

Antonio Armillotta

Dipartimento di Meccanica, Politecnico di Milano

Via La Masa 1, 20156 Milano, Italy

Phone: +39-02-23998296, email: antonio.armillotta@polimi.it, web: www.mecc.polimi.it

Education and work experience

1988: Laurea (equiv. Master's degree) in Mechanical Engineering at Università degli Studi di Bari.

1989: Research assistant at Dipartimento di Progettazione e Produzione Industriale, Università di Bari.

1990: Design engineer at Mandelli, Piacenza (CNC machine tools and flexible manufacturing systems).

1991-93: Research assistant at Istituto di Tecnologie Industriali e Automazione, CNR, Milano.

1994-98: Assistant professor at Dipartimento di Ingegneria Industriale, Università di Parma.

1999-2001: Assistant professor at Dipartimento di Meccanica, Politecnico di Milano.

2002-: Associate professor at Dipartimento di Meccanica, Politecnico di Milano.

Teaching

Current topics: manufacturing processes, design for manufacturing (industrial design).

Past topics: geometric tolerancing, manufacturing processes (mechanical engineering); computer-aided design (industrial design); technical drawing (aerospace engineering).

Research interests

Geometric tolerancing (specification, analysis, optimization).

Additive manufacturing (process selection and analysis, software support, extrusion-based process).

Product-process integration (design for manufacture/assembly, cost estimation, simulation, die/mold design).

Collaborations

Member of SME (Society of Manufacturing Engineers) and AITeM (Italian Association of Manufacturing).

Involved in research and teaching projects with industrial companies: ATV, ENEL, ENI, Marposs (coordinator); Artsana, Bruschi, Caggiati, Comau, Fontana Pietro (contributor); Alcatel, Mandelli (assignee of grant).

Reviewer for scientific journals (mainly: Int. J. Advanced Manufacturing Technology, Assembly Automation, Rapid Prototyping J., Computer Aided Design).

Assignee of best paper awards at Int. Conf. on Jetting Technology (1998) and IMechE Medical Engineering Division (2007).

Author of articles for Italian technical magazines (mainly: Progettare, Soluzioni di Assemblaggio, Stampi).

Former member of the managing board of APRI (Italian Association of Rapid Prototyping).

Publications

A. Armillotta, P. Denti, Q. Semeraro, "A method for subassembly stability checking in assembly planning", Proc. Int. Conf. on Flexible Automation and Information Management, Falls Church (1992), 543-554.

A. Armillotta, Q. Semeraro, "Assembly planning in a robot cell environment", Proc. CIM-Europe Annual Conf., Amsterdam (1993), 293-302.

M. Monno, A. Armillotta, "Water Jet Cutting / Abrasive Water Jet Cutting for new and alternative materials", Proc. ISATA Conf.: New and Alternative Materials for the Automotive Industries, Aachen (1993), 127-134.

F. Jovane, L. Alting, A. Armillotta, W. Eversheim, K. Feldmann, G. Seliger, N. Roth, "[A key issue in product life cycle: disassembly](#)", Annals of the CIRP, 43-2 (1993), 651-658.

A. Armillotta, Q. Semeraro, "Automatic generation of task-level plans for robotic assembly", in R.S. Sodhi (ed.), Advances in Manufacturing Systems, Elsevier (1994), 99-105.

A. Armillotta, Q. Semeraro, "Optimal selection of robotic assembly sequences", Proc. Int. Conf. on Computer-Aided Production Engineering, Palermo (1994), 535-544.

