **M. Poggi**, F. Tosi, F. Aleotti, S. Mattocchia, C. Godard, J. Watson, M. Firman, G. J. Brostow, **CVPR 2020** (URL: <https://sites.google.com/view/cvpr-2020-depth-from-mono/home>)

- [T2] "Learning-based depth estimation from stereo and monocular images: successes, limitations and future challenges", **M. Poggi**, F. Tosi, F. Aleotti, K. Batsos, P. Mordohai, S. Mattoccia, **CVPR 2019** (URL: <https://sites.google.com/view/cvpr-2019-depth-from-image/home>)
- [T1] "Learning-based depth estimation from stereo and monocular images: successes, limitations and future challenges", **M. Poggi**, F. Tosi, F. Aleotti, K. Batsos, P. Mordohai, S. Mattoccia, **3DV 2018** (URL: <https://sites.google.com/view/3dv-2018-depth-from-image/home>)

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## Talks and Live Demonstrations

### Invited Talks

- [I3] "On the synergies between machine learning and stereo", at the 45th Pattern Recognition and Computer Vision Colloquium, **CMP Prague** (<http://cmp.felk.cvut.cz/cmp/events/colloquium-2019.10.03/>)
- [I2] "Deep learning for depth estimation", at **Univrse AB** (<https://twitter.com/univrse/status/1032174688749928448?s=19>)
- [I1] "Deep learning for stereo matching and related tasks", at **MPI Tübingen** (<https://is.tuebingen.mpg.de/events/deep-learning-for-stereo-matching-and-related-tasks>)

### Other Talks

- [O1] "Real-time monocular depth estimation without GPU", BMVA meeting on High-Performance Computing for Computer Vision (<https://britishmachinevisionassociation.github.io/meetings/05-22-HPC4CV.html>)

### Live Demos

- [I5] "Real-Time self-adaptive deep stereo", **CVPR 2019**
- [I4] "Real-Time monocular depth estimation without GPU", **CVPR 2019**
- [I3] "Energy-Efficient Monocular Depth Estimation on ARM-based Embedded Platforms", U-boot at **DATE 2019**
- [I2] "Towards real-time learning of monocular depth estimation enabling multiple view synthesis on CPU", **ECCV 2018**
- [I1] "Towards real-time monocular and unsupervised depth estimation on CPU", **3DV 2018**

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## Patents

- [B5] *Method for determining the depth from a single image and system thereof.* - pending - **M. Poggi**, F. Aleotti, F. Tosi, S. Mattoccia, V. Peluso, A. Cipolletta, A. Calimera
- [B4] *Method and apparatus for generating images of training of neural networks.* - pending - D. De Gregorio, **M. Poggi**, L Di Stefano, S. Salti
- [B3] *Method for determining the confidence of a disparity map through a self-adaptive learning of a neural network, and sensor system thereof.* - pending - **M. Poggi**, F. Aleotti, F. Tosi, S. Mattoccia
- [B2] *Depth determination method based on images, self-adaptive neural networks, and relative system (Real-Time Self Adaptive Deep Stereo)* - pending - A. Tonioni, F. Tosi, **M. Poggi**, S. Mattoccia, L. Di Stefano
- [B1] *Depth determination method based on images, and relative system (Guided Stereo Matching)* - IT, PCT pending - **M. Poggi**, D. Pallotti, F. Tosi, S. Mattoccia

