



Europass Curriculum Vitae

Personal information

First name / Surname **Niccolò Baldanzini**

Address (work)

Telephone

E-mail

Nationality

Date of birth

Work experience

Dates 2015 – present

Occupation or position held Associate Professor

Main activities and responsibilities

- Research topics: road safety of Powered Two Wheelers (motorcycles), bicycles and cars; mobility; noise and vibration (incl. structural dynamics); vehicle engineering (incl. human factors).
- Fund raising and project management.
- Coordination of a research group.
- Tutoring master students and Ph.D. candidates.
- Teaching: “Progettazione Assistita dal Calcolatore” (Masters in Mechanical Engineering and Energy Engineering), “Modellistica numerica avanzata nella progettazione meccanica” and “Laboratorio di modellistica avanzata nella progettazione meccanica” (Master in Mechanical Engineering).

Name and address of employer Università degli Studi di Firenze, Firenze, Italy

Type of business or sector Higher education & research

Dates 2005 – 2015

Occupation or position held Assistant Professor

Main activities and responsibilities Research in: road safety of Powered Two Wheelers (motorcycles) and cars; mobility; noise and vibration (incl. structural dynamics); vehicle engineering. Fund raising and project management. Coordination of a research group. Teaching: “Progettazione Assistita dal Calcolatore” (Masters in Mechanical Engineering and Energy Engineering).

Name and address of employer Università degli Studi di Firenze, Firenze, Italy

Type of business or sector Higher education & research

Dates 2004

Occupation or position held Researcher

Main activities and responsibilities Research in: road safety of Powered Two Wheelers; noise and vibration (incl. structural dynamics). Fund raising. Coordination activities of young researchers.

Name and address of employer Università degli Studi di Firenze, Firenze, Italy

Type of business or sector Higher education & research

Dates 2000 – 2003

Occupation or position held Laboratory technician

Main activities and responsibilities Organization of experimental activity in structural dynamics, and noise and vibration, safety.
 Name and address of employer Dipartimento di Meccanica e Tecnologie Industriali, Università degli Studi di Firenze, Firenze, Italy
 Type of business or sector Higher education & research

Dates 1999

Occupation or position held Visiting researcher within the Thematic Network Project "SEANET"

Main activities and responsibilities Research activity on Statistical Energy Analysis

Name and address of employer LMS International, Leuven, Belgium

Type of business or sector Engineering

Education and training

Dates 1997 – 2001

Title of qualification awarded Ph.D. in Machine Design

Principal subjects Specialized in dynamics and structural optimisation, with numerical and experimental methods.

Name and type of organisation providing education and training Dipartimento di Meccanica e Tecnologie Industriali, Università degli Studi di Firenze, Firenze, Italy

Dates 1990 – 1997

Title of qualification awarded Laurea in Mechanical Engineering, 5-year course, honors degree

Principal subjects Fundamentals of mechanics, thermo-fluid dynamics, industrial technologies and processes.

Name and type of organisation providing education and training Faculty of Engineering, Università degli Studi di Firenze, Firenze, Italy

Personal skills and competences

Mother tongue Italian

Other language(s)

Self-assessment

European level (*)

English

French

Understanding				Speaking				Writing	
Listening		Reading		Spoken interaction		Spoken production			
C2	Proficient User	C2	Proficient User	C2	Proficient User	C2	Proficient User	C2	Proficient User
B2	Independent User	B2	Independent User	B2	Independent User	B2	Independent User	A1	Basic User

Common European Framework of Reference for Languages

Organisational skills and competences

I co-funded and I am co-coordinating a research group, focused on the research topics listed in my current position. The involvement in research projects, mainly EU funded projects, allowed me to develop management skills, which include leadership qualities, activity planning, organization and management of meetings.

Technical skills and competences

Research activity mainly refers to the following thematic areas: road safety of Powered Two Wheelers; mobility; noise and vibration; vehicle engineering. Technical skills include design and virtual testing of systems/devices/components and experimental testing of the concepts, as well as the identification and analysis of user needs. All these themes were developed mainly with the involvement in research projects.

Road safety of Powered Two Wheelers

Competences in this area range from passive to active safety, including integrated safety. Research activities comprise the development of innovative personal protective equipment (patent for a new helmet in co-ownership with Dainese as a result of the APROSYS SP4 project), road restraint systems, design of passive safety features for two wheeled vehicles, definition of the decision logic and deployment strategy of integrated safety devices, but also of human machine interface devices (e.g. haptic handlebar and adaptive road tracking headlight). These activities are complemented by behavioral studies of riders in controlled situations as well as with naturalistic methodology. The research projects in this area and the related role are:

