

# Computer Vision for Intelligent Robotics

## Presentations Schedule

March 22, 2017 h.10-11:30 room A7

[1] Andreas Geiger, Martin Roser, Raquel Urtasun,

**"Efficient Large-Scale Stereo Matching"**

Computer Vision – ACCV 2010 Volume 6492 of the series Lecture Notes in Computer Science pp 25-38

Paper:<http://m.cvlibs.net/publications/Geiger2010ACCV.pdf>

Presentation: **Neeha Chowdary Sajja [Accepted]**

Discussion: **Nithin Reji johnson [Not attender student]**

[2] Sean Ryan Fanello, Christoph Rhemann, Vladimir Tankovich, Adarsh Kowdle, Sergio Orts Escolano, David Kim, Shahram Izadi,

**"HyperDepth: Learning Depth from Structured Light Without Matching"**.

IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2016, pp. 5441-5450

Paper:[http://www.cv-foundation.org/openaccess/content\\_cvpr\\_2016/papers/Fanello\\_HyperDepth\\_Learning\\_Depth\\_CVPR\\_2016\\_paper.pdf](http://www.cv-foundation.org/openaccess/content_cvpr_2016/papers/Fanello_HyperDepth_Learning_Depth_CVPR_2016_paper.pdf)

[https://www.youtube.com/watch?v=KJ6\\_guEHN\\_0](https://www.youtube.com/watch?v=KJ6_guEHN_0)

Presentation: **Dario Molinari [Accepted]**

Discussion: **Ugochukwu Alex Gbenimachor [Accepted]**

[4] Sudeep Pillai, Srikumar Ramalingam and John J. Leonard,

**"High-Performance and Tunable Stereo Reconstruction"**.

International Conference on Robotics and Automation (ICRA), 2016

Paper:[http://people.csail.mit.edu/spillai/projects/fast-stereo-reconstruction/pillai\\_stereo16.pdf](http://people.csail.mit.edu/spillai/projects/fast-stereo-reconstruction/pillai_stereo16.pdf)

<https://www.youtube.com/watch?v=r4bk3FmhYDk>

Presentation: **Vincenzo Suriani [Accepted]**

Discussion: **Lorenzo Mauro [Accepted]**

March 23, 2017 h.17:30 - 19 room A7

[7] Saining Xie and Zhuowen Tu,

**"Holistically-Nested Edge Detection"**.

IEEE International Conference on Computer Vision (ICCV ), 2015

Paper:[http://www.cv-foundation.org/openaccess/content\\_iccv\\_2015/papers/Xie\\_Holistically-Nested\\_Edge\\_Detection\\_ICCV\\_2015\\_paper.pdf](http://www.cv-foundation.org/openaccess/content_iccv_2015/papers/Xie_Holistically-Nested_Edge_Detection_ICCV_2015_paper.pdf)

**(ICCV Marr Prize Honorable Mention 2015)**

Presentation: **Alessandra Ciorra [Accepted]**

Discussion: **Armando Nania [Accepted]**

[8] Eddy Ilg, Nikolaus Mayer, Tonmoy Saikia, Margret Keuper, Alexey Dosovitskiy, Thomas Brox,  
"FlowNet 2.0: Evolution of Optical Flow Estimation with Deep Networks".

ArXiv preprint arXiv:1612.01925, 2016

Paper: <https://arxiv.org/pdf/1612.01925.pdf>

<https://www.youtube.com/watch?v=JSzUdVBmQP4>

Presentation: **Ugochukwu Alex Gbenimachor [Accepted]**

Discussion: **Lucio Burlini [Accepted]**

[6] Aravindh Mahendran and Andrea Vedaldi,

"Understanding Deep Image Representations by Inverting Them".

IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2015, pp. 5188-5196

Paper: [http://www.cv-foundation.org/openaccess/content\\_cvpr\\_2015/papers/Mahendran\\_Understanding\\_Deep\\_Image\\_2015\\_CVPR\\_paper.pdf](http://www.cv-foundation.org/openaccess/content_cvpr_2015/papers/Mahendran_Understanding_Deep_Image_2015_CVPR_paper.pdf)

Presentation: **Francesco Del Duchetto [Accepted]**

Discussion: **Lorenzo Vitali [Accepted]**

## March 24, 2017 h. 12:30-14 room A6

[15] Jakob Engel, Vladlen Koltun, Daniel Cremers

"Direct Sparse Odometry"

arXiv:1607.02565 (2016)

Paper: <http://vision.in.tum.de/media/spezial/bib/engel2016dso.pdf>

<https://www.youtube.com/watch?v=C6-xwSOOdqQ>

Presentation: **Marco Lampacrescia [Accepted]**

Discussion: **Alessandra Ciorra [Accepted]**

[17] Fernando I. Ireta Munoz, Andrew Comport.,

"Point-to-hyperplane RGB-D Pose Estimation: Fusing Photometric and Geometric Measurements".

IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2016),

Paper: <https://hal.archives-ouvertes.fr/hal-01324294v2/document>

Presentation: **Lucio Burlini [Accepted]**

Discussion: **Alessandra Sorrentino [Accepted]**

[11] Matthias Nießner, Michael Zollhofer, Shahram Izadi, Marc Stamminger,

"Real-time 3D Reconstruction at Scale using Voxel Hashing",

SIGGRAPH 2016

Paper: [http://gvv.mpi-inf.mpg.de/projects/MZ/Papers/SGASIA2013\\_VH/paper.pdf](http://gvv.mpi-inf.mpg.de/projects/MZ/Papers/SGASIA2013_VH/paper.pdf)

[https://www.youtube.com/watch?v=XD\\_UnuWSaoU](https://www.youtube.com/watch?v=XD_UnuWSaoU)

Presentation: **Jose Luis Bustamante Julca [Accepted]**

Discussion: **Dario Notargiacomo [Accepted]**

## March 29, 2017 h.10-11:30 room A7

[3] Vibhav et al.,

**"Incremental Dense Semantic Stereo Fusion for Large-Scale Semantic Scene Reconstruction"**

IEEE/RSJ International Conference on Intelligent Robots and Systems, 2015

Paper:<http://www.robots.ox.ac.uk/~tvq/publications/2015/dssfpaper.pdf>

<https://www.youtube.com/watch?v=k879Rw6BFy8>

Presentation: **Lorenzo Vitali [Accepted]**

Discussion: **Neha Chowdary Sajja [Accepted]**

[10] Marcus Brubaker, Andreas Geiger, and Raquel Urtasun,

**"Lost! Leveraging the Crowd for Probabilistic Visual Self-Localization"**.

IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2013

Paper:[http://www.cs.toronto.edu/~urtasun/publications/brubaker\\_et\\_al\\_cvpr13.pdf](http://www.cs.toronto.edu/~urtasun/publications/brubaker_et_al_cvpr13.pdf)

<https://www.youtube.com/watch?v=4Z3shNPOdQA>

**(CVPR 2013 Best Paper Runner-Up)**

Presentation: **Daniele De Cillis [Accepted]**

Discussion: **Dario Molinari [Accepted]**

[14] Raúl Mur-Artal and Juan D. Tardós,

**"ORB-SLAM2: an Open-Source SLAM System for Monocular, Stereo and RGB-D Cameras"**.

ArXiv preprint arXiv 1610.06475, 2016.

