

## Curriculum Vitae

### Giovanni Berselli

- **Work Address:** DIME - Department of mechanics, energetics, management and transportation **University of Genova**, Via all'Opera Pia, 15 - 16145 Genova - Italy.□
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### INTRODUCTORY NOTES

- Giovanni Berselli is *Full Professor* and *Chair* of **Design Methods and Tools for Industrial Engineering** at the **University of Genova**, where he teaches the courses *Design of Automatic Machineries*, *Computer Aided Design*, *Technical Drawings*, and *Advanced Applications for Additive Manufacturing* for the 1<sup>st</sup> & 2<sup>nd</sup> level Degrees in Mechanical Engineering, Mechatronic Engineering, and Naval Architecture / Marine Engineering.□
- Prof. Berselli is editor of one international book and he has authored **50 refereed journal papers**, **22 book chapters**, **60 papers on international conference proceedings**, **15 papers on national conference proceedings**, **16 workshop communications**, and **3 patents** (since the first paper published in 2007). **The bibliometric indexes from Scopus are H-Index: 21 – Citations: 1282.**□

### POSITION AND FORMATION

- **Current**□ **Full Professor** in Design Methods and Tool for Industrial Engineering. Mech. Eng. Dept., **University position of Genova**, Italy.
- **2017 Visiting Professor** at the Robotics and Mechatronics Lab & Precision Engineering Lab, **University of Twente**, Netherlands.□
- **2015-2017 Assistant Professor** in Design Methods and Tool for Industrial Engineering. Mech. Eng. Dept.,□ **University of Genova**, Italy.
- **2011-2014 Senior Researcher / Aggregate Professor** in Design Methods and Tool for Industrial Engineering., Mech. Eng. Dept., **University of Modena and Reggio Emilia**, Italy□
- **2009-2010 Contract Professor** for the *joint bachelor program* in Automation Engineering, **University of Bologna** and **Tongji University**. □ **Contract Professor** within the 2<sup>nd</sup> Level Bachelor in Automation Engineering and Chemical and Biochemical Engineering, **University of Bologna**.□
- **01/2009-01/2010**□ **Post-Doc Researcher** at DIEM, Mechanical Eng. Dept., **University of Bologna**, Italy.
- **01/2009**□ PhD in Mechanics of Machines, **University of Bologna**.□  
 PhD Thesis: "On Designing Compliant Actuators based on Dielectric Elastomers".
- **02/2005 Research Assistant** at CEIT, "Centros de Estudios y Investigaciones Tecnica de Gipuzkoa", **Escuela Superior de Ingenieros de la Universidad de Navarra**, Spain.□
- **04/2003-05/2004**□ **Research Assistant** at **Monash University**, Melbourne, Australia.
- **10/2004**□ M.S. Degree in Mechanical Engineering, **110/110 cum laude**, **University of Modena and Reggio**

**Giovanni Berselli - Curriculum Vitae and Review of Research Activities**

Emilia, Italy. Master Thesis: "Modelling and Simulation of an Inertia Type IVT". □

- **09/2001-09/2002** □ Erasmus student at University of Limerick, Ireland. *Perfect QCA of 4.0/4.0.*

