

Curriculum Vitae

Claudio Roberto Gaz

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Born

June 4, 1982 – in Rome



Work Experience

03/2016 – today

Research Fellow (Assegnista di Ricerca) for the project “Dynamic modeling and control of lightweight robot manipulators” at the Department of Computer, Control and Management Engineering (DIAG). Topic: Dynamic modeling, parameters identification and control of lightweight manipulators.

- Participation in the European Project SYMPLEXITY (www.symplexity.eu).

07/2015 – 11/2015

Visiting researcher at Deutsches Zentrum für Luft- und Raumfahrt (*DLR*), Oberpfaffenhofen (Munich), Germany

04/2015 – 05/2015

Visiting researcher at Airbus (Airbus Group), Paris (France)

01/2014 – 08/2015

Università Cattolica del Sacro Cuore and CNR-IASI, Laboratorio di Biomatematica, Rome.

- Participation in the European Projects EDEN (<https://www.eden-security-fp7.eu/>), IMPRESS, PULSE. Realization of the webservice supplying the Physiological Model for a patient infected by a chemical agent. Collaboration within the modelling phase. Supervisor: Dr. Andrea De Gaetano and Prof. Daniele Gui.

11/2012 – 11/2015

Ph.D. Student in Automatic Engineering in Sapienza Università di Roma (winner of a scholarship fund)

06/2012 – 01/2014

WLAB srl wireless ideas, Rome. In collaboration with Sapienza Università di Roma

- Participation of the FP7 European Project “Pleased”, PLants Employed As SEnsing Devices (<http://pleased->

	<p>fp7.eu/). Signal analysis and classification with Machine Learning techniques. Supervisor: Prof. Andrea Vitaletti.</p>
03/2012 – 11/2012	<p>Sapienza Università di Roma, Rome.</p> <ul style="list-style-type: none"> • Research fellow for the project “Optimization of the camera-calibration procedure on the field” (Machine Learning techniques adopted, as Artificial Neural Networks). Supervisor: Prof. Luca Iocchi.
06/2011 – 07/2011	<p>CNR-IASI (Consiglio Nazionale delle Ricerche – Istituto di Analisi dei Sistemi ed Informatica), Rome</p> <ul style="list-style-type: none"> • Development of a web-service performing collaboration between software packages developed in Matlab, R and C++, by means of a GUI developed in php, allowing a remote user to perform several computations, such as data fitting and parameter estimation on compartmental models. The results are shown by means of a Matlab-produced-graph or a Gnuplot-produced-graph. The system is maintained on a server with LAMP architecture. Reference: Dr. Andrea De Gaetano.
04/2011 – 05/2011	<p>CNR-IASI (Consiglio Nazionale delle Ricerche – Istituto di Analisi dei Sistemi ed Informatica), Rome</p> <ul style="list-style-type: none"> • Realization of the website of the Biomathematics Laboratory of CNR-IASI (http://www.biomatematica.it/), by means of the CMS Joomla. Reference: Dr. Andrea De Gaetano.
09/2009 – 06/2010	<p>CNR-IASI (Consiglio Nazionale delle Ricerche – Istituto di Analisi dei Sistemi ed Informatica), Rome</p> <ul style="list-style-type: none"> • Regarding the participation of CNR-IASI to the European project “SICMA” (“Simulation of crises management activities”) co financed in FP7 (Sec) (www.sicmaproject.eu): mathematical modeling and implementation (in C++ language) of the physiology of the virtual patient and his/her management in the instants immediately following the simulated accident, that is the cures on the accident location and the transport to the hospital. Supervisor: Dr. Andrea De Gaetano.
09/2009	<p>CNR-IASI (Consiglio Nazionale delle Ricerche – Istituto di Analisi dei Sistemi ed Informatica), Rome</p> <ul style="list-style-type: none"> • Minor co-organization role (and participation, 13-26 September 2009) of the International Biomathematics Summer School held in Lipari (Italy) (September 2009) (http://www.biomatematica.it/lipari2009/index.html). Supervisor: Dr. Andrea De Gaetano.
06/2009-09/2009	<p>CNR-IASI (Consiglio Nazionale delle Ricerche – Istituto di Analisi dei Sistemi ed Informatica), Rome – in collaboration with 3M</p>

Deutschland GmbH.

- Realization of a web-service for storing data related to a multicentric efficacy study of the 3M™ Tegaderm™ CHG Chlorhexidine Gluconate IV Securement Dressing. In detail, database design and implementation of the related structures for insert and retrieve data by means of a user-interface (used languages: SQL, Asp).
Reference: Dr. Andrea De Gaetano.