Paper:<https://arxiv.org/pdf/1610.06475.pdf>

<https://www.youtube.com/watch?v=ufvPS5wJAx0>

Presentation: **Alessandro Zinnai [Accepted]**

Discussion: **Ahmad Gazar [Accepted]**

## March 30, 2017 h.17:30 - 19 room A7

[27] Vijay Badrinarayanan, Alex Kendall, Roberto Cipolla,

**"Segnet: A deep convolutional encoder-decoder architecture for image segmentation"**.

arXiv:1511.00561, 2015

Paper:<https://arxiv.org/pdf/1511.00561.pdf>

[https://www.youtube.com/watch?v=CxanE\\_W46ts](https://www.youtube.com/watch?v=CxanE_W46ts)

Presentation: **Lorenzo Mauro [Accepted]**

Discussion: **Majid Geravand [Accepted]**

[13] Sungjoon Choi, Qian-Yi Zhou, Vladlen Koltun,

**“Robust reconstruction of indoor scenes”.**

IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2015, pages 5556-5565

Paper:[http://www.cv-foundation.org/openaccess/content\\_cvpr\\_2015/papers/Choi\\_Robust\\_Reconstruction\\_of\\_2015\\_CVPR\\_paper.pdf](http://www.cv-foundation.org/openaccess/content_cvpr_2015/papers/Choi_Robust_Reconstruction_of_2015_CVPR_paper.pdf)

<https://www.youtube.com/watch?v=9dLUa-ekgtc>

Presentation: **Ahmad Gazar [Accepted]**

Discussion: **Andrea Mancini [Accepted]**

[16] Gabriele Costante, Michele Mancini, Paolo Valigi, and Thomas A. Ciarfuglia,

**“Exploring Representation Learning With CNNs for Frame-to-Frame Ego-Motion Estimation”**

IEEE Robotics and Automation Letters, vol. 1, no. 1, january 2016

Paper:<http://ieeexplore.ieee.org/stamp/stamp.jsp?arnumber=7347378> (Download from DIAG network)

Presentation: **Alberto Soragna [Accepted]**

Discussion: **Marco Lampacrescia [Accepted]**

## March 31, 2017 h. 12:30-14 room A6

[22] D. Falanga, E. Mueggler, M. Faessler, D. Scaramuzza,

**“Aggressive Quadrotor Flight through Narrow Gaps with Onboard Sensing and Computing using Active Vision”.**

IEEE International Conference on Robotics and Automation (ICRA), 2017.

Paper:[http://rpg.ifi.uzh.ch/docs/ICRA17\\_Falanga.pdf](http://rpg.ifi.uzh.ch/docs/ICRA17_Falanga.pdf)

<https://www.youtube.com/watch?v=meSItatXQ7M>

Presentation: **Andrea Mancini [Accepted]**

Discussion: **Juan Pablo Rodriguez Gomez [Accepted]**

[20] Edward Johns, Stefan Leutenegger and Andrew J. Davison,

**“Deep Learning a Grasp Function for Grasping under Gripper Pose Uncertainty”.**

IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2016)

Paper:<https://www.doc.ic.ac.uk/~ejohns/Documents/ejohns-grasp-function-iros2016.pdf>

<https://www.youtube.com/watch?v=y5kRP-ERp1s>

Presentation: **Luca Monorchio [Accepted]**

Discussion: **Daniele De Cillis [Accepted]**

## April 5, 2017 h.10-11:30 room A7

[26] Jonathan Long, Evan Shelhamer, and Trevor Darrell,

**“Fully convolutional networks for semantic segmentation”.**

In Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition, 2015  
Paper: [https://people.eecs.berkeley.edu/~jonlong/long\\_shelhamer\\_fcn.pdf](https://people.eecs.berkeley.edu/~jonlong/long_shelhamer_fcn.pdf)

(**CVPR Best Paper Honorable Mention 2014**)

Presentation: **Giovanni Corvini** [Accepted]

Discussion: **Mohamed Ahmed** [Accepted]

[18] H. Rebecq, T. Horstschaef, G. Gallego, D. Scaramuzza,  
“**EVO: A Geometric Approach to Event-based 6-DOF Parallel Tracking and Mapping in Real-time**”.

IEEE Robotics and Automation Letters (RA-L), Vol. 2, Issue 2, pp. 593-600, Apr. 2017.