**TEACHING ACTIVITY**

- **A.Ys. Lecturer** for 1<sup>st</sup> and 2<sup>nd</sup> level Degrees in Mechanical Engineering, Naval Architecture and Marine **2015/19** □ Engineering, and Nautical Engineering, **University of Genova**, within the courses:
    - **Design of Automatic Machines**
    - **Computer-Aided Design & Technical Drawing**
  - **A.Y. Lecturer** for the courses:
    - 2018/2019** □
    - **Virtual Prototyping and Architectures of Automatic Machines**, Master Course in **New Technologies for Industry 4.0**, SIIT, Genova.
    - **Methods and Tools for Virtual Prototyping**, ITS, La Spezia.
    - **Computer-Aided Design**, ITS, La Spezia.
  - **A.Ys. Lecturer** for the course **Design of Automatic Machines and Industrial Robots**, 2<sup>nd</sup> Level Degree in **2011/2014** □ Mechanical Engineering, **University of Modena** and Reggio Emilia
- Co-lecturer** for the course **Design of Machines**, 2<sup>nd</sup> Level Degree in Mechanical Engineering, **University of Modena** and Reggio Emilia.
- **A.Ys. Lecturer** for the courses **Fundamentals of Mechanics of Machines AND Automatic Machines**, 1<sup>st</sup> **2009/2011** □ Level Degree Course in Automation Engineering, **University of Bologna**.
  - **A.Y. Assistant instructor (co-lecturer)** for the courses:
    - **Automatic Machines** for the 2<sup>nd</sup> Level Degree **2006/2009** □ Course in Automation Engineering;
    - **Design of Automatic Machines and Robots** for the 2<sup>nd</sup> Level Degree Course in Mechanical Engineering and Chemical Engineering;
    - **Mechanics of Automatic Machines** for the 2<sup>nd</sup> Level Degree Course in Automation Engineering, **University of Bologna**.
  - **A.Y. Lecturer** within focused seminars for local industries & post-grad courses:
    - 2013/2015** □ - **Fundamentals of Machine Design**, Fincantieri, Genova, Italy
    - **Designing Optimal Trajectory for ServoMotors**, Liam Lab, Modena, Italy
    - **Design Methods for optimal actuator selection**, IMA S.p.a. Bologna, Italy
      - **Energy-Efficient Design and Design for Manufacturing and Assembly** (w. Prof. M. Pellicciari), CNA and DIEF Dept., Modena, Italy
      - **Eco-efficient Design of Automatic Machinery and Robotized Plants**. Acimac & Democenter Foundation, Baggiovara, Italy
  - **A.Y. 2009** - **Mechanics of Electrical Machines**, GIMA S.p.a., Zola Predosa, Italy □
  - **A.Y. 2006** - **Conceptual Design of Mechatronic Systems**, University of Bologna. □

**INSTITUTIONAL RESPONSIBILITIES**

**Giovanni Berselli - Curriculum Vitae and Review of Research Activities**

- **01/2019-to date**  **Delegate for International Relations** for DIME - Department of Mechanical, Energy, Management and Transportation Engineering.  
**Responsible for academic partnerships with**
  - Robotics and Automation Lab., **University of Twente**.
  - Medical Devices and Simulation Lab., **Harvard Medical School - Glasgow Caledonian University, Scotland - National University of Ireland, Cork**.
  - **Politechnika Krakowska, Poland**.
- **01/2015-to date**  **Member** of:
  - Doctoral School Committee in Mechanical, Energy and Management Engineering (IMEG) at the **University of Genoa**.**Coordinator** of the PhD Curriculum Mechanics, Materials and Measurement at the University of Genoa.
- **2011 - 13** **Member** of: 
  - PhD School in High Mechanics, Automotive Design & Technology at the **University of Modena and Reggio Emilia**
  - Interdepartmental Research Centre InterMech. Mo.Re., **University of Modena and Reggio Emilia**

