



## Dr Ing. Oscar Gerelli

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### Education

**PhD** in Computer Engineering, specialization in Automation and Robotics (2006-2008)  
University of Parma, Parma, Italy  
Thesis: "Optimal Constrained Planning for Complex Mechatronic Systems"

**Master degree** in Computer Engineering (2003-2005)  
Specialization in Automation and Robotics  
University of Parma, Parma, Italy  
Thesis: "Design and implementation of a modular system for the electric axes control" (in Italian)  
Final mark: 110/110 cum laude

**Bachelor degree (3 year program)** in Computer Engineering (2000-2003)  
University of Parma, Parma, Italy  
Thesis: "Analysis and sperimentation of opensource solutions for e-learning"  
Final mark: 110/110 cum laude

**Diploma** in Electronics and Telecommunications (1995-2000)  
Istituto Tecnico Industriale G.Marconi (ISII), Piacenza, Italy  
Final mark: 100/100 cum laude

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### International experiences

Research of 6 month (*october 2007 – march 2008*) made at the group of Control Systems of the Electronics and Mathematics chair of the *Twente University*, Enschede (Olanda), supervised by prof. Job Van Amerongen, research team leader, and prof. Stefano Stramigioli, editor in-chief of the IEEE Robotics and Automation Magazine and AdCom member of the Robotics and Automation Society.  
This research has allowed to propose an optimal control strategy for a new concept of electric actuator with high energy efficiency to be used in mobile robots and power prosthetic devices.

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### International publications

1. **O. Gerelli**, C. Guarino Lo Bianco, "Nonlinear variable structure filter for the online trajectory scaling", IEEE Transaction on Industrial Electronics, 2009
  2. **O. Gerelli**, R. Carloni, S. Stramigioli, "Port-based modeling and optimal control for a new concept of Very Versatile Very Efficient Actuator", International IFAC Symposium on Robot Control, 2009, Gifu (Japan), *invited paper*
  3. **O.Gerelli**, C. Guarino Lo Bianco, "Trajectory scaling for a manipulator inverse dynamics control subject to generalized force derivative constraints", IROS 2009, St. Louis (USA)
  4. L. Consolini, **O. Gerelli**, C. Guarino Lo Bianco, A. Piazzi, "Flexible joints control: a minimum-time feed-forward technique", Mechatronics, Elsevier, 2008
  5. **O.Gerelli**, C. Guarino Lo Bianco, "Optimal planar paths with n3-splines for wheeled mobile robots", IEEE Transaction on Automation Science and Engineering, 2008
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6. C. Guarino Lo Bianco, **O. Gerelli**, “An alternative model for the evaluation of tyre shear forces under steady-state conditions”, IROS 2008, Nice (France)
  7. **O. Gerelli**, C. Guarino Lo Bianco, “Real-time path-tracking control of robotic manipulators with bounded torques and torque-derivatives”, IROS 2008, Nice (France)
  8. L. Consolini, **O. Gerelli**, “An algorithm for minimum-time feedforward control based on convexity”, International Conference on Decision and Control (CDC), 2007, New Orleans (Usa)
  9. **O. Gerelli**, C. Guarino Lo Bianco, “Optimal path generation for wheeled mobile robots with  $n^3$ -splines”, International Conference on Methods and Models in Automation and Robotics (MMAR), 2007, Szczecin (Poland)
  10. L. Consolini, **O. Gerelli**, “A geometric approach to minimum-time control based on convexity”, European Control Conference (ECC), 2007, Kos (Greece)
  11. L. Consolini, **O. Gerelli**, C. Guarino Lo Bianco, A. Piazzì, “Minimum-time control of flexible joints with input and output constraints”, International Conference on Robotics and Automation (ICRA), 2007, Rome (Italy)
  12. P. Cerri, **O. Gerelli**, D. Lodi Rizzini, “Bowling for calibration: An undemanding camera calibration procedure using a sphere”, International Conference on Computer Vision System (ICVS), 2007, Bielefeld (Germany)
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#### Teaching activity

- Teaching assistant of the bachelor course on industrial robotics (in Italian), named “Robotica Industriale A”. (2006-2008)  
University of Parma, Teacher: prof. Corrado Guarino Lo Bianco
  - Teaching assistant of the master course of automation laboratory (in Italian), named “Laboratorio di Automatica”. (2006-2008)  
University of Parma, Teacher: prof. Corrado Guarino Lo Bianco
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#### Awards

- Recipient of the prize as **best student** in Computer Engineering (2007)  
I year Master degree, University of Parma
  - **IBM Best Student Recognition** prize (2006)
  - Winner of the public examination to attend the **PhD** in Computer Engineer under Ministry of Education grant, University of Parma (2005)
  - Prize **ASFOR-SMAU “e-Talenti dell’E-learning”** (2004)  
Award as best italian thesis of the years 2000-2004 regarding e-learning technologies
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#### Working experiences

- **BPE Electronics** s.r.l., Novellara (RE), Italy (april 2008 – december 2008)  
*Managing of the initial design and development of a Java application for the high level programming of embedded boards.*  
Representative: Ing. Giacomo Bassoli, g.bassoli@bpe.it
  - **BPE Electronics** s.r.l., Novellara (RE), Italy (january 2006 – september 2007)  
*Development of an adaptive control for the levelling of aerial platforms. Patent to be deposited.* Representative: Ing. Giacomo Bassoli, g.bassoli@bpe.it
  - **IBM** S.p.A., Segrate (MI), Italy (january 2005 – march 2005)  
*Internship regarding the managing of outsourcing servers’ security policies.*  
Representative: Ing. Mario Galli, mario.galli@ibm.it
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- **Foreign Language Center**, University of Parma (2003 - 2004)  
*Technical consulting for the project "Test online". During this project a web platform has been developed to handle computer based quiz.*  
*Representative: Dott.ssa Daniela Forapani, forapani@unipr.it*
  
  - **Foreign Language Center**, University of Parma (2003 - 2004)  
*Technical consulting for the projects "Italiano per Giuristi" and "Italiano per Medici" aiming at teach the technical language of law and medicine to foreigners. During this project the paper books have been completely converted into a web application with online tests to monitor the student's achievements.*  
*Representative: Dott.ssa Daniela Forapani, forapani@unipr.it*
  
  - **Foreign Language Center**, University of Parma (2002 -2003)  
*Web developer for the new web site.*  
*Representative: Dott.ssa Daniela Forapani, forapani@unipr.it*
  
  - **Selta Telecomunicazioni S.p.A.**, Cadeo (PC), Italy (june 1999 – august 1999)  
*Internship for the post-sales assistance and testing of telecommunication equipments, like modem HDSL and remote control devices.*  
*Representative: Ing. Francesco Cesena, f.cesena@selta.it*

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#### Foreign language

- Italian: mother tongue
- English: fluent both oral and written (European level B2/C1)
- German: beginner level (European level A2)

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#### Information Technology expertise

- Operating Systems: Windows and Linux (Ubuntu, RedHat, Debian, ecc...)
- Programming Language: C, C++ (basic), Java J2SE, Perl, Php, Matlab
- Databases: MySql, PostgreSQL
- Office Suites: Microsoft Office, OpenOffice
- Maths: Matlab, Maple
- Cad: Altium Designer, NI Labview, Autodesk Autocad and Inventor (basic)

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#### Hobbies

- I play different sports, such as soccer and tennis
  - Passionate readers of classic books and historical documents related to the unsolved mysteries of ancient civilizations.
  - Member of the IEEE (Institute of Electrical and Electronic Engineers) and SIDRA (Italian society for teachers and researchers in Automation)
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