Paper: [http://rpg.ifi.uzh.ch/docs/RAL16\\_EVO.pdf](http://rpg.ifi.uzh.ch/docs/RAL16_EVO.pdf)

<https://www.youtube.com/watch?v=bYqD2qZJxE&feature=youtu.be>

Presentation: **Alberto Dallolio** [Accepted]

Discussion: **Alberto Soragna** [Accepted]

## April 6, 2017 h.17:30 - 19 room A7

[24] Chenyi Chen, Ari Seff, Alain Kornhauser, Jianxiong Xiao,

“**DeepDriving: Learning Affordance for Direct Perception in Autonomous Driving**”.

IEEE International Conference on Computer Vision (ICCV), 2015, pp. 2722-2730

Paper: [http://www.cv-foundation.org/openaccess/content\\_iccv\\_2015/papers/Chen\\_DeepDriving\\_Learning\\_Affordance\\_ICCV\\_2015\\_paper.pdf](http://www.cv-foundation.org/openaccess/content_iccv_2015/papers/Chen_DeepDriving_Learning_Affordance_ICCV_2015_paper.pdf)

<https://www.youtube.com/watch?v=5hFvoXV9gII>

Presentation: **Juan Pablo Rodriguez Gomez** [Accepted]

Discussion: **Vincenzo Suriani** [Accepted]

[12] Thomas Whelan, Stefan Leutenegger, Renato F Salas-Moreno, Ben Glocker, Andrew J Davison,

“**ElasticFusion: Dense SLAM Without A Pose Graph**”.

Robotics: science and systems Vol. 11 (2015)

Paper: <https://www.doc.ic.ac.uk/~bglocker/pdfs/whelan2015rss.pdf>

<https://www.youtube.com/watch?v=XySrhZpODYs>

Presentation: **Majid Geravand** [Accepted]

Discussion: **Alberto Dallolio** [Accepted]

[21] A. Giusti et al.,

“**A Machine Learning Approach to Visual Perception of Forest Trails for Mobile Robots**”,

IEEE Robotics and Automation Letters (RA-L), pages 661 - 667, 2016

Paper: [http://rpg.ifi.uzh.ch/docs/RAL16\\_Giusti.pdf](http://rpg.ifi.uzh.ch/docs/RAL16_Giusti.pdf)

<https://www.youtube.com/watch?v=umRdt3zGgpU>

Presentation: **Alessandro De Micco** [Accepted]

Discussion: **Francesco Bonarota** [Accepted]

April 7, 2017 h. 12:30-14 room A6

[25] Alexander Hermans, Georgios Floros, Bastian Leibe,  
"Dense 3D semantic mapping of indoor scenes from RGB-D images".  
IEEE International Conference on Robotics and Automation (ICRA), 2014  
Paper:<http://strands.acin.tuwien.ac.at/publications/2014/hermans-icra14.pdf>  
(**ICRA Best Vision Paper Award 2014**)  
Presentation: **Alessandra Sorrentino [Accepted]**  
Discussion: **Caterina Lacerra [Accepted]**

[28] Cesar Cadena, Anthony Dick, Ian D. Reid,  
"Multi-modal Auto-Encoders as Joint Estimators for Robotics Scene Understanding",  
Proceedings of Robotics: Science and Systems (RSS), 2016  
Paper:<http://www.roboticsproceedings.org/rss12/p41.pdf>  
Presentation: **Mirco Planamente [Accepted]**  
Discussion: **Silvia Bucci [Accepted]**

[29] Marius Cordts, Mohamed Omran, Sebastian Ramos, Timo Rehfeld, Markus Enzweiler,  
Rodrigo Benenson, Uwe Franke, Stefan Roth, Bernt Schiele,  
"The Cityscapes Dataset for Semantic Urban Scene Understanding".  
IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2016, pp. 3213-3223,  
Paper:[http://www.cv-foundation.org/openaccess/content\\_cvpr\\_2016/papers/Cordts\\_The\\_Cityscapes\\_Dataset\\_CVPR\\_2016\\_paper.pdf](http://www.cv-foundation.org/openaccess/content_cvpr_2016/papers/Cordts_The_Cityscapes_Dataset_CVPR_2016_paper.pdf)  
[https://www.youtube.com/watch?v=5\\_t-U76Ax0U](https://www.youtube.com/watch?v=5_t-U76Ax0U)  
Presentation: **Silvia Bucci [Accepted]**  
Discussion: **Mirco Planamente [Accepted]**