**PUBLICATIONS****Journal Papers**

- J43 M. Gadaleta, M. Pellicciari, **G. Berselli**, “*Optimization of the Energy Consumption of Industrial Robots with Automatic Code Generation*”. *Robotics and Computer-Integrated Manufacturing*, vol. 57, pp. 452-464, 2019. **Impact Factor = 3.464.**
- J42 P. Bilancia, **G. Berselli**, L. Bruzzone, P. Fanghella “*A CAD/CAE Integration Framework for Analyzing and Designing Spatial Compliant Mechanisms*”. *Robotics and Computer-Integrated Manufacturing*, vol. 56, pp. 287-302, 2019. **Impact Factor = 3.464.**
- J41 **G. Berselli**, G. Bigi, M. Pellicciari, R. Razzoli “*Design Optimization of Cutting Parameters for a Class of Radially-Compliant Spindles via Virtual Prototyping Tools*,” *International Journal of Computer-Aided Engineering and Technology*, vol. 11, pp. 232-252, 2019. **Impact Factor = 0.424.**
- J40 M. Martelli, N. Faggioni, **G. Berselli**, “*Fuel saving in a marine propulsion plant by using a continuously variable transmission*”. Proceedings of the Institution of Mechanical Engineers, *Part M: Journal of Engineering for the Maritime Environment (available online)*.
- J39 F. Parvari Rad, R. Verthey, **G. Berselli**, V. Parenti Castelli, “*Design and Stiffness Evaluation of a Compliant Joint with Parallel Architecture Realizing an Approximately Spherical Motion*”. *Actuators*, vol.7, n. 20, pp.1-18, 2018 (available online).
- J38 M. Gadaleta, **G. Berselli**, M. Pellicciari, “*Energy-Optimal Layout Design of Robotic Work Cells: Potential Assessment on an Industrial Case Study*”. *Robotics and Computer-Integrated Manufacturing*, DOI: 10.1016/j.rcim.2016.10.002, vol. 47, pp. 102-111, 2017. **Impact Factor = 3.464.**
- J37 M. Gadaleta, **G. Berselli**, M. Pellicciari, M. Sposato, “*A Simulation Tool for Computing Energy Optimal Motion Parameters of Industrial Robots*” *Procedia Manufacturing*, DOI: 10.1016/j.promfg.2017.07.114, vol. 11, pp. 319-328, 2017. **Impact Factor (scimago) = 0.105.**
- J36 V. Vaschieri, M. Gadaleta, P. Bilancia, **G. Berselli**, R. Razzoli, “*Virtual Prototyping of a Flexure-based RCC Device for Automated Assembly*” *Procedia Manufacturing*, DOI: 10.1016/j.promfg.2017.07.121, vol. 11, pp. 380-388, 2017. **Impact Factor (scimago) = 0.105.**
- J35 P. Bilancia, G. Berselli, L. Bruzzone, P. Fanghella “*A Practical Method for Determining the Pseudo-Rigid-Body Parameters of Spatial Compliant Mechanisms via CAE Tool*” *Procedia Manufacturing*, DOI: 10.1016/j.promfg.2017.07.374, vol. 11, pp. 1709-1717, 2017. **Impact Factor (scimago) = 0.105.**
- J34 A. Vergnano, **G. Berselli**, M. Pellicciari, “*Parametric virtual concepts in the early design of mechanical systems: a case study application*”, *Springer International Journal of Interactive Design and Manufacturing*, DOI: 10.1007/s12008-015-0295-y, vol. 12(2), pp. 331-340, 2017. **Impact Factor (scimago) = 1.280.**
- J33 A. Vergnano, **G. Berselli**, M. Pellicciari, “*Interactive simulation-based-training tools for manufacturing systems operators: an industrial case study*,” *Springer International Journal of Interactive Design and Manufacturing*, DOI: 10.1007/s12008-016-0367-7, pp.1-13, 2017 (in press, available online). **Impact Factor = 1.280.**
- J32 F. Parvari Rad, **G. Berselli**, R. Verthey, V. Parenti Castelli, “*Design and Stiffness Analysis of a Compliant Spherical Chain with Three Degrees of Freedom*”. *Precision Engineering*, DOI: 10.1016/j.precisioneng.2016.06.011, vol. 47, pp. 1-9, 2017. **Impact Factor = 2.237.**
- J31 **G. Berselli**, F. Balugani, M. Pellicciari, M. Gadaleta, “*Energy-optimal motions for Servo-Systems: A comparison of spline interpolants and performance indexes using a CAD-based approach*,” *Robotics and Computer Integrated Manufacturing*, DOI: 10.1016/j.rcim.2016.01.003, vol. 40, pp. 55–65, 2016. **Impact Factor = 3.464.**
- J30 F. Parvari Rad, R. Verthey, **G. Berselli**, V. Parenti Castelli, “*Analytical compliance analysis and finite element verification of spherical flexure hinges for spatial compliant mechanisms*”. *Mechanism and Machine Theory*, DOI: 10.1016/j.mechmachtheory.2016.01.010, vol. 101, pp. 168-180, 2016. **Impact Factor = 2.577.**
- J29 F. Leali, A. Vergnano, F. Pini, M. Pellicciari, **G. Berselli**, “*A Workcell Calibration Method for Enhancing Accuracy in Robot Machining of Aerospace Parts*”, *International Journal of Advanced Manufacturing Technology*, DOI: 10.1007/s00170-014-6025-y, 2014, vol. 85(4), pp. 47-55, 2016, (invited paper). **Impact Factor = 2.209.**

