Europass Curriculum Vitae

Personal information

Surname(s) / First name(s)	**Loianno Giuseppe**
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Nationality(-ies)	Italian
Date of birth	11/03/1985
Gender	Male
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Education

Primary School

- *'École française de Naples'* (French School in Naples). Exams for the italian school obtained at "Tito Livio" school
- Brevet des Collèges (French school) obtained at Lycée 'Chateaubriand' in Rome

High School

- Scientific High school "G.Mercalli" in Naples: **Final Grade 100/100**
- Part of the **French Baccalauréat** obtained at Lycée 'Chateaubriand' of Rome

Other Graduations

- Delf/Dalf (Diplome d'études en Langue Française) obtained at "École Francaise de Naples"
- English graduation of studies at American Studies Center in Naples
- Participation at the regional session of "Physics Olympic games"
- German courses at Goethe Institut Naples

University Education

- Ph.D. in Robotics February-March 2014

- Laurea Specialistica (Master) in automation engineering obtained in February 2010 at "Università degli Studi di Napoli Federico II"

- Admitted in the doctoral programs "Robotics and Manufacturing Systems"-"Electrical engineering" at EPFL

- Involved as Ph.D student in the EU-FP7 project AIRobots in vision and control part. `www.airobots.eu`

Completed Studies

- Laurea Specialistica (Master) in automation engineering obtained in February 2010 at "Università degli Studi di Napoli Federico II"

- $2004 - 2007$: Bachelor (Laurea Triennale) in Automation Engineering **Grade 110/110 cum laude** Thesis: "**Grasping Problems in Robotics**" advisors Prof. Bruno Siciliano, Prof. Luigi Villani

- $2007 - 2009$: Master Program (Laurea Specialistica) in Automation Engineering **Grade** 110/110 **cum laude** Thesis: "**Control of Micro Aerial Vehicles using a Vision System based on Optical Flow**" advisors Prof. Bruno Siciliano, Prof. Roland Siegwart, Dr. Davide Scaramuzza Master Thesis in Control and Aerial Robotics at ETH (Swiss Federal Institute of Technology Zürich) in the ASL (Autonomous System Lab) Prof. Roland Siegwart, for a period of 6 months

Scientific Activity

Courses in Control and Automation

- Fundamentals of Automation, Systems Theory, Signal Theory, Automatic Control 1, Automatic Control 2, Digital Control, Robot Control, Optimization, Advanced Robotics (including Vision), Nonlinear Control 1, Nonlinear Control 2, Industrial Automation, Technology of Automatic Systems and Control, Computer Vision, Machine Perception

Summer Schools, Doctoral Courses and Conferences Attended

- CogSys Conference January 2010 Zürich

- Summer School SIDRA July 2010 Bertinoro Italy

- Summer School on Micro Aerial Vehicles July 2011 Zürich

- BRICS research camp November 2011

- IEEE International Conference on Decision and Control, Orlando, Florida, USA December 2011

- Review Meetings AIRobots project Enschede, The Netherlands 2011 and Bologna, Italy 2012

- Summer School SIDRA July 2011 Bertinoro Italy

- Robust Control

- Game Theory and Analysis of Competitive Dynamics for Industrial Systems

- Summer School SIDRA July 2012 Bertinoro Italy

Conference and Journal Revisions

- IEEE Transactions on Control Systems Technology

- IEEE Robotics and Automation Magazine

- IEEE/RSJ Conference on Intelligent Robots and Systems 2011

- IEEE Conference on Decision and Control 2012

- ISER International Symposium on Experimental Robotics

- IEEE DCOSS International Conference on Distributed Computing in Sensor Systems 2012

- IEEE/RSJ Conference on Intelligent Robots and Systems 2013

- Journal of Field Robotics

- IEEE/ICRA International Conference on Robotics and Automation 2014

- International Conference on Computer Vision Theory and Applications 2011

- International Journal of Robotics Research 2013

International Experiences and Internships

- August 2008 to March 2009: Exchange Period of 8 months in Sweden at KTH (Kungliga Tekniska Hogskolan)

- September 2009 to March 2010: Internship and Master Thesis for 6 months at ETH Zürich (Swiss Federal Institute of Technology Zürich)

- August 2012 Exchange Period as Ph.D in Sweden at KTH (Kungliga Tekniska Hogskolan) in the Automtic Control Laboratory

- From April 2013 Ph.D student and visiting associate at the Grasp Lab University of Pennsylvania under the supervision of Prof. Dr. Vijay Kumar holding a BAE systems fellowship.

Computer Science Knowledge

Computer Program abilities

- Very good knowledge of MATLAB/Simulink, C/C++

- Good knowledge of the following languages and programs: Word, PowerPoint, Excel, Comsol Multiphysics, Embedded Systems, PLC

- Excellent knowledge of the following operating systems, middle-ware, libraries and hardware devices: Windows, Ubuntu, MacOs, ROS, OpenCV, TooN, Vicon, Optitrack

Mother tongue(s)   **Italian**

Self-assessment
European level[(*)]

Understanding		Speaking		Writing
Listening	Reading	Spoken interaction	Spoken production	

English		German

English	C2	Proficient user	C2	Proficient user	C1	Proficient user	C1	Proficient user	C2	Proficient user
French	C2	Proficient user	C2	Proficient user	C2	Proficient user	C2	Proficient user	C2	Proficient user
German	A2	Basic user	A2	Basic user	A2	Basic user	A2	Basic user	A2	Basic user

$^{(*)}$*Common European Framework of Reference (CEF) level*

Extra Curricular Activities

Hobbies

- Travel and be in Contact with new Cultures, Ideas
- Wine Tasting
- Parties
- Sport
- Skiing
- Play Cards and Videogames