[23] Lerrel Pinto and Abhinav Gupta,  
"Supersizing Self-supervision: Learning to Grasp from 50K Tries and 700 Robot Hours".  
IEEE International Conference on Robotics and Automation (ICRA), 2017.  
Paper:<https://arxiv.org/pdf/1509.06825.pdf>  
<https://www.youtube.com/watch?v=oSqHc0nLkm8>  
(**ICRA Best Student Conference Paper Award**)  
Presentation: **Soukaina Alaoui [Accepted]**  
Discussion: **Francesco Iodice [Accepted]**

April 12, 2017 h.10-11:30 room A7

[30] Nicolas Mellado, Niloy Mitra and Dror Aiger,  
"SUPER 4PCS Fast Global Pointcloud Registration via Smart Indexing".

EUROGRAPHICS 2014 Vol. 33 (5): pages. 205-215 (2014)

Paper:<http://geometry.cs.ucl.ac.uk/projects/2014/super4PCS/super4pcs.pdf>

<https://www.youtube.com/watch?v=TgHrotscPCA>

Presentation: **Nithin Reji Johnson [Not attender student]**

Discussion: **Alessandro Zinnai [Accepted]**

[32] Xingchao Peng, Baochen Sun, Karim Ali, Kate Saenko

**"Learning Deep Object Detectors From 3D Models".**

IEEE International Conference on Computer Vision (ICCV), 2015, pp. 1278-1286

Paper:[http://www.cv-foundation.org/openaccess/content\\_iccv\\_2015/papers/Peng\\_Learning\\_Deep\\_Object\\_ICCV\\_2015\\_paper.pdf](http://www.cv-foundation.org/openaccess/content_iccv_2015/papers/Peng_Learning_Deep_Object_ICCV_2015_paper.pdf)

<https://www.youtube.com/watch?v=gQMDX1Q2OfY>

Presentation: **Lorenzo Alvino [Accepted]**

Discussion: **Mulham Fawakherji [Accepted]**

## May 10, 2017 h.10-11:30 room A7

[33] Gao Huang, Zhuang Liu, Kilian Q. Weinberger, Laurens van der Maaten,

**"Densely Connected Convolutional Networks"**

arXiv:1608.06993, 2016

Paper:<https://arxiv.org/pdf/1608.06993.pdf>

Presentation: **Armando Nania [Accepted]**

Discussion: **Jose Luis Bustamante Julca [Accepted]**

[34] Joseph Redmon, Santosh Divvala, Ross Girshick, Ali Farhadi

**"You Only Look Once: Unified, Real-Time Object Detection"**

IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2016, pp. 779-788

Paper:[https://pjreddie.com/media/files/papers/yolo\\_1.pdf](https://pjreddie.com/media/files/papers/yolo_1.pdf)

<https://www.youtube.com/watch?v=VOC3huqHrss>

Presentation: **Dario Notargiacomo [Accepted]**

Discussion: **Alessandro De Micco [Accepted]**

[35] Wei Liu, Dragomir Anguelov, Dumitru Erhan, Christian Szegedy, Scott Reed, Cheng-Yang Fu, Alexander C. Berg,

**"SSD: Single Shot MultiBox Detector".**

Proceedings of the European Conference on Computer Vision (ECCV) (2016)

Paper:<https://arxiv.org/pdf/1512.02325.pdf>

Presentation: **Mulham Fawakherji [Accepted]**

Discussion: **Lorenzo Alvino [Accepted]**

## May 18, 2017 h.17:30 - 19 room A7

[36] Tsung-Yi Lin, Piotr Dollár, Ross Girshick, Kaiming He, Bharath Hariharan, and Serge Belongie,