- A. Armillotta, G. Moroni, L. Negrini, Q. Semeraro, "Analysis of deterministic positioning on workholding fixtures", Proc. Int. Conf. on Flexible Automation and Intelligent Manufacturing, Atlanta (1996), 274-284.
- F. Jovane, Q. Semeraro, A. Armillotta, "Computer-aided disassembly planning as a support to product redesign", Proc. CIRP Int. Seminar on Life Cycle Engineering, Berlin (1997), 388-399.
- A. Armillotta, Q. Semeraro, "Assessment of destructive operations in disassembly process planning", Int. J. of Flexible Automation and Integrated Manufacturing, 5-1/2 (1998), 57-78.
- A. Armillotta, M. Monno, G. Moroni, "'Rapid' waterjet", Proc. Int. Conf. on Jetting Technology, Brugge (1998), 59-71
- F. Jovane, Q. Semeraro, A. Armillotta, "[On the use of the profit rate function in disassembly process planning](#)", The Engineering Economist, 43-4 (1998), 309-330.
- A. Armillotta, G.F. Biggioggero, Q. Semeraro, G. Moroni, W. Polini, "Tolerance control in workpiece fixturing", Proc. ASME Design Engineering Technical Conferences, Las Vegas (1999), DETC99/DFM-8902.
- A. Armillotta, G.F. Biggioggero, M. Carnevale, M. Monno, "Optimization of rapid prototypes with surface finish constraints: a study on the FDM technique", Proc. Int. Conf. on Management of Innovative Technologies, Piran (1999).
- A. Armillotta, L. Carrino, G. Moroni, W. Polini, Q. Semeraro, "An analytical approach to machining deviation due to fixturing", Proc. CIRP Int. Seminar on Computer-Aided Tolerancing, Cachan (2001), 173-182, and in P. Bourdet, L. Mathieu (eds.), Geometric Product Specification and Verification: Integration of Functionality, Kluwer (2003), 175-184.
- A. Armillotta, E. Capello, R. Franzosi, "Experimental evaluation of spin-cast tools for rapid manufacturing of plastic parts", Proc. Eur. Conf. on Advanced Materials and Processes, Rimini (2001).
- A. Armillotta, G.F. Biggioggero, "Generation of surface texture on rapid prototypes: computational issues and process-related constraints", Proc. Eur. Conf. on Advanced Materials and Processes, Rimini (2001).
- A. Armillotta, "Procedural texturing of triangle meshes for rapid prototyping", SME Tech. Paper, TP04PUB124 (2004).
- A. Armillotta, "Recycling-oriented modeling of product groups", Proc. Int. Symp. on Tools and Methods of Competitive Engineering, Lausanne (2004), 553-562.
- A. Armillotta, D. Mengoli, "Streamlined costing and targeting of product functions in value analysis", Proc. Int. Design Conference, Dubrovnik (2004), 705-710.
- A. Armillotta, G. Moroni, M. Rasella, F. Tagliabue, "Assembly planning of sheet metal dies for automotive parts", Proc. Int. Conf. on Flexible Automation and Intelligent Manufacturing, Bilbao (2005), 81-88.
- A. Armillotta, "[Assessment of surface quality on textured FDM prototypes](#)", Rapid Prototyping J., 12-1 (2006), 35-41.
- A. Armillotta, G. Moroni, M. Rasella, "Positioning of vent holes on sheet metal dies", Proc. Int. Conf. on Flexible Automation and Intelligent Manufacturing, Limerick (2006), 491-498.
- A. Armillotta, G. Moroni, M. Rasella, "[Computer-aided assembly planning for the diemaking industry](#)", Robotics and Computer-Integrated Manufacturing, 22 (2006), 409-419.
- A. Armillotta, Q. Semeraro, "Tolerance specification through automated generation of assembly requirements", Proc. CIRP Conf. on Computer Aided Tolerancing, Erlangen (2007).
- A. Armillotta, P. Bonhoeffer, G. Dubini, S. Ferragina, F. Migliavacca, G. Sala, S. Schievano, "[Use of rapid prototyping models in the planning of percutaneous pulmonary valved stent implantation](#)", Proc. IMechE Part H: J. of Engineering in Medicine, 221-4 (2007), 407-416.
- A. Armillotta, "[Selection of layered manufacturing techniques by an adaptive AHP decision model](#)", Robotics and Computer-Integrated Manufacturing, 24 (2008), 450-461.
- A. Armillotta, R. Pelzer, "[Modeling of porous structures for rapid prototyping of tissue engineering scaffolds](#)", Int. J. of Advanced Manufacturing Technology, 39 (2008), 501-511.
- A. Armillotta, G. Moroni, W. Polini, Q. Semeraro, "[A unified approach to kinematic and tolerance analysis of locating fixtures](#)", ASME J. of Computer and Information Science in Engineering, 10 (2010), 021009.

