



## Ing. Paolo Albertelli – Curriculum Vitae

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Paolo Albertelli took the Master Degree in mechanical engineering at Politecnico di Milano in 2004. He got the PhD in Manufacturing and Productions Systems in the same university in 2008 and he got a scholarship at Loughborough University (United Kingdom) in Mechatronic Research Group.

He is a researcher of the mechanical engineering department (manufacturing and production systems) of Politecnico di Milano since December 2011. His research activities is focused on machine tools performance enhancement with special attention to high-speed spindles and cutting process stability. He worked on machine tool mechatronic modelling. He deals with the dynamic interaction between machine tool structure, spindle system and cutting process in order to analyze its effects on cutting vibrations. He is studying cutting process vibration mitigation strategies (i.e. Spindle Speed Variation, Spindle Speed Selection and adaptive cutting parameters selection approach) both in turning and milling operations. He is collaborating in the development of a smart real-time cutting process monitoring and control system for milling applications.

He deals with the optimization of hard-to-cut materials (i.e. titanium alloys) machining with the auxiliary of cutting process Finite Element modelling.

He supervises some projects regarding active spindles with piezoelectric actuators, both for steel and wood working machines. He deals with machine tool energy modeling and with the experimental procedure to perform energetic assessments.

He permanently collaborates with various machine tools manufacturers.



## **Publications**

### ***INTERNATIONAL JOURNALS***

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- [2] Albertelli P., Goletti M., Monno M., A new Receptance Coupling Substructure Analysis methodology to improve Chatter Free cutting conditions prediction, 2013, International Journal of Machine Tool Manufacture, 72 (pp. 16-24) , 2013
- [3] Albertelli P., Elmas S., Jackson M.R., Bianchi G., Parkin R.M., Monno M., Active Spindle System for a Rotary Planing Machine, The International Journal of Advanced Manufacturing Technology, 63 (pp. 1021-1034), 2012
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- [5] Albertelli P., Musletti S., Leonesio M., Bianchi G., Monno M., Spindle speed variation in turning: technological effectiveness and applicability to real industrial cases, The International Journal of Advanced Manufacturing Technology, DOI 10.1007/s00170-011-3790-8, 62 (1), pp. 59-67.

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- [1] Strano M., Chiappini E., Tirelli S., Albertelli P., Experimental evaluation of innovative tools for Ti- 6Al-4V turning, ESAFORM 2013, 22-24 April, Aveiro Portugal.
- [2] M.L. Calvanese, P. Albertelli, A. Matta, M. Taish, Analysis of energy consumption in CNC machining centers and determination of optimal cutting conditions, 20<sup>th</sup> CIRP LCE Conference 2013, [http://dx.doi.org/10.1007/978-981-4451-48-2\\_37](http://dx.doi.org/10.1007/978-981-4451-48-2_37)



- [3] Goletti M., V. Mussi, P. Albertelli, A. Rossi, M. Monno, B. Schiavi, Design, manufacture and performance evaluation of a machine tool ram based on a steel/foam sandwich structure, CELLMAT 2012, 7-9/11/2012 Dresden , Germany
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- [5] Albertelli P., Cau N., Bianchi G., Monno M., An active system for compensation of mill deflection, Mechatronics 2012 Conference, Linz Austria, 17-19 September 2012
- [6] Grasso M., Albertelli P., Colosimo B.M., An Adaptive SPC Approach for Multi-Sensor Fusion and Monitoring of Time-Varying Processes, CIRP ICME2012 Conference, Ischia Italy, 18-20 July 2012
- [7] Albertelli P., Goletti M., Monno M., An improved Receptance Coupling Substructure Analysis to predict Chatter Free high speed cutting conditions, CIRP ICME2012 Conference, Ischia Italy, 18-20 July 2012
- [8] Parenti P., Albertelli P., Cau N., Bianchi G., A Mechatronic study on a model-based compensation of inertial vibration in high speed machine tool, CIRP on Manufacturing Precision Conference, Karpacz Poland , 12-15 March 2012
- [9] Albertelli P., Bianchi G., Bigliani A., Borgia S., Matta A., Zanotti E., Evaluation of the energy consumption in machine tool: a combined analytical-experimental approach, MITIP 2011 Conference, JUNE 22nd-24th, 2011 - Trondheim Norway.
- [10] P. Albertelli, A. Bigliani, G Bianchi, A. Matta, S. Borgia, Evaluation of the energy consumption in machine tools, APMS Conference, Cernobio, October 2010, Italy



- [11] P. Albertelli, G. Faciotti, G Bianchi, M. Monno, Model-Based Design of Electro-Spindles for High Performance Machining, CIRP ICME June 2010, Napoli, Italy
- [12] P. Albertelli, G. Bianchi, N. Cau, M. Monno, Cutting process stability improvement dynamic interaction between process spindle machine control subsystems, CIRP PMI Conference, Vancouver June 2010
- [13] P. Albertelli, M. Leonesio, G. Bianchi, M. Monno, An analytical approach to optimize Sinusoidal Spindle Speed Variation in Milling, Process-Machine Interaction CIRP Conference, Hannover, September 2008
- [14] P. Albertelli, G. Bianchi, M. Monno, Motor-Spindle Modeling and Experimental Characterization. Reggio Calabria 27-28 August 2007, Italy. CIRP workshop 2007

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- [16] Albertelli P., Musletti S., Bianchi G., Leonesio M., Monno M., Effectiveness and feasibility of Spindle Speed Variation in turning, AITeM Conference 2011, 12-14 September 2011, Naples, Italy
- [17] P. Parenti, P. Albertelli, G. Bianchi, N. Cau, Control of inertial vibration in machine tools: a mechatronic feasibility analysis, ANIPLA conference, November 2010, Milan, Italy
- [18] P. Albertelli, M. Leonesio, G. Bianchi, Spindle-Machine Tool interaction and Cutting Process Stability, Montecatini Terme 10-12 Settembre 2007, Italy. AITeM 2007
- [19] N. Cau, P. Albertelli, G. Bianchi Modellazione integrata di una macchina utensile, Motion Control, Milano, Italy, ANIPLA 2007
- [20] P. Albertelli, Soluzioni Innovative nella progettazione di elettromandrini, Milano, Italy. Quality Bridge, BIMU 2006



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- [25] P. Albertelli, M. Goletti, M. Monno, G. Pittalà, P. Parenti, Lavorazioni per asportazione di truciolo del Titanio, Utensili ed Attrezzature, dicembre 2009, Tecniche Nuove.
- [26] P. Albertelli, Soluzioni innovative nella progettazione di elettromandri per High Speed Machining e Stabilità del Processo di Taglio, Utensili ed attrezzature, Maggio, p.40-46, 2007, Tecniche Nuove
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