Teaching Experience

**A.Y. 2016 – 2017
and 2017 – 2018**

Teaching assistant (tutor) for the course of Mathematical Analysis 2 (Analisi Matematica 2) for the students of Management Engineering (Ingegneria Gestionale) at Sapienza University of Rome. Reference: Prof. Daniele Andreucci

A.Y. 2018 – 2019

Teacher of the course of Control of Electromechanical Systems for the students of the Erasmus Mundus Master Course in Sustainable Transportation and Electrical Power Systems. Sapienza University of Rome

Publications:

- N. Cacciotti, A. Cifonelli, C. Gaz, V. Paduano, A.V. Russo, M. Vendittelli, Enhancing force feedback in teleoperated needle insertion through on-line identification of the needle-tissue interaction parameters. In *Proc. IEEE Conference on Biomedical Robotics and Biomechatronics (BioRob)*, Enschede (NL), Aug. 2018
- C. Gaz, E. Magrini, A. De Luca, A model-based residual approach for human-robot collaboration during manual polishing operations. *Mechatronics*, 2018
- C. Gaz, A. De Luca, Payload Estimation Based on Identified Coefficients of Robot Dynamics – with an Application to Collision Detection. In *Proc. Int. Conference on Intelligent Robots and Systems (IROS)*, Vancouver (Canada), Sept. 2017
- C. Gaz, A. De Gaetano, C. Manes, P. Palumbo, A. Borri, S. Panunzi, Effective Control of Glycemia using a Simple Discrete-delay Model. In *IFAC PapersOnLine*, 2017.
- C. Gaz, F. Flacco, A. De Luca. Extracting Feasible Robot Parameters from Dynamic Coefficients Using Nonlinear Optimization Methods. In *Proc. Int. Conference on Robotics and Automation (ICRA)*, Stockholm (Sweden), May 2016.
- E. Pacciani, A. Borri, PM. Soave, D. Gui, S. Magalini, S. Panunzi, C. Gaz, P. Gaudio, A. Malizia, A. De Gaetano. "Modelling and Simulation for Major Incidents: an Innovative Approach to Medical Response". In *Int. Conference on Pervasive Computing Technologies for Healthcare (PervasiveHealth)*, 2015.
- De Gaetano, S. Panunzi, P. Palumbo, C. Gaz and T. Hardy. Data Driven Modeling on Diabetes Progression. In book *Data-driven Modeling for Diabetes* by V. Marmarelis and G. Mitsis (eds.), 2014.

- De Gaetano, C. Gaz, P. Palumbo and S. Panunzi. A Unifying Organ Model of Pancreatic Insulin Secretion. *PLOS ONE*, 2015.
- Gaz, F. Flacco, A. De Luca. Identifying the dynamic model used by the KUKA LWR: a reverse engineering approach. *Proceedings of the 2014 International Conference on Robotics and Automation (ICRA 2014)*, Hong Kong, China.
- Pennisi, D. Bloisi, C. Gaz, L. Iocchi, D. Nardi. Novel patterns and methods for zooming camera calibration. *Journal of WSCG 06/2013*; 21(1):59-67. In proceeding of: 21st International Conference in Central Europe on Computer Graphics, Visualization and Computer Vision (WSCG 2013).
- De Gaetano, C. Gaz, C. Gori Giorgi, P. Palumbo. An islet population model of pancreatic insulin production. *Proceedings of the 52nd IEEE Conference on Decision and Control*, 2013.
- Gaz, G. Cremona, S. Panunzi, B. Patterson, A. De Gaetano. A geometrical approach to the PKPD modeling of inhaled bronchodilators. *Journal of Pharmacokinetics and Pharmacodynamics*, 2012.
- Fagiolini, A. Matone, C. Gaz, S. Panunzi, A. De Gaetano. Confronto farmacoeconomico di ziprasidone con altri antipsicotici atipici per il trattamento della schizofrenia. *Farmeconomia*, 2011.

Education

05/2016	PhD in Automatics and Operational Research at Sapienza – Università di Roma (winner with scholarship)
12/2011	Sapienza – Università di Roma (Rome, Italy). Master Degree in Systems Engineering (<i>Laurea Specialistica in Ingegneria dei Sistemi</i>). Thesis title: A controllers population model for the pancreatic insulin production. Score: 110/110
03/2006	Università Roma Tre (Rome, Italy) Bachelor Degree in Computer Engineering (<i>Laurea in Ingegneria Informatica</i>). Thesis title: Control of a robot with flexible forearm by means of a nonlinear observer. Score: 110/110
07/2001	Liceo Cornelio Tacito, Rome. High school qualifications on classical literature (<i>Diploma di maturità classica</i>). Score: 100/100

Known languages

Italian	mother tongue
English	Read: very good – Written: very good – Spoken: good

German

Read: medium lev. – Written: medium lev. – Spoken: medium lev.
(currently studying)

Russian

Read, written and spoken: school level (currently studying)

French

Read, written and spoken: medium level.

Skills and expertise

Core interests

- Systems control, in particular automatic (control of mechanic or robotic systems and control in industrial settings) and biologic.
- Mathematical modeling: model a phenomenon i.e. by means of differential equations and *in silico* implementation in order to forecast the evolution of a given system.

Personal attitudes

- Good team-worker
- Problem solver
- Priority scheduling
- Complete availability to move abroad, both for brief and long periods
- Adaptability to different subjects.

Programming Languages

Very good knowledge of the following software and programming languages:

- C/C++
- Matlab
- Php
- Asp
- Java
- Jsp
- SQL

Operating Systems

Experience of use of the following O.S.s

- Windows (XP, 7)
- Linux (Ubuntu Desktop distribution)

September 20, 2018

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