- A. Armillotta, Q. Semeraro, "[Geometric tolerance specification](#)", in B.M. Colosimo, N. Senin, Geometric Tolerances: Impact on Product Design, Quality Inspection and Statistical Process Monitoring, Springer (2011), 3-37.
- M. Cavallaro, A. Armillotta, M. Moroni, "Additive manufacturing as a potential and functional alternative in foot orthotics production", Proc. Digital Design Manufacturing Conference, Berlin (2012), 148-153.
- A. Armillotta, Q. Semeraro, "[Critical operating conditions for assemblies with parameter-dependent dimensions](#)", Proc. IMechE Part B: J. of Engineering Manufacture, 227-5 (2013), 735-744.
- A. Armillotta, "[A method for computer-aided specification of geometric tolerances](#)", Computer-Aided Design, 45 (2013), 1604-1616.
- A. Armillotta, G. Moroni, W. Polini, "[To analytically estimate the 3D position deviation of a holes pattern due to fixturing](#)", Procedia CIRP, 10 (2013), 186-193.
- A. Armillotta, M. Cavallaro, S. Minnella, "[A tool for computer-aided orientation selection in additive manufacturing processes](#)", Proc. Int. Conf. Advanced Research in Virtual and Rapid Prototyping, Leiria (2013), 469-475.
- A. Armillotta, M. Cavallaro, S. Minnella, "[Evaluation of FDM options for fashion shoe heels manufacturing](#)", Proc. Int. Conf. Advanced Research in Virtual and Rapid Prototyping, Leiria (2013), 641-648.
- A. Armillotta, R. Baraggi, S. Fasoli, "[SLM tooling for die casting with conformal cooling channels](#)", Int. J. of Advanced Manufacturing Technology, 71 (2014), 573-583.
- A. Armillotta, M. Cavallaro, S. Minnella, "Direct digital manufacturing of shoe heels through Fused Deposition Modeling", Proc. Digital Design Manufacturing Conference, Berlin (2014), 148-153, ID1059.
- A. Armillotta, "[A static analogy for 2D tolerance analysis](#)", Assembly Automation, 34-2 (2014), 182-191.
- A. Armillotta, "[Force analysis as a support to computer-aided tolerancing of planar linkages](#)", Mechanism and Machine Theory, 93 (2015), 11-25.
- A. Armillotta, "[Tolerance analysis considering form errors in planar datum features](#)", Procedia CIRP, 43 (2016), 64-69.
- A. Armillotta, S. Fasoli, A. Guarinoni, "[Cold flow defects in zinc die casting: prevention criteria using simulation and experimental investigation](#)", Int. J. of Advanced Manufacturing Technology, 85 (2016), 605-622
- A. Armillotta, M. Cavallaro, "[Edge quality in fused deposition modeling: I. Definition and analysis](#)", Rapid Prototyping J., 23-6 (2017), 1079-1087
- A. Armillotta, S. Bianchi, M. Cavallaro, S. Minnella, "[Edge quality in fused deposition modeling: II. Experimental verification](#)", Rapid Prototyping J., 23-4 (2017), 686-695
- A. Armillotta, M. Bellotti, M. Cavallaro, "[Warping of FDM parts: Experimental tests and analytic model](#)", Robotics and Computer-Integrated Manufacturing, 50 (2018), 140-152