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## List of Publications

### Journals

- [J14] **M. Poggi**, A. Tonioni, F. Tosi, S. Mattoccia, L. Di Stefano, "Continual Adaptation for Deep Stereo", IEEE Transaction on Pattern Analysis and Machine Intelligence (**TPAMI**) (DOI: [10.1109/TPAMI.2021.3075815](https://doi.org/10.1109/TPAMI.2021.3075815)) (IF:**16.389**)
- [J13] **M. Poggi**, F. Tosi, K. Batsos, P. Mordohai, S. Mattoccia, "On the Synergies between Machine Learning and Binocular Stereo for Depth Estimation from Images: a Survey", IEEE Transaction on Pattern Analysis and Machine Intelligence (**TPAMI**) (DOI: [10.1109/TPAMI.2021.3070917](https://doi.org/10.1109/TPAMI.2021.3070917)) (IF:**16.389**)
- [J12] **M. Poggi**, S. Kim, F. Tosi, S. Kim, F. Aleotti, D. Min, K. Sohn, and S. Mattoccia, "On the Confidence of Stereo Matching in a Deep-Learning Era: a Quantitative Evaluation", IEEE Transaction on Pattern Analysis and Machine Intelligence (**TPAMI**) (DOI: [10.1109/TPAMI.2021.3069706](https://doi.org/10.1109/TPAMI.2021.3069706)) (IF:**16.389**)
- [J11] A. Cipolletta, V. Peluso, A. Calimera, **M. Poggi**, F. Tosi, F. Aleotti, S. Mattoccia, "Energy-Quality Scalable Monocular Depth Estimation on Low-Power CPUs", IEEE IoT Journal (**JIoT**) (DOI: [10.1109/JIoT.2021.3080827](https://doi.org/10.1109/JIoT.2021.3080827)) (IF:**9.515**)
- [J10] V. Peluso, A. Cipolletta, A. Calimera, **M. Poggi**, F. Tosi, F. Aleotti, S. Mattoccia, "Monocular Depth Perception on Microcontrollers for Edge Applications", IEEE Transactions on Circuits and Systems for Video Technology (**TCSVT**) (DOI: [10.1109/TCSVT.2021.3077395](https://doi.org/10.1109/TCSVT.2021.3077395)) (IF:**4.685**)
- [J9] D. De Gregorio, **M. Poggi**, P. Zama Ramirez, G. Palli, S. Mattoccia, L. Di Stefano, "Beyond the Baseline: 3D Reconstruction of Tiny Objects with Single Camera Stereo Robot", IEEE Access (accepted) (IF:**3.367**)
- [J8] P. Tassinari, M. Bovo, S. Benni, S. Franzoni, **M. Poggi**, L. M. E. Mammi, S. Mattoccia, L. Di Stefano, F. Bonora, A. Barbaresi, E. Santolini, D. Torreggiani, "A computer vision approach based on deep learning for the detection of dairy cows in free stall barn", Computers and Electronics in Agriculture (DOI: [10.1016/j.compag.2021.106030](https://doi.org/10.1016/j.compag.2021.106030)) (IF:**5.565**)
- [J7] A. H. Livoroi, A. Conti, L. Foianesi, F. Tosi, F. Aleotti, **M. Poggi**, F. Tauro, E. Toth, S. Grimaldi and S. Mattoccia, "On the Deployment of Out-of-the-Box Embedded Devices for Self-Powered River Surface Flow Velocity Monitoring at the Edge", MDPI Applied Science (DOI: [10.3390/app11157027](https://doi.org/10.3390/app11157027)) (IF:**2.679**)
- [J6] F. Aleotti, G. Zaccaroni, L. Bartolomei, **M. Poggi**, F. Tosi, S. Mattoccia, "Real-time single image depth perception in the wild with handheld devices", MDPI Sensors (DOI: [10.3390/s21010015](https://doi.org/10.3390/s21010015)) (IF:**3.275**)
- [J5] A. Tonioni, **M. Poggi**, S. Mattoccia, L. Di Stefano, "Unsupervised Domain Adaptation for Depth Prediction from Images", IEEE Transaction on Pattern Analysis and Machine Intelligence (**TPAMI**) (DOI: [10.1109/TPAMI.2019.2940948](https://doi.org/10.1109/TPAMI.2019.2940948)) (IF:**16.389**)
- [J4] **M. Poggi**, F. Tosi, S. Mattoccia, "Learning a confidence measure in the disparity domain from  $O(1)$  features", Computer Vision and Image Understanding (**CVIU**) (DOI: [10.1016/j.cviu.2020.102905](https://doi.org/10.1016/j.cviu.2020.102905)) (IF:**3.876**)
- [J3] **M. Poggi**, F. Tosi, S. Mattoccia, "Good cues to learn from scratch a confidence measure for passive depth sensors", IEEE Sensors Journal (DOI: [10.1109/JSEN.2020.3004629](https://doi.org/10.1109/JSEN.2020.3004629)) (IF:**3.301**)
- [J2] **M. Poggi**, G. Agresti, F. Tosi, P. Zanuttigh, S. Mattoccia, "Confidence Estimation for ToF and Stereo Sensors and its Application to Depth Data Fusion", IEEE Sensors Journal (DOI: [10.1109/JSEN.2019.2946591](https://doi.org/10.1109/JSEN.2019.2946591)) (IF:**3.301**)
- [J1] F. Tosi, M. Rocca, F. Aleotti, **M. Poggi**, S. Mattoccia, F. Tauro, E. Toth, S. Grimaldi, "Enabling image-based streamflow monitoring at the edge", MDPI Remote Sensing (DOI: [10.3390/rs12122047](https://doi.org/10.3390/rs12122047)) (IF:**4.848**)