Research Activities

Giuseppe Loianno' s activities focus on the development of new sensor fusion algorithms, visual environment reconstruction and visual control for micro aerial vehicles (MAVs) in industrial environments. The aim of sensor fusion is to try to combine heterogeneous sensors, in terms of speed and different information provided, like Inertial sensors (IMU), Cameras and eventually GPS if available. The main objectives is to obtain information about scale factor estimation using single camera systems and localize the vehicle in unstructured environments, especially where GPS signal lacks, both for single and stereo camera configurations. Camera sensors are needed to extract characteristic landmarks in the environments, trying to reconstruct vehicle's motion and $3D$ environment structure. These sensors are slow for control applications requiring a big computational time to extract vehicle's motion measurements, especially in the stereo case. Thus, it is necessary to couple them to other sensor sources like IMU and eventually GPS if available to speed up the whole localization process satisfying control time constraints. In indoor environments, but in a limited space and for dedicated applications, previous problems can be even solved by the use of motion capture systems like Vicon and Optitrack.

In the monocular case the proposed problem has been solved using the combination of different landmarks with IMU measurements to obtain a closed form solution for scale factor estimation. An environment high level map has been realized for supervisory control. Actually sensor fusion techniques based on Kalman filter and Pareto Optimization have been implemented, tested and will be in few weeks submitted for a publication. Finally last part of Ph.D. will focus on the development of control techniques to stabilize the vehicle, more in general to enable vehicle's navigation and on reconstruction based on RGB-D sensors.

Book Chapters

- J. Cacace, A. Finzi, V. Lippiello, G. LOIANNO, and D. Sanzone, "Aerial Service Vehicles for Industrial Inspection: Task Decomposition and Plan Execution", Lecture Notes in Artificial Intelligence, Springer-Verlag, Heidelberg, Germany, 2013.

Publications

International Journal Papers

- J. Cacace, A. Finzi, V. Lippiello, G. LOIANNO, and D. Sanzone, Aerial Service Vehicles for Industrial Inspection: Task Decomposition and Plan Execution, Applied Intelligence, Springer, 2014, Accepted with minor revision.

- V. Lippiello, G. LOIANNO and B. Siciliano "MAV Indoor Navigation Based on a Closed-Form Solution for Absolute Scale Velocity Estimation Using Optical Flow and Inertial Data" IEEE International conference on Decision and Control December 2011 Orlando Florida

- V. Lippiello, G. LOIANNO and B. Siciliano "MAV Indoor Obstacles Avoidance Based on the Online Computation of the Absolute Depth Map Using Optical Flow and Inertial Data" Accepted to: IFAC SYROCO International Symposium on Robot Control September 2012 Dubrovnik Croatia

- J. Cacace, A. Finzi, V. Lippiello, G. LOIANNO, and D. Sanzone, "Aerial Service Vehicles for Industrial Inspection: Task Decomposition and Plan Execution" , 26th International Conference on Industrial, Engineering and other Applications of Applied Intelligent Systems, Amsterdam, The Netherlands, 2013. Nomination for Best paper

- J. Cacace, A. Finzi, V. Lippiello, G. LOIANNO, and D. Sanzone, "Integrated Planning and Execution for an Aerial Service Vehicle", 23th International Conference on Automated Planning and Scheduling, Workshop on Planning and Robotics, Rome, Italy, June 2013.

- J. Thomas, J. Polin, G. LOIANNO, K. Sreenath, and V. Kumar, "Avian-Inspired Grasping for Quadrotor MAVs", RSS Robotics Science and Systems Conference, Workshop on Aerial Mobile Manipulation, 24-28 June 2013, Berlin, Germany.

- F. Cordella, F. Di Corato, G. LOIANNO, L. Zollo and B. Siciliano, "Robust Pose Estimation Algorithm for Wrist Motion Tracking", IEEE/RSJ Conference on Intelligent Robots and Systems, 3-7 November 2013, Tokyo, Japan.

- G. LOIANNO, V. Lippiello, C. Fischione and B. Siciliano, "Visual and Inertial Multi-Rate Data Fusion for Motion Estimation via Pareto-Optimization", IEEE/RSJ Conference on Intelligent Robots and Systems, 3-7 November 2013, Tokyo, Japan.

- G. LOIANNO, Justin Thomas, Kartik Mohta, Koushil Sreenath, and Vijay Kumar, "From autonomous grasping and navigation to cooperative localization for micro aerial vehicles", IEEE/RSJ Conference on Intelligent Robots and Systems, Workshop From Remotely-Controlled to Autonomous Collaborative Robots, 3-7 November 2013, Tokyo, Japan.

- G. LOIANNO, Justin Thomas, Kartik Mohta, Shaojie Shen, Koushil Sreenath, and Vijay Kumar, "Vision based navigation, grasping and localization for micro aerial vehicles", IEEE/RSJ Conference on Intelligent Robots and Systems, Workshop Vision-based Closed-Loop Control and Navigation of Micro Helicopters in GPS-denied Environments, 3-7 November 2013, Tokyo, Japan.

- G. LOIANNO, V. Lippiello, and B. Siciliano, "Fast Localization and 3D Mapping using a RGB-D Sensor", IEEE International Conference on Advanced Robotics, 25-29 November 2013, Montevideo, Uruguay.

- J. Thomas, G. LOIANNO, K. Sreenath, and V. Kumar, "Toward Image Based Visual Servoing for Aerial Grasping and Perching", IEEE/ICRA International Conference on Robotics and Automation, 31 May-7 June 2014, Hong Kong, China.