Valerio Villa Curriculum Vitae

TRAINING

Mechanical Engineering Degree.
Achieved in 1996 at the Faculty of Engineering - University of Brescia
Degree thesis in the field of on vehicle dynamics entitled: "Numerical model of the dynamic behavior and longitudinal direction of high performance and n-wheel drive vehicle."
Advisor: Prof. D. Cambiaghi; Co: P. Eng Tutzer (Technical Director Bugatti Automobili); Controrelatore Prof. F. Cheli (Politecnico di Milano).

Technical high school.
Mechanics specialization.
Achieved in 1986 at: ITIS "Marzoli" of Palazzolo sull'Oglio (BS).

WORK EXPERIENCE

From 01 November 2002 up to now.
Researcher for the disciplinary field of science "ING-IND/15 - Design Methods and Industrial Engineering" at the Faculty of Engineering - University of Brescia.
Confirmed in the role on 01 November 2005.

From 01 October 1998 to 30 October 2002.
Graduate technician, part-time 50%, for the Mechanical Engineering Department - University of Brescia.
Involved in scientific and educational activities.

From 1997 to 2003.
Freelance engineer.
Consulting, design, construction and test of special machines, test benches, equipment for space (including a unit for remote housing of mice in microgravity conditions, a feasibility study for a Martian soil drilling facility, an automatic cultivation machine to grow micro-animals designed to run on an orbiting station). Contributions to the design of large tooling machine (architecture, engineering, detection and elimination of vibration causes).
Industrial design experiences: development and patent (patent application No. MI2002A002591 – 06 December 2002) of a polymer compass with a flexure hinges mechanism.

From 1986 to 1996
Design of plastic molds and production equipment, new products development for "Stampilite": a company based in Palazzolo sull'Oglio (BS) (activity performed during the university period).

RESEARCHES

Valerio Villa researches activity cover the following topics:
- Design of special machines, test benches and mechanical equipment for research;
- Design of mechanical equipment for the independent mobility and rehabilitation of disabled people;

- Design of miniaturized mechanical machine;
- Virtual modeling of the human body for technical aims;
- Documentation and technical communication;
- COST Action 349 - The Accessibility of Coaches and Long Distance Buses for People with Reduced Mobility (European Cooperation);
- Analysis of behavior effects of the geometric properties of the products and their illustration.

Below are described in more detail the projects that have involved Valerio Villa.

Design of special machines, test benches and mechanical equipment for research.

Design of miniaturized mechanical machine.
This activity, performed from 2002, concerns the design of miniaturized mechanical machines. The topic attracted the attention of Laben, an aerospace filed company based in Milan. Laben funded a 12 months research grant started in April 2003.
Later, in 2006 and 2007, Valerio Villa coordinated the design and construction of a miniaturized sample loading device suitable to be placed in a micro X-ray diffractometer The device is currently operating in the Chemical for Technology Laboratory of the Engineering Faculty of Brescia. The project was funded with a PRIN-2005 fund coordinated by a work unit of the Medicine Faculty of the University of Brescia. One of the purposes of this project was the mechanical characterization of biological and biocompatible materials.

COST Action 349 (European Cooperation).
For this activity, performed from January 2002 to October 2005, Valerio Villa was entitled as Italian technical delegate for the “Working Group 01 - Vehicle Design and Safety” for the COST Action 349 (The Accessibility of Coaches and Long Distance Buses for People with Reduced Mobility) as part of the program COST - European Co-operation in the Field of Scientific and Technical Research.
The COST Action 349, officially began on March 21, 2002 and foreseen last of 4 years, had a European scope and was charged to analyze and propose technical and regulatory solutions for the accessibility problem for inter-urban buses and coaches for the people with reduced mobility (disabled, elderly, children, etc.). The results was presented to the industrial operators during the exposition "Busworld" held in Kortrijk (Belgium) on October 25, 2005. The recommendations, contained in the final report, will be included in a future European Union Directive.

Virtual modeling of the human body for technical use.
This activity, performed from 2000 to 2004, covered the scientific setting and the operative collaboration in the design of a virtual model of the human body for technical use.
On this topic there have been interesting response from the aerospace field and from the garment field, in the latter area a PRIN project, in collaboration with the University of Bergamo, Florence and Milan Polytechnic, was funded in 2003.

Research Project MarGO
This activity, performed from 2000 up to now, regarded the design of an innovative "general purpose" light car but easily accessible especially by a driver with reduced mobility (on wheelchair). The project has focused on conceptual design, feasibility study, preliminary design, subsystems detailed design and construction of some device for the suspension tuning.

Research Project TeDriS - Tetraplegic Driving System.

This activity, performed since 1997, covered the design and the prototyping of an innovative mechanical system aimed to getting on and off the driver car seat a disabled quadriplegic person in his wheelchair.

Technical documentation and communication.
This activity work, performed since 1999, focused on the development of modular methodologies for the development of technical documentation (instructions manual for mechanical equipment, test reports, etc.)..

IKEA agreement.
Valerio Villa is the scientific responsible of an agreement, whose bureaucratic process is under process, to be done between the of Mechanical Engineering Department - University of Brescia and the Italian branch of IKEA. The activity subject will be the extended confirmation of the theory called "Broken Symmetry ", partly already confirmed on data coming from IKEA. Through the use of this theory will be possible to predict the level of the products appreciation through the analysis of the geometric properties of the products or their pictures present on the documentation (catalog and Web site).

TEACHING ACTIVITIES

Valerio Villa started the teaching activities in 1997 as an assistant for the Machines Design classes held at the Engineering Faculty of the Brescia University. The activity continued until 2003/2004.
Since 2004 Valerio Villa has been in charge of several classes of Mechanical Design and Technical Communication at the Engineering Faculty of Brescia.
From 2003/2004 to 2008/2009 he has been in charge for classes of Technical Drafting Teaching at the SILSIS - University of Bergamo.
From 2008/2009 Valerio Villa has been in charge for classes of Machine Design at the Engineering Faculty of the University of Pavia.