### Proceedings

- [P36] **M. Poggi**, F. Aleotti, S. Mattoccia, "Sensor-Guided Optical Flow", at IEEE International Conference on Computer Vision, **ICCV 2021** (accepted)

- [P35] F. Aleotti, **M. Poggi**, S. Mattoccia, "Learning optical flow from still images", at IEEE Conference on Computer Vision and Pattern Recognition, **CVPR 2021** (accepted)
- [P34] C. Cai, **M. Poggi**, S. Mattoccia, P. Mordohai, "Matching-space Stereo Networks for Cross-domain Generalization", at 7th International Conference on 3D Vision, **3DV 2020** (DOI: [10.1109/3DV50981.2020.00046](https://doi.org/10.1109/3DV50981.2020.00046))
- [P33] **M. Poggi**, F. Tosi, F. Aleotti, S. Mattoccia, "Leveraging a weakly adversarial paradigm for joint learning of disparity and confidence estimation", at International Conference on Pattern Recognition, **ICPR 2020** (accepted)
- [P32] **M. Poggi**, F. Aleotti, F. Tosi, G. Zaccaroni, S. Mattoccia, "Self-adapting confidence estimation for stereo", at European Conference on Computer Vision, **ECCV 2020** (DOI: [10.1007/978-3-030-58586-0\\_42](https://doi.org/10.1007/978-3-030-58586-0_42))
- [P31] F. Aleotti, F. Tosi, L. Zhang, **M. Poggi**, S. Mattoccia, "Reversing the cycle: self-supervised deep stereo through enhanced monocular distillation", at European Conference on Computer Vision, **ECCV 2020** (DOI: [10.1007/978-3-030-58621-8\\_36](https://doi.org/10.1007/978-3-030-58621-8_36))
- [P30] **M. Poggi**, F. Aleotti, F. Tosi, S. Mattoccia, "On the uncertainty of self-supervised monocular depth estimation", at IEEE Conference on Computer Vision and Pattern Recognition, **CVPR 2020** (DOI: [10.1109/CVPR42600.2020.00329](https://doi.org/10.1109/CVPR42600.2020.00329))
- [P29] F. Tosi, F. Aleotti, P. Zama Ramirez, **M. Poggi**, S. Salti, L. Di Stefano, S. Mattoccia, "Distilled Semantics for Comprehensive Scene Understanding from Videos", at IEEE Conference on Computer Vision and Pattern Recognition, **CVPR 2020** (DOI: [10.1109/CVPR42600.2020.00471](https://doi.org/10.1109/CVPR42600.2020.00471))
- [P28] V. Peluso, A. Cipolletta, A. Calimera, **M. Poggi**, F. Tosi, F. Aleotti, S. Mattoccia, "Enabling monocular depth perception at the very edge", at IEEE Conference on Computer Vision and Pattern Recognition Workshops, **CVPRW 2020** (DOI: [10.1109/CVPRW50498.2020.00204](https://doi.org/10.1109/CVPRW50498.2020.00204))
- [P27] P. L. Dovesi, **M. Poggi**, L. Andraghetti, M. Marti, H. Kjellstrom, A. Pieropan, S. Mattoccia, "Real-Time Semantic Stereo Matching", at IEEE/RAS International Conference on Robotics and Automation, **ICRA 2020** (DOI: [10.1109/ICRA40945.2020.9196784](https://doi.org/10.1109/ICRA40945.2020.9196784))
- [P26] F. Aleotti, **M. Poggi**, F. Tosi, S. Mattoccia, "Learning end-to-end scene flow by distilling single tasks knowledge", at 34th AAAI Conference on Artificial Intelligence, **AAAI 2020** (DOI: [10.1609/aaai.v34i07.6613](https://doi.org/10.1609/aaai.v34i07.6613))
- [P25] L. Andraghetti, P. Myriokefalitakis, P. L. Dovesi, B. Luque, **M. Poggi**, A. Pieropan, S. Mattoccia, "Enhancing self-supervised monocular depth estimation with traditional visual odometry", at 7th International Conference on 3D Vision, **3DV 2019** (DOI: [10.1109/3DV.2019.00054](https://doi.org/10.1109/3DV.2019.00054))
- [P24] **M. Poggi**, D. Pallotti, F. Tosi, S. Mattoccia, "Guided Stereo Matching", at IEEE Conference on Computer Vision and Pattern Recognition, **CVPR 2019** (DOI: [10.1109/CVPR.2019.00107](https://doi.org/10.1109/CVPR.2019.00107))
- [P23] F. Tosi, F. Aleotti, **M. Poggi**, S. Mattoccia, "Learning monocular depth estimation infusing traditional stereo knowledge", at IEEE Conference on Computer Vision and Pattern Recognition, **CVPR 2019** (DOI: [10.1109/CVPR.2019.01003](https://doi.org/10.1109/CVPR.2019.01003)).
- [P22] A. Tonioni, F. Tosi, **M. Poggi**, S. Mattoccia, L. Di Stefano, "Real-time self-adaptive deep stereo", **ORAL** at IEEE Conference on Computer Vision and Pattern Recognition, **CVPR 2019** (DOI: [10.1109/CVPR.2019.00028](https://doi.org/10.1109/CVPR.2019.00028))
- [P21] F. Tosi, **M. Poggi**, S. Mattoccia, "Leveraging confident points for accurate depth refinement on embedded systems", at IEEE Conference on Computer Vision and Pattern Recognition Workshops, **CVPRW 2019** (DOI: [10.1109/CVPRW.2019.00025](https://doi.org/10.1109/CVPRW.2019.00025))
- [P20] V. Peluso, A. Cipolletta, A. Calimera, **M. Poggi**, F. Tosi, S. Mattoccia, "Enabling Energy-Efficient Unsupervised Monocular Depth Estimation on ARMv7-Based Platforms", at Design, Automation and Testing in Europe, **DATE 2019** (DOI: [10.23919/DATE.2019.8714893](https://doi.org/10.23919/DATE.2019.8714893))
- [P19] P. Zama Ramirez, **M. Poggi**, F. Tosi, S. Mattoccia, L. Di Stefano, "Geometry meets semantic for semi-supervised monocular depth estimation", at 14th Asian Conference on Computer Vision, **ACCV 2018** (DOI: [10.1007/978-3-030-20893-6\\_19](https://doi.org/10.1007/978-3-030-20893-6_19))