- APROSYS (Advanced PROtection SYStems – 6FP): member of the research team;
- APSN (Advanced Passive Safety Network – 6FP): leader of the User Group on motorcycle safety; leader of Objective 5 – Exchange and training of researchers;
- PISa (Powered two-wheelers Integrated Safety – 6FP): member of the research team;
- MYMOSA (MotorcYcle and Motorcyclist Safety – 6FP): leader of workpackage on integrated safety;
- SAFERIDER (Advanced Telematics for enhancing the safety and comfort of motorcycle riders – 7FP): coordinator of the local research team;
- 2BESAFE (2-Wheeler Behaviour and Safety – 7FP): coordinator of the local research team and leader of the workpackage on Naturalistic Riding Studies;
- SMART RRS (Innovative concepts for smart road restraint systems to provide greater safety for vulnerable road users – 7FP): member of the research team;
- eSum (European Safer Urban Motorcycling – 7FP): member of the research team;
- MOTORIST (Motorcycle Rider Integrated Safety – 7FP): member of the research team;
- RASIF (Road Accident Serious Injuries in Florence – 7FP): member of the research team;
- RESOLVE (Range of Electric Solutions for L-category Vehicles – H2020): member of the research team responsible of vehicle crashworthiness;
- MEBESAFE (Measures for Behaving Safely in Traffic – H2020): coordinator of the local research team and scientist in charge of the PTW data processing.
- PIONEERS (Protective Innovations of New Equipment for Enhanced Rider Safety – H2020): coordinator of the local research team and responsible of pre-crash braking and vehicle crashworthiness.

Mobility

In this area two subtopics are included: green mobility (e.g. electric vehicles and lightweighting) and mobility of older people. Activities range from the study of electric and electrified vehicles (e.g. innovation of vehicle structure; development and exploitation of new lightweight materials; battery management systems; driving cycles) to the identification of mobility needs for elderly and the development of a research map for the coming decades. The research projects in this area and the related role are:

- GRESIMO (Best Training for Green and Silent Mobility – 7FP): member of the research team;
- ENLIGHT (Enhanced Lightweight Design – 7FP): member of the research team;
- ASTERICS (Ageing and efficiency Simulation & TESTING under Real world conditions for Innovative electric vehicle Components and Systems – 7FP): member of the research team;
- GOAL (Growing Older, stAying mobiLE: Transport needs for an ageing society): coordinator of the local research team and leader of the workpackage on Future mobility scenarios;
- MUSS (Sustainable and Safe Urban Mobility – Industria 2015 / Italian national funding): member of the research team, responsible for the vehicle safety development.
- IMPROVE (Integration and Management of performance and Road Efficiency of Electric Vehicle Electronics – FP7): member of the research team

Noise and vibration

Research is focused on the development of numerical methods to model the effect of structure uncertainties on the vibroacoustic response in the mid- and high-frequency range. Recent activities are linked to the MIDMOD project (Mid-frequency vibro-acoustic modelling tools – Innovative CAE methodologies to strengthen European competitiveness – 7FP), where I am member of the research team, and to the PV MOREDE project (Photovoltaic panels MOBILE REcycling Device), where I supervised the virtual development activity related to the vibrational behavior of the whole system. Previously two biennial Italian national research projects were funded, always on the investigation of uncertainties in the mid-frequency range (“Metodi innovativi per l'analisi e il controllo di sistemi vibroacustici”, 2003; “Modellazione dinamica e controllo di strutture meccaniche complesse caratterizzate da parametri incerti”, 2005).

Vehicle engineering

Relevant skills are in the area of concept modeling, initiated during the Ph.D. activity. Previous competencies led to the involvement in the VECOM (Vehicle Concept Modeling – 7FP) project, where I am coordinating the task on structural “Vehicle body & chassis”. The project is a PEOPLE network for training of Early Stage Researchers and, within the scheme, I am also the tutor of two Ph.D. students. Other competences refer to the area of car safety and lightweighting, which led to the participation in the ENLIGHT (Enhanced Lightweight Design – 7FP) project: in this project I coordinated the activities of virtual simulation. A further topic in vehicle engineering is sustainable mobility, where I participated to the ASTERICS (Ageing and efficiency Simulation & TESTING under

Real world conditions for Innovative electric vehicle Components and Systems) project as a member of the research team.

Computer skills and competences

- Finite element software (and pre-/post-processing): ANSYS, Patran, Radioss, Hypermesh, Femap, and Nastran.
- Data acquisition software: CADA - X, Labview, Virtual Lab.
- Data acquisition hardware: Scadas III (LMS International), CL-5016 (Instrumentation Devices).
- Data processing: Matlab and proprietary software.
- Operative systems: Windows, Linux, Unix, Mac OS X.
- Management of a computing cluster.

Additional information

APPOINTMENT

- Representative of the University of Florence within EARPA (European Automotive Research Partners Association; www.earpa.org).
- Representative of the University of Florence within ISN (Integrated Safety Network).

PATENTS

- F. Bellagamba, C. Bianchi, M. Carfagni, N. Baldanzini, European Patent EP 1 619 973 B1, "Machine for cutting boards, natural leather, reclaimed leather, synthetic and plastic materials, for producing semi-finished products for footwear and the like"
- M. Pierini, N. Baldanzini, A. Scippa, F. Lorenzi, R. Parissenti, European Patent EP 2 312 961 B1, "Improved helmet"
- N. Baldanzini, G. Bencini, M. Pierini, Italian Patent 0001388140, "Dispositivo di interazione tattile per veicoli motorizzati a due o tre ruote e utensili".
- N. Baldanzini, M. Pierini, G. Savino, brevetto nazionale, Italian Patent 0001391142, "Dispositivo di illuminazione ad inseguimento del percorso da impiegarsi su veicoli motorizzati ad ampio rollio e beccheggio, e metodo ad esso associato".
- M. Pierini, N. Baldanzini, A. Giorgetti, S. Piantini, C. Monti, European Patent EP 2 875 255 A1, US Patent US 9,399,495 B2, "Steering head for motorcycles integrating steering damping means".