**"Feature Pyramid Networks for Object Detection"**.

IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2017

Paper:<https://arxiv.org/pdf/1612.03144v4.pdf>

Presentation: **Dario Albani [Accepted]**

Discussion: **Francesco Del Ductetto [Accepted]**

[37] Max Schwarz, Anton Milan, Christian Lenz, Aura Miñoz, Arul Selvam Periyasamy, Michael Schreiber, Sebastian Schüller, and Sven Behnke,

**"NimbRo Picking: Versatile Part Handling for Warehouse Automation"**

IEEE International Conference on Robotics and Automation (ICRA), 2017

Paper:[http://www.ais.uni-bonn.de/papers/ICRA\\_2017\\_Schwarz.pdf](http://www.ais.uni-bonn.de/papers/ICRA_2017_Schwarz.pdf)

<https://www.youtube.com/watch?v=NqAe-zGMTjM>

Presentation: **Francesco Bonarota [Accepted]**

Discussion: **Soukaina Alaoui [Accepted]**

[38] Benjamin Planche, Ziyang Wu, Kai Ma, Shanhui Sun, Stefan Kluckner, Terrence Chen, Andreas Hutter, Sergey Zakharov, Harald Kosch, Jan Ernst,

**"DepthSynth: Real-Time Realistic Synthetic Data Generation from CAD Models for 2.5D Recognition"**.

In arXiv:1702.08558, 2017

Paper:<https://arxiv.org/pdf/1702.08558.pdf>

Presentation: **Mohamed Ahmed [Accepted]**

Discussion: **Giovanni Corvini [Accepted]**

## May 19, 2017 h.12:30-14 room A6

[4] Sudeep Pillai, Srikumar Ramalingam and John J. Leonard,

**"High-Performance and Tunable Stereo Reconstruction"**.

International Conference on Robotics and Automation (ICRA), 2016

Paper:[http://people.csail.mit.edu/spillai/projects/fast-stereo-reconstruction/pillai\\_stereo16.pdf](http://people.csail.mit.edu/spillai/projects/fast-stereo-reconstruction/pillai_stereo16.pdf)

<https://www.youtube.com/watch?v=r4bk3FmhYDk>

Presentation: **Giulio Marano [Accepted]**

Discussion: **Hossein Hashemi [Postponed]**

[9] Jonathan T. Barron and Ben Poole,

**"The Fast Bilateral Solver"**,



In European Conference on Computer Vision ECCV (2016)

Paper: <https://arxiv.org/pdf/1511.03296.pdf>

**(ECCV Honorable Mention 2016)**

Presentation: **Hossein Hashemi [Revise & resubmit presentation + report]**

Discussion: **Giulio Marano [Accepted]**

[19] Tanner Schmidt, Katharina Hertkorn, Richard Newcombe, Zoltan Marton, Michael Suppa, Dieter Fox,

**“Depth-Based Tracking with Physical Constraints for Robot Manipulation”.**

IEEE International Conference on Robotics and Automation (ICRA), 2015

Paper: <https://rse-lab.cs.washington.edu/papers/DepthBasedTracking-icra-2015.pdf>

<https://www.youtube.com/watch?v=cUdKxgFgG00>

Presentation: **Francesco Iodice [Accepted]**

Discussion: **Luca Monorchio [Accepted]**

[31] Rico Jonschkowski, Clemens Eppner, Sebastian Höfer, Roberto Martín-Martín, Oliver Brock,

**“Probabilistic Multi-Class Segmentation for the Amazon Picking Challenge”.**

IEEE/RSJ International Conference on Intelligent Robots and Systems, 2016

Paper: [http://www.robotics.tu-berlin.de/fileadmin/fg170/Publikationen\\_pdf/Jonschkowski-16-Technical-Report.pdf](http://www.robotics.tu-berlin.de/fileadmin/fg170/Publikationen_pdf/Jonschkowski-16-Technical-Report.pdf)

<https://www.youtube.com/watch?v=Ry6JzeW0HOM>

Presentation: **Caterina Lacerra [Accepted]**

Discussion: **Dario Albani [Accepted]**