- [P18] **M. Poggi**, F. Tosi, S. Mattocchia, "Learning monocular depth estimation with unsupervised trinocular assumptions", at 6th International Conference on 3D Vision, **3DV 2018** (DOI: [10.1109/3DV.2018.00045](https://doi.org/10.1109/3DV.2018.00045))
- [P17] F. Tosi, **M. Poggi**, A. Benincasa, S. Mattocchia, "Beyond local reasoning for stereo confidence estimation with deep learning", at 15th European Conference on Computer Vision, **ECCV 2018** (DOI: [10.1007/978-3-030-01231-1\\_20](https://doi.org/10.1007/978-3-030-01231-1_20))
- [P16] **M. Poggi**, F. Aleotti, F. Tosi, S. Mattocchia, "Towards real-time unsupervised monocular depth estimation on CPU", at IEEE/RSJ International Conference on Intelligent Robots and Systems, **IROS 2018** (DOI: [10.1109/IROS.2018.8593814](https://doi.org/10.1109/IROS.2018.8593814))
- [P15] F. Aleotti, F. Tosi, **M. Poggi**, S. Mattocchia, "Generative Adversarial Networks for unsupervised monocular depth prediction", at 15th European Conference on Computer Vision Workshops, **ECCVW 2018** (DOI: [10.1007/978-3-030-11009-3\\_20](https://doi.org/10.1007/978-3-030-11009-3_20))
- [P14] **M. Poggi**, F. Tosi, S. Mattocchia, "Quantitative evaluation of confidence measures in a machine learning world", **SPOTLIGHT** at IEEE International Conference on Computer Vision, **ICCV 2017** (DOI: [10.1109/ICCV.2017.559](https://doi.org/10.1109/ICCV.2017.559))
- [P13] A. Tonioni, **M. Poggi**, S. Mattocchia, L. Di Stefano, "Unsupervised Adaptation for Deep Stereo", at IEEE International Conference on Computer Vision, **ICCV 2017** (DOI: [10.1109/ICCV.2017.178](https://doi.org/10.1109/ICCV.2017.178))
- [P12] F. Tosi, **M. Poggi**, A. Tonioni, L. Di Stefano, S. Mattocchia, "Learning confidence measures in the wild", at 28th British Machine Vision Conference, **BMVC 2017** (DOI: [10.5244/C.31.133](https://doi.org/10.5244/C.31.133))
- [P11] **M. Poggi**, F. Tosi, S. Mattocchia, "Efficient confidence measures for embedded stereo", at The 19th International Conference on Image Analysis and Processing, **ICIAP 2017** (DOI: [10.1007/978-3-319-68560-1\\_43](https://doi.org/10.1007/978-3-319-68560-1_43))
- [P10] **M. Poggi**, F. Tosi, S. Mattocchia, "Even More Confident predictions with deep machine-learning", at IEEE Conference on Computer Vision and Pattern Recognition Workshops, **CVPRW 2017** (DOI: [10.1109/CVPRW.2017.54](https://doi.org/10.1109/CVPRW.2017.54))
- [P9] **M. Poggi**, S. Mattocchia, "Learning to predict stereo reliability enforcing local consistency of confidence maps", at IEEE Conference on Computer Vision and Pattern Recognition, **CVPR 2017** (DOI: [10.1109/CVPR.2017.483](https://doi.org/10.1109/CVPR.2017.483))
- [P8] **M. Poggi**, S. Mattocchia, "Evaluation of variants of the SGM algorithm aimed at implementation on embedded or reconfigurable devices", at 6th International Conference on 3D Imaging, **IC3D 2016** (DOI: [10.1109/IC3D.2016.7823457](https://doi.org/10.1109/IC3D.2016.7823457))
- [P7] M. Boschini, **M. Poggi**, S. Mattocchia, "Improving the reliability of 3D people tracking system leveraging on deep-learning", 6th International Conference on 3D Imaging, **IC3D 2016** (DOI: [10.1109/IC3D.2016.7823454](https://doi.org/10.1109/IC3D.2016.7823454))
- [P6] **M. Poggi**, S. Mattocchia, "Deep Stereo Fusion: combining multiple disparity hypotheses with deep-learning", at 4th International Conference on 3D Vision, **3DV 2016** (DOI: [10.1109/3DV.2016.22](https://doi.org/10.1109/3DV.2016.22))
- [P5] **M. Poggi**, S. Mattocchia, "Learning a general-purpose confidence measure based on  $O(1)$  features and a smarter aggregation strategy for semi global matching", **ORAL** at 4th International Conference on 3D Vision, **3DV 2016** (DOI: [10.1109/3DV.2016.61](https://doi.org/10.1109/3DV.2016.61))
- [P4] **M. Poggi**, S. Mattocchia, "Learning from scratch a confidence measure", at 27th British Machine Vision Conference, **BMVC 2016** (DOI: [10.5244/C.30.46](https://doi.org/10.5244/C.30.46))
- [P3] **M. Poggi**, S. Mattocchia, "A wearable mobility aid for the visually Impaired based on embedded 3D vision and deep learning", at 21st IEEE Symposium on Computers and Communications, **ISCC 2015** (DOI: [10.1109/ISCC.2016.7543741](https://doi.org/10.1109/ISCC.2016.7543741))
- [P2] **M. Poggi**, L. Nanni, S. Mattocchia, "Crosswalk recognition through pointcloud processing and deep-learning suited to a wearable mobility aid for the visually impaired", at 18th International Conference on Image Analysis and Processing Workshops, **ICIAP 2015** (DOI: [10.1007/978-3-319-23222-5\\_35](https://doi.org/10.1007/978-3-319-23222-5_35))

