

EUROPEAN
CURRICULUM VITAE
FORMAT



PERSONAL INFORMATION

Name
Address

Telephone Office
Fax
E-mail

Nationality
Date of birth

FABRIZIO MAZZETTO

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fabrizio.mazzetto@unibz.it

WORK EXPERIENCE

- Dates (from – to)
- Name and address of employer
 - Type of business or sector
 - Occupation or position held
- Main activities and responsibilities

1.10.2010 - present

Free University of Bozen-Bolzano – Faculty of Science and Technologies (FaST-FUB)
University Teaching and Research

FULL PROFESSOR – Scientific Disciplinary Sector: **AGR/09 – MECCANICA AGRARIA**

☐ Teaching: *Farm Machinery and Mechanization* (6 CFU, Bachelor in Agric.Sciences; from a.y. 2010-11-present); *Rural Technology Systems* (6CFU, Master in Environmental Management of Mountain Areas; from a.y.2014-15-present); *Information Technologies for Farm Mechanization* (6 CFU, Bachelor in Agric.Sciences; a.y. 2010-11); *Basics of Information Technologies for Fruit Sciences* and *Fundamentals of Precision Horticulture* (3 CFU, Master in Fruit Sciences; from a.y. 2011-12 to a.y. 2012-13)

☐ Research: principal investigator of 10 research projects in the period 2010-2016 (*farm machinery prototyping, farm activity monitoring and EPD-certification, LCA assessment of farm processes, monitoring tractor engines efficiency, biogas production, environmental monitoring at field/parcel scale*)

☐ Institutional activities: Responsible of the FaST Research Commission; Responsible for the definition of the research line on Alpine Technologies at the new Technological Park – Bolzano; Member of the Evaluation Board of the Free University of Bolzano

- Dates (from – to)
- Name and address of employer
 - Type of business or sector
 - Occupation or position held
- Main activities and responsibilities

2.1.2013 – 30.09.2017

Free University of Bozen-Bolzano – Faculty of Science and Technologies (FaST-FUB)
University Teaching and Research

RESEARCH VICE-DEAN

☐ Responsible for the coordination of research at the FaST-FUB, among the different research macroareas of the Faculty

- Dates (from – to)
- Name and address of employer
 - Type of business or sector

1.10.2000 – 30.09.2010

University of Milan – via Festa del Perdono, 7 – 20122 MILANO (*Department of Agricultural Engineering*)

University Teaching and Research

<ul style="list-style-type: none"> • Occupation or position held • Main activities and responsibilities 	<p>ASSOCIATE PROFESSOR – Scientific Disciplinary Sector: AGR/09 – MECCANICA AGRARIA</p> <ul style="list-style-type: none"> ❑ <u>Teaching</u>: main courses held: <i>Agricultural and Forestry Mechanization</i> (6 CFU, Bachelor in Environment and Landscape Mountain Valorization); <i>Information Technologies for Farm Management</i> (6 CFU, Master in Agri-Environmental Sciences); <i>Planning and Management of Farm Mechanized Processed</i> (4 CFU, Master in Agric. Sciences and Technologies). ❑ <u>Research</u>: organizing researches on farm machinery modeling, information management practices and precision farming applications
<ul style="list-style-type: none"> • Dates (from – to) • Name and address of employer • Type of business or sector • Occupation or position held • Main activities and responsibilities 	<p>27.03.1990 - 30.09.2000</p> <p>University of Milan – via Festa del Perdono, