

PERSONAL INFORMATION

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Nationality: Italian
Date of birth: 05.10.1979
Place of birth: Lecco
Marital status: Married

EDUCATION

Scientific High School Degree : July 1998, Liceo Scientifico Alessandro Volta di Lecco; grade 52/60.

University Degree in Aerospace Engineering : 23 July 2004 , at Politecnico di Milano, grade 86/100.

Dissertation Title : “*Safety in the gravitaional propelled Vehicles*”. Supervisor: Ing. G.Janszen.

Philosophiæ Doctor in Aerospace Engineering : 5 March 2010 , at Politecnico di Milano,

Dissertation Title : “*Smart Structures in Instrumentation for Astronomy*”. Supervisor: Prof. G.Sala.

SOFTWARE KNOWLEDGE

Operative Systems: Windows, Linux, Unix;

Programming language: Matlab, Labview, C++;

C.A.D./C.A.M. : Autodesk Inventor, Pro/Engineer, Catia, Solid Designer, EdgeCam;

F.E.A. : Femap - Patran / Nastran, Abaqus;

Multibody : VeDyAC;

Optical Design and raytracing : Zemax;

Other : Latex (+Beamer), Word, Excel, Powerpoint;

LANGUAGES

Italian: mother language;

English: T.O.E.F.L. certificated;

WORKING EXPERIENCES

- Collaboration with the Department of Aerospace Engineering of the Politecnico di Milano in the L.A.S.T. (Safety Vehicle Lab.) in the role of “Quality Manager”. Such a role was enlarged to the set-up and check of the testing facilities mainly oriented to the approval of aeronautical safety systems. During this periods I’ve gained experience in the setting up of most of the crash test configurations in terms of instrumentation and data post processing.

A previous activity in the field of safety vehicle related to the master thesis work has been focused on the manufacturing of Glass Fiber Reinforced Plastic large structures. It has been deeply investigated the technologies related to the manufacturing of glass fiber structures. The activity implied the realization of a bob-car cockpit mold laminated directly on the original one; the manufacturing of the twin cockpit has been done taking into account also the wood reinforcing component.

- The Ph.D. activity has been focused onto the investigation of the portability of “*smart technologies*”, in the design of astronomical instrumentation (ground and space based).

One of the main arguments is the investigation of a possible technology for replicating optical components via composite materials, in order to have a considerable improvement in the lightweighting and scale production of optical elements. The other issue is focused onto the analysis of technological solutions regarding composites materials, and in detail the embedding of Piezoelectric and Shape Memory Alloy based actuators. Last but not least the investigation about the proper Finite Element modeling techniques for those strongly non-linear materials including experimental correlations and performance predictions.

- Employed since January 2005 at the Astronomical Observatory of Brera Milano as responsible for FEA thermo/elastic analysis and optomechanical design for astronomical instrumentations. Followed the interface between the design phase and the manufacturing of several opto-mechanical systems and a strong relationship with the mechanical workshops. Gathered experience in integrated opto-mechanical design combining Finite Element Analysis and raytracing to predict real optical performances of optical systems. Performed the activity due for the final delivering of the systems.
- Worked in details on the following projects (**successfully closed**):

X-Shooter: a mid-resolution tri-arm (UVB, VIS, NIR) spectrograph (delivered to E.S.O. and fully operative onto VLT):

Design: of passive support system of VIS and UVB arms;

F.E.A.: static and thermal of the whole VIS and UVB spectrograph;

Integration I: Mounting and pre-alignment of the passive support system of VIS and UVB arms;

Integration II: Basic management of the software and electronic equipments;

Integration III: Installation of a thermal cover for the stabilization of the performance;

Test: Preliminary thermal test and complete Static gravitational tests onto both the subsystems and the whole spectrograph performed via an own designed Telescope Simulator (see below);

Do.Lo.Res.: the low resolution spectrograph of the Italian National Telescope (Galileo):

VPHG upgrade: Designed, assembled and aligned the Integrated for the VPHG designed for this instrument, then I have installed them onto the telescope and participated in the calibration phase;

Ge.Co.II: Designed, assembled and aligned the Ge.Co.II: a new gravitational optical corrector for the flexures of the whole instruments;

Te.Si.: The Te.Si. is a Telescope Simulator designed starting from a van-engine handling device.

Mechanical Design: Redesigned the device adding a second orthogonal rotating arm;

Electronic Equipment: Upgraded the console with a Labview programmed remote control system.

EELT Coude train: Commissioned for a preliminary performance analysis of the EELT Coudé train related to the EELT 1st generation instrument: *CODEX*

EELT Test Camera: Commissioned for the preliminary opto-mechanical design of the Test Camera of EELT.

- Currently working in details on the following projects:

Euclid: NISP is a spettro photometer payload of the Euclid Space Telescope:

Phase 1-2: Designed a preliminary mechanical set up for the slitless configuration;

Phase A and following: WP manager of the Grism Wheel Assembly and Mechanism architect.

Espresso@VLT: WP manager of the Front End Unit, responsible of desing prcurment and Integration of the four Front End modules and the toggling system.

SIT 2011: Responsible of an INAF-SIT 2011 funded project to develop a new concept for amateur alt alt telescopes.

M4@EELT: in the framework of the Microgate-ADS proposal for EELT's M4 unit: responsible for the optomehcanial design of the optical metrology system (Interferometric tower) of the M4 unit of the EELT.

MTG-LI: in the framework of the CGS proposal for Meteosat Third Generation Lightning Imager: responsible for the mehcniial design, structural analysis, procurement and AITV of the Lightning optical unit.

Dmd@TNG: Responsible of the Optomechanical design of the italian contribution to the DMD based spectrograph to be installed as Visiting Instrument @ TNG (partially Funded by INAF-TecnoPRIN 2009)

CGH for Interferometric metrology: Responsible of the Optomechanical design and procurement related to the Computer Generated Hologram for Interferometry Metrology project Funded by INAF-Tecno PRIN 2010.

OTHER ACTIVITIES

- I have been a Boy Scout for more than fifteen years, where I've been responsible the whole local unit (Cernusco Lombardone). This experience gives me a good team-working skill.
- I practice trekking and cycling.
- I attended the base course for Civil Protection

updated 01 January 2012

Marco Riva