- [P1] S. Mattoccia, **M. Poggi**, "A passive RGBD sensor for accurate and real-time depth sensing self-contained into an FPGA", at 9th ACM/SIGBED International Conference on Distributed Smart Cameras, **ICDSC 2015** (DOI: [10.1145/2789116.2789148](https://doi.org/10.1145/2789116.2789148))

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## Presentations at conferences and workshops

**Oral spotlights** P5, P7, P8, P10, P14, P16, P18

**Posters** P2, P3, P4, P5, P6, P9, P10, P11, P13, P14, P15, P16, P17, P18, P21, P22, P23, P24

**Virtual (during pandemic)** P28, P29, P30, P31, P32, P33

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## Released source code

- [C20] **Depthstillation** (<https://github.com/mattpoggi/depthstillation>), source code for paper P35
- [C19] **Self-adapting confidence** (<https://github.com/mattpoggi/self-adapting-confidence>), source code for paper P32
- [C18] **Reversing** (<https://github.com/FilippoAleotti/Reversing>), source code for paper P31
- [C17] **Mono-uncertainty** (<https://github.com/mattpoggi/mono-uncertainty>), source code for paper P30
- [C16]  **$\Omega$ Net** (<https://github.com/CVLAB-Unibo/omeganet>), source code for paper P29
- [C15] **DWARF** (<https://github.com/FilippoAleotti/DWARF-Tensorflow>), source code for paper P26
- [C14] **Guided Stereo** (<https://github.com/mattpoggi/guided-stereo>), source code for paper P24
- [C13] **MonoResMatch** (<https://github.com/fabiotosi92/monoResMatch-Tensorflow>), source code for paper P23
- [C12] **RTSA** (<https://github.com/CVLAB-Unibo/Real-time-self-adaptive-deep-stereo>), source code for paper P22
- [C11] **Semantic-Monodepth** (<https://github.com/CVLAB-Unibo/Semantic-Mono-Depth>), source code for paper P19
- [C10] **3Net** (<https://github.com/mattpoggi/3net>), source code for paper P18
- [C9] **LGC** (<https://github.com/fabiotosi92/LGC-Tensorflow>), source code for paper P17
- [C8] **PyDNet** (<https://github.com/mattpoggi/pydnet>), source code for paper P16
- [C7] **Confidence measures** (<http://vision.deis.unibo.it/~mpoggi/code/ICCV2017.zip>), source code for paper P14
- [C6] **Unsupervised adaptation** (<https://github.com/CVLAB-Unibo/Unsupervised-Adaptation-for-Deep-Stereo>), source code for paper P13
- [C5] **WILD** (<https://github.com/fabiotosi92/Unsupervised-Confidence-Measures>), source code for paper P12
- [C4] **CCNN+** ([http://vision.deis.unibo.it/~mpoggi/code/CVPR2017\\_train\\_and\\_test.zip](http://vision.deis.unibo.it/~mpoggi/code/CVPR2017_train_and_test.zip)), source code for paper P9
- [C3] **DSF** ([http://vision.deis.unibo.it/~mpoggi/code/3DV2016\\_train\\_and\\_test.zip](http://vision.deis.unibo.it/~mpoggi/code/3DV2016_train_and_test.zip)), source code for paper P6
- [C2] **O1** ([http://vision.deis.unibo.it/~mpoggi/code/3DV2016\\_O1.zip](http://vision.deis.unibo.it/~mpoggi/code/3DV2016_O1.zip)), source code for paper P5
- [C1] **CCNN** ([http://vision.deis.unibo.it/~mpoggi/code/BMVC2016\\_train\\_and\\_test.zip](http://vision.deis.unibo.it/~mpoggi/code/BMVC2016_train_and_test.zip)), source code for paper P4

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## Reviewing service

**TPAMI** - IEEE Transactions on Pattern Analysis and Machine Intelligence

- IJCV** - International Journal on Computer Vision
- CVIU** - Computer Vision and Image Understanding
- TIP** - IEEE Transactions on Image Processing
- Access** - IEEE Access Journal
- CVPR** - IEEE Conference on Computer Vision and Pattern Recognition (2018,2019,2020)
- ECCV** - European Conference on Computer Vision (2020)
- ICCV** - IEEE International Conference on Computer Vision (2019)
- BMVC** - British Conference on Machine Vision (2020)
- ACCV** - Asian Conference on Computer Vision (2018)
- EVW** - Embedded Computer Vision Workshop, in conjunction with CVPR (2018, 2019, 2020)

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## Co-Supervised Students (non-exhaustive list)

