CURRICULUM VITAE
NICOLA SENIN

DEPARTMENT OF INDUSTRIAL ENGINEERING
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EDUCATION

- M.S. in Mechanical Engineering (cum Laude), University of Perugia, 1993.

APPOINTMENTS

- Associate Professor of Manufacturing Processes and Systems, University of Perugia, 2007-present
- Associate Professor of Manufacturing Processes and Systems, University of Parma, 2002-2007
- Assistant Professor of Manufacturing Processes and Systems, University of Perugia, 1998-2002
- Visiting scientist, Computer-Aided Laboratory (CADlab), Massachusetts Institute of Technology (MIT), Cambridge, MA, 1995-1998
- Research assistant, Department of Industrial Engineering, University of Perugia, 1993-1995.

PROFESSIONAL MEMBERSHIPS

- member of the AITEM (Italian Association of Manufacturing Engineers – www.aitem.org): 1998-present.

RESEARCH INTERESTS

- techniques and instruments for measuring the three-dimensional topography of manufactured surfaces at the micro and sub-micro scales with contact probes (contact stylus) and non-contact probes (laser interferometry, laser conoscopic holography), atomic force microscopy, scanning electron microscopy; topography analysis with synthetic descriptors (form, waviness and roughness parameters) and/or with feature-based techniques (development of topography partitioning and feature identification algorithms);

- analysis of the morphologic and structural properties of manufactured surfaces belonging to heterogeneous intrustrial domains, such as biomedical (orthopaedic endoprostheses, and dental implants, leucodepletion filters, blood collection bags, surgical scalpels), mechanical (turbine blades, seals, surfaces subjected to mechanical wear/damage), food processing and storage (food containers, cooking surfaces), textile (woven and non-woven cloth) and forensic (firearm identification through cartridge and bullet analysis);

- analysis of the structural, mechanic and tribologic properties of uncoated and coated surfaces; coating cross-section analysis, hardness, microhardness and scratch testing; design and realization of testing equipment for replicating customized conditions of surface interaction;

- surface coating processes: physical and chemical vapor deposition processes (PVD, CVD), plasma spray; morphologic, structural and mechanical analysis of single and multi-layered thin and thick coatings. Computer aided simulation of material deposition processes;

- surface machining processes: in particular, multi-axis CNC milling processes. Modeling, simulation and planning of the machining cycle with CAD/CAPP/CAM tools. On-line monitoring of tool conditions in CNC milling;

- assembly and disassembly processes, design and optimization of product geometry and surfaces for easing assembly and disassembly operations (design for assembly/disassembly); tools for computer-aided assembly and disassembly planning; Design for X (life-cycle, environmental impact, recycling, disposal, maintenance, etc.).

- concurrent product, process and manufacturing system design; computer-assisted frameworks for sharing and communicating information in multidisciplinary, geographically distributed, industrial environments; issues related to sharing product, process and mfg. system information over network-based infrastructures.

TEACHING EXPERIENCE

- University of Perugia, School of Engineering - Mechanical Engineering Course: Manufacturing Processes and Systems (undergraduate), 2007-present; Computer-aided Manufacturing (graduate), 2007-present. School of Engineering - International Master in Innovation management: Innovation in Manufacturing, 2008-present.
- University of Parma, School of Engineering - Mechanical and Industrial Engineering Courses: Manufacturing Processes and Systems (undergraduate), 2002-2007; Computer-aided Manufacturing (graduate), 2002-2007; Materials Technology (graduate), 2002-2007.
- University of Perugia, School of Engineering - Mechanical Engineering Course: Manufacturing Processes and Systems (undergraduate), 1998-2002; Material Engineering Course: Mechanical Design and Manufacturing (undergraduate), 1998-2002.
- Massachusetts Institute of Technology, School of Engineering, Mechanical Engineering Course, teaching assistant of Prof. David. Wallace for 2.009 Product Development Processes, 1996-1997.
- University of Perugia, School of Engineering – Mechanical Engineering Course: teaching assistant for the classes of Mechanical Design (undergraduate), Manufacturing Processes and Systems (undergraduate), and Computer-Aided Design and Manufacturing (graduate), 1993-1995.

Perugia, Jan 12, 2011

(Nicola Senin)