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RESEARCH

• **Design Methods (Design for Manufacturing and Assembly, Design for Recycle, Design for Remanufacturing, Design for X)**: methods for product and production process development through the integration of different engineering knowledge and design tools.

• **Human - Intelligent System integration**: design of Human Centered Systems, development and testing of Advanced Driver Assistance Systems prototypes aimed at comfort and safety.

• **Simulation Based Design**: simulation methods integrated in a systematic design process, in which simulation tools are used to provide answers to the design problems. The simulation becomes a design tool in the different phases of conceptual and executive design and not only of final verification of the project.

• **Optimization of energy consumption in robotic manufacturing systems**: parametric modelling and virtual prototyping of the energy consumption of individual robotic operations, discrete event modelling and optimization of the complete robotic system.

• **Methods for Virtual Commissioning and for Hardware In the Loop simulation of automatic machines**: integrated simulation and optimization of mechanical systems, electromechanical devices and control logics.

• **Design Archetypes**: systematic design tools for the knowledge based design of mechanical subsystems.

TEACHING

• **Design Methods**: Master Degree in Automotive Engineering - lecturer from A.A. 2019/2020

• **Fundamentals of design and CAD**: Degree in Automotive Engineering - lecturer from A.A. 2019/2020

• **Faculty Advisor for the Mechanics Division of the Formula Student Driverless Team**: learning by doing, from 2018

• **Foundry Engineering Master Class**: Design by Simulation for foundry equipment seminars in the courses of Technology of Metallic Materials and Design Methods - lecturer from A.A. 2018/2019

• **Industrial Technical Drawing**: Degree in Automotive Engineering - lecturer from A.A. 2018/2019 and Degree in Automotive Engineering for Italian Army - lecturer from A.A. 2011/2012 to 2015/2016 and Degree in Mechanical Engineering - teaching assistant from A.A. 2006/2007 to 2013/2014 and lecturer from A.A. 2014/2015 to 2015/2016

• **Bodywork and Automotive Components Design**: Master Degree in Automotive Engineering - lecturer from A.A. 2012/2013 to 2013/2014

• **Machines Design**: Master Degree in Mechanical Engineering - teaching assistant from A.A. 2007/2008 to 2013/2014

• **Integrated Design Methods**: Master Degree in Mechanical Engineering - lecturer for the A.A. 2011/2012

• **Computer Aided Design**: Degree in Computer Engineering - teaching assistant from A.A. 2008/2009 to 2010/2011

• **Mechanical Standard Parts**: Degree in Mechanical Engineering - teaching assistant from A.A. 2006/2007 to 2009/2010

EDUCATION

• **2010 - Research grant** for the project "Integrated design and virtual prototyping of low-energy industrial robotic systems", Robofacturing Design Lab La.PIS, "Enzo Ferrari" Department of Engineering, University of Modena and Reggio Emilia

• **2010 - PhD in High Mechanics and Automotive Design & Technology** - Simulation and Mechanical Design Methods, University of Modena and Reggio Emilia. Thesis: Integrated design methods for intelligent mechanical systems. Tutor: Prof. A.O. Andrisano

• **2009 - Internship at Department of Signals and Systems, Chalmers University of Technology**, Gothenburg, Sweden, for "Manufacturing Automation Design with Optimized Energy Consumption"

• **2006 - Master Degree in Mechanical Engineering**, University of Modena and Reggio Emilia. Thesis: Robust Design Methods for the optimization of an automotive transmission turret. Stage at Union s.r.l., Carpi MO, CAD, CAM, DFMA, quality and control

• **2004 - Mechanical Engineering Degree**, University of Modena and Reggio Emilia. Thesis: Modal analysis and nonlinear dynamics of thin walled structures. Internal project in the Vibration Analysis Laboratory, University of Modena and Reggio Emilia