## Giovanni Berselli - Curriculum Vitae and Review of Research Activities

- J28 **G. Berselli**, Q. Meng, R. Vertechy, V. Parenti Castelli. "An improved design method for the dimensional synthesis of flexure-based compliant mechanisms: optimization procedure and experimental validation". *Springer Meccanica*, DOI: 10.1007/s11012-015-0276-z, vol. 51(5), pp. 1209-1225, 2016. **Impact Factor = 2.196.**
- J27 E. Oliva, **G. Berselli**, M. Pellicciari. A.O. Andrisano "An Engineering Method for the Power flow Assessment in servo-actuated automated machinery: mechatronic modelling and experimental evaluation" *Robotics and Computer Integrated Manufacturing*, DOI: 10.1016/j.rcim.2015.09.013, vol. 38, pp. 31-41, 2016. **Impact Factor = 3.464.**
- J26 **G. Berselli**, X. Tan, R. Vertechy, "Soft mechatronics: an emerging design paradigm for the conception of intrinsically compliant electro-mechanical systems". *Springer Meccanica*, DOI:10.1007/s11012-015-0307-9, Vol. 50(11), pp. 2261-2262, 2015 (**editorial**). **Impact Factor = 2.196.**
- J25 M. Pellicciari, **G. Berselli**, F. Balugani. "On Designing Optimal Trajectories for Servo-Actuated Mechanisms: Detailed Virtual Prototyping and Experimental Evaluation", *IEEE/ASME Transactions on Mechatronics*, DOI: 10.1109/TMECH.2014.2361759, 20(5), pp.2039-2052, 2015. **Impact Factor = 4.357.**
- J24 **G. Berselli**, G. Scirè Mammano, E. Dragoni. "Design Of A Dielectric Elastomer Cylindrical Actuator With Quasi-Constant Available Thrust: Modelling Procedure and Experimental Validation". *ASME Transactions, Journal of Mechanical Design*, DOI: 10.1115/1.4028277, 136(12), 125001, 2014. **Impact Factor = 2.565.**
- J23 D. Meike, M. Pellicciari, **G. Berselli**. "Energy Efficient Use of Multi-Robot Production Lines in the Automotive Industry: Detailed System Modeling and Optimization", *IEEE Transaction on Automation Science and Engineering*, DOI:10.1109/TASE.2013.2285813, vol. 11, no.3, pp. 798–809, 2014. **Impact Factor = 3.502.**
- J22 **G. Berselli**, A. Guerra, G. Vassura. A.O. Andrisano "An Engineering Method for Comparing Selectively Compliant Joints in Robotic Structures". *IEEE/ASME Transactions on Mechatronics*, DOI: 0.1109/TMECH.2014.2315508, Vol. 19, No. 6, pp. 1882-1895, 2014. **Impact Factor = 4.357.**
- J21 G. Palli, C. Melchiorri, G. Vassura, U. Scarcia, **G. Berselli**, A. Cavallo, G. De Maria, C. Natale, S. Pirozzi, C. May, F. Ficuciello, B. Siciliano. "The DEXMART Hand: Mechatronic Design and Experimental Evaluation of Synergy-Based Control for Human-Like grasping". *SAGE International Journal of Robotic Research*, DOI: 10.1177/0278364913519897, Vol. 33, No. 5, pp 799-824, 2014. **Impact Factor = 5.301.**
- J20 C. Melchiorri, G. Palli, **G. Berselli**, G. Vassura. "Development of the UB-Hand IV: Overview of Design Solutions and Enabling Technologies". *IEEE Robotics and Automation Magazine*, DOI: 10.1109/MRA.2012.2225471, Vol. 20, No. 3, art. No. 6523131, pp.72-81, 2013. **Impact Factor = 3.276.**
- J19 M. Pellicciari, **G. Berselli**, F. Leali, A. Vergnano. "A Method for Reducing the Energy Consumption of Pick-and-place Industrial Robots". *IFAC, Mechatronics*, DOI: 10.1016/j.mechatronics.2013.01.013, Vol. 23, No. 3, pp.326-334, 2013. **Impact Factor = 2.496.**
- J18 **G. Berselli**, R. Vertechy, M. Babic, V. Parenti Castelli. "Dynamic Modeling and Experimental Evaluation of a Constant-force Dielectric Elastomer Actuator". *SAGE Journal of Intelligent Material Systems and Structures*, DOI: 10.1177/1045389X12457251, Vol. 24, No. 6, pp.779-791, 2013. **Impact Factor = 2.255.**
