Matteo Taiana

Curriculum vitae

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Self introduction video

Education

2008– Ongoing	**PhD in Electrical and Computer Engineering. Thesis submitted**
Defense date	**Defense is expected to take place in September 2015**
Institution	**Instituto Superior Técnico (IST)**
Laboratory	**Computer and Robot Vision Laboratory (VisLab)**
Thesis title	A methodology for training and evaluating Pedestrian Detectors – Towards practical applications
Keywords	Pedestrian Detection, Computer Vision, Machine Learning, Data Purity, Partial Occlusion, Low Resolution, Benchmarking, Fully Automated Person Re-Identification, Video Surveillance
Advisors	Alexandre Bernardino, Jacinto Nascimento
2007	**MSc in Computer Engineering** (final mark: 91/100)
Institutions	**Politecnico di Milano**. The work for the thesis was performed at **IST**
Thesis title	3D model-based tracking with one omnidirectional camera and particle filters
Advisors	Alexandre Bernardino, Pedro Lima (at Instituto Superior Técnico)
	Matteo Matteucci, Andrea Bonarini (at Politecnico di Milano)

Academic Experience

Summer Schools Attended	**Champalimaud '13 Mini-Course**, "Bridging Systems Neuroscience and Embodied Cognition: The Many Bodies of Embodied Cognition"; **PAVIS '13 Summer School**, "Large Scale Visual Recognition of Object Instances and Categories"; **INRIA VRML '12 Summer School**, "Visual Recognition and Machine Learning"; **CITEC '10 Summer School**, "The structure of cognitive motion: from analysis to synthesis"; **Veni Vidi Vici '08 and '09**, the RobotCub Summer School
Dissemination	Organization of an event on Robotics by VisLab and the **Italian Institute of Culture of Lisbon** in 2010, 2012, 2014
	Participation in various Robotics demonstrations both at the laboratory and at science fairs

Professional Experience

Institution	**Istituto di Ricerche Farmacologiche Mario Negri, Milan, Italy**
Period	January, 2004 – December, 2005
Tasks	Designing and developing AI-based software for disabled people (i.e., a basic Neural Network-based speech recognizer), analysing biometric (microarray) data with data mining techniques, being part of a multidisciplinary team

Technical Skills and competences

Programming
Matlab, C/C++, OpenCV, IPP, YARP, CMake, parallel programming via POSIX threads and NVIDIA CUDA GPGPU, Ubuntu, Git, SVN

Computer Vision and Machine Learning
Implementation of **Real-Time 3D object Tracker** and a **Real-Time Pedestrian Detector** in C++ (Please see my self introduction video for an example of the results). Use of Perspective and Omnidirectional cameras models, Particle Filters, AdaBoost, Neural Networks, Clustering algorithms and Genetic Algorithms

Robotic Systems
Development and maintenance of multi-module applications for the iCub humanoid robot

Languages

Native speaker of Italian, fluent in English and Portuguese (both used daily in the context of the PhD), with a basic grasp of Spanish and French

Publications

Journals
On the purity of training and testing data for learning: the case of Pedestrian Detection. M. Taiana, J. Nascimento and A. Bernardino. Neurocomputing, 2014.

A Multi-camera video data set for research on High-Definition surveillance. A. Nambiar, M. Taiana, D. Figueira, J. Nascimento, A. Bernardino. Int. Journal of Machine Intelligence and Sensory Signal Processing, 2014.

Tracking objects with generic calibrated sensors: an algorithm based on color and 3D shape features. M. Taiana, J. Santos, J. Gaspar, J. Nascimento, A. Bernardino, P. Lima. Robotics and Autonomous Systems, 2010.

Conferences
The HDA+ data set for research on fully automated re-identification systems. D. Figueira, M. Taiana, A. Nambiar, J. Nascimento, A. Bernardino. ECCV Workshop, 2014.

Towards Fully Automated Person Re-Identification. M. Taiana, D. Figueira, A. Nambiar, J. Nascimento, A. Bernardino. VISAPP, 2014.

An Improved Labelling for the INRIA Person Data Set for Pedestrian Detection. M. Taiana, J. Nascimento, A. Bernardino. IbPRIA, 2013.

Predictive Tracking across Occlusions on the iCub robot. E. Falotico, M. Taiana, D. Zambrano, A. Bernardino, J. Santos-Victor, C. Laschi, P. Dario. Humanoids, 2009.

Sample-Based 3D Tracking of Colored Objects: A Flexible Architecture. M. Taiana, J. Nascimento, J. Gaspar, A. Bernardino. BMVC, 2008.

Color 3D Model-Based Tracking with Arbitrary Projection Models. M. Taiana, J. Santos, J. Gaspar, J. Nascimento, A. Bernardino, P. Lima. SIMPAR, 2008.

On the Use of Perspective Catadioptric Sensors for 3D Model-Based Tracking with Particle Filters. M. Taiana, J. Gaspar, J. Nascimento, A. Bernardino, P. Lima. IROS, 2007.

3D tracking by Catadioptric Vision Based on Particle Filters. M. Taiana, J. Gaspar, J. Nascimento, A. Bernardino, P. Lima. Robocup, 2007.