### **Master Theses** (<https://amslaurea.unibo.it/view/relatore/Poggi=3AMatteo=3A=3A/>)

- Andraghetti, Lorenzo "Monocular Depth Estimation enhancement by depth from SLAM Keypoints", Università di Bologna, Corso di Studio in Ingegneria informatica [LM-DM270]
- Benincasa, Antonio "Deep-learning per stima della confidenza di mappe depth", Università di Bologna, Corso di Studio in Ingegneria informatica [LM-DM270]
- Boschini, Matteo "Unsupervised Learning of Scene Flow. [Laurea magistrale], Università di Bologna", Corso di Studio in Ingegneria informatica
- Mangiocco, Armando "Studio, sviluppo e ottimizzazione di algoritmi di visione 3D per applicazioni real-time", Laurea magistrale], Università di Bologna, Corso di Studio in Ingegneria informatica [LM-DM270]
- Maragno, Alessandro "Programmazione di Convolutional Neural Networks orientata all'accelerazione su FPGA", Università di Bologna, Corso di Studio in Ingegneria informatica [LM-DM270]
- Pallotti, Davide "Integrazione di dati di disparità sparsi in algoritmi per la visione stereo basati su deep-learning", Università di Bologna, Corso di Studio in Ingegneria informatica [LM-DM270]
- Presutti, Pasquale "Algoritmo per la generazione di mappe depth da immagini stereo con CNN", Università di Bologna, Corso di Studio in Ingegneria informatica [LM-DM270]
- Rossetto, Andrea "CNN per view synthesis da mappe depth", Università di Bologna, Corso di Studio in Ingegneria informatica [LM-DM270]

### **Bachelor Theses** (<https://amslaurea.unibo.it/view/relatore/Poggi=3AMatteo=3A=3A/>)

- Albertazzi, Riccardo "Sistema di visione stereo su architettura ZYNQ", Università di Bologna, Corso di Studio in Ingegneria informatica [L-DM270]
- Barbazza, Sigfrido "Deep-learning applicato all'identificazione automatica di frutta in immagini", Università di Bologna, Corso di Studio in Ingegneria informatica [L-DM270]
- Bombino, Andrea "Valutazione sperimentale di algoritmi di visione stereo finalizzata a una successiva implementazione su FPGA", Università di Bologna, Corso di Studio in Ingegneria informatica [L-DM270]
- Boschini, Matteo "A deep learning-based approach for 3D people tracking", Università di Bologna, Corso di Studio in Ingegneria informatica [L-DM270]
- Buratti, Luca "Valutazione sperimentale di metodologie di rettificazione e impatto su algoritmi di visione stereo", Università di Bologna, Corso di Studio in Ingegneria informatica [L-DM270]
- Chiarini, Lorenzo "Valutazione di metodologie di aggregazione di costi per algoritmi di visione stereo", Università di Bologna, Corso di Studio in Ingegneria informatica [L-DM270]
- Garbugli, Andrea "Sperimentazione con algoritmi per l'analisi di nuvole di punti per applicazioni di guida autonoma", Università di Bologna, Corso di Studio in Ingegneria informatica [L-DM270]
- Gianessi, Mattia "Sviluppo di una app di ausilio per persone non vedenti per Android", Università di Bologna, Corso di Studio in Ingegneria informatica [L-DM270]



- Mingarelli, Simone "Streaming di immagini via ethernet con Zynq con sistemi operativi Standalone e Linux", Università di Bologna, Corso di Studio in Ingegneria informatica [L-DM270]
- Olivi, Matteo "Evaluation of confidence-driven cost aggregation strategies", Università di Bologna, Corso di Studio in Ingegneria informatica [L-DM270]
- Perrozzi, Pierpaolo "Progetto di un dispositivo wireless di feedback tattile per un sistema di ausilio per non vedenti o ipovedenti", Università di Bologna, Corso di Studio in Ingegneria informatica [L-DM270]
- Ranalli, Luca "Sviluppo di metodologie per l'interazione tra un sistema di ausilio a ipovedenti e dispositivi iOS", Università di Bologna, Corso di Studio in Ingegneria informatica [L-DM270]
- Ugolini, Matilde "Metodologie di apprendimento automatico applicate alla generazione di dati 3D", Università di Bologna, Corso di Studio in Ingegneria informatica [L-DM270]