- J17 R. Vertechy, **G. Berselli**, M. Bergamasco, V. Parenti Castelli. "Continuum Thermo-Electro-Mechanical Model for Electrostrictive Elastomers". *SAGE Journal of Intelligent Material Systems and Structures*, DOI: 10.1177/1045389X12455855, Vol. 24, No. 6, pp. 761-778, 2013. **Impact Factor = 2.255.**
- J16 M. Pellicciari, C. Renzi, F. Leali, A.O. Andrisano, **G. Berselli**. "Selecting Alternatives in the Conceptual Design Phase: Application of Fuzzy-AHP and Pugh's Controlled Convergence". *International Journal of Interactive Design and Manufacturing*, DOI: 10.1007/s12008-013-0187-y, vol. 9(1), pp.1-17, 2013. **Impact Factor = 1.280.**
- J15 R. Vertechy, M. Bergamasco, **G. Berselli**, G. Vassura, V. Parenti Castelli. "Compliant Actuation Based on Dielectric Elastomers for a Force-Feedback Device: Modeling and Experimental Evaluation". *Fracture and Structural Integrity*, DOI: 10.3221/IGF-ESIS.23.05, Vol. 23, pp. 47-56, 2013. **Impact Factor = 2.229.**
- J14 G. Palli, C. Melchiorri, G. Vassura, **G. Berselli**, S. Pirozzi, C. Natale, G. De Maria, C. May, "Innovative Technologies for the Next Generation of Robotic Hands". *Springer Tracts in Advanced Robotics*, DOI: 10.1007/978-3-642-29041-1\_4, Vol. 80, pp. 173-218, 2012. **Impact Factor = 0.774.**
- J13 G. Palli, **G. Berselli**, C. Melchiorri, G. Vassura. "Design of a Variable Stiffness Actuator Based on Flexures". *ASME Transactions, Journal of Mechanisms and Robotics*, DOI: 10.1115/1.4004228, Vol. 3, No. 3, pp. 034501(5), 2011. **Impact Factor = 2.371.**
- J12 **G. Berselli**, M. Piccinini, G. Palli G. Vassura. "Engineering Design of Fluid-filled Soft Covers for Robotic Contact Interfaces: Guidelines, Nonlinear Modeling, and Experimental Validation". *IEEE Transactions on Robotics*, DOI: 10.1109/TRO.2011.2132970, Vol. 27, No. 3, pp. 436–449, 2011. **IF = 4.036. Recipient of IEEE I-RAS Young Author Best Paper Award 2012.**
- J11 **G. Berselli**, R. Vertechy, G. Vassura, V. Parenti Castelli. "Optimal Synthesis of Conically-Shaped Dielectric Elastomer Actuators: Design Methodology and Experimental Validation". *IEEE/ASME Transaction on Mechatronics*, DOI: 10.1109/TMECH.2010.2090664, Vol. 16, No. 1, pp. 67–79, 2011. **Impact Factor = 4.357.**
- J10 **G. Berselli**. "Modeling and Simulation of an Inertia-type Infinitely Variable Transmission." *ASME Transactions, Journal of Mechanical Design*., DOI: 10.1115/1.4000454, Vol. 132, No. 3, pp. 0345041-0345045, 2010. **Impact Factor = 2.565.**
- J9 R. Vertechy, **G. Berselli**, V. Parenti Castelli, G. Vassura. "Optimal Design of Lozenge-shaped Dielectric Elastomer Linear Actuators: Mathematical Procedure and Experimental Validation". *SAGE, Journal of Intelligent Material Systems and Structures*, DOI: 10.1177/1045389X09356608, Vol. 21, pp. 503-515, 2010. **Impact Factor = 2.255.**
- J8 M. Babic, R. Vertechy, **G. Berselli**, V. Parenti Castelli, J. Lenarcic G. Vassura. "An Electronic Driver for Improving the Open and Closed Loop Electromechanical Response of Dielectric Elastomer Actuators". *IFAC, Mechatronics*, DOI: 10.1016/j.mechatronics.2009.11.006, Vol. 20, No. 2, pp. 201-212, 2010. **Impact Factor = 2.496.**
- J7 **G. Berselli**, R. Vertechy, G. Vassura, V. Parenti Castelli. "Design of a Single-Acting Constant-Force Actuator Vased on Dielectric Elastomers". *ASME Transactions, Journal of Mechanisms and Robotics*. DOI: 10.1115/1.3147182, Vol. 1, No. 3, pp. 031–038, 2009. **Impact Factor = 2.371.**
- J6 A. Albert, **G. Berselli**, L. Bruzzone, P. Fanghella, "Mechanical Design and Simulation of an Onshore Four-Bar Wave Energy Converter," *Renewable Energies*, 2017. **IF= 2.203.**

**Giovanni Berselli - Curriculum Vitae and Review of Research Activities**

- J5 G. Berselli, P. Bilancia, L. Bruzzone, P. Fanghella “*Re-Design of a Packaging Machine Employing Linear Servomotors: a Description of Modelling Methods and Engineering Tools*” *Procedia Manufacturing*, 2019. **Impact Factor (scimago) = 0.105.**
- J4 P. Bilancia, G. Berselli, G. Palli. “*Virtual and Physical Prototyping of a Beam-Based Variable Stiffness Actuator for Safe Human-Machine Interaction*”. *Robotics and Computer Integrated Manufacturing*, (submitted), 2019. **Impact Factor = 3.464.**
- J3 P. Bilancia, G. Berselli, S. Magleby, L. Howell. “*On the Modeling of a Contact-Aided Cross Axis Flexural Pivot*” *ASME Transactions, Journal of Mechanical Design* (under review).
- J2 P. Bilancia, G. Berselli. “*Design and Testing of a Monolithic Compliant Constant Force Mechanism*”. *Smart Materials and Structures*, (submitted), 2019. **Impact Factor = 3.543.**
- J1 P. Bilancia, G. Berselli, L. Bruzzone, P. Fanghella “*Design Of A Bio-Inspired Contact-Aided Compliant Joint Via Cad/Cae Tools Integration*” *IEEE/ASME Transactions on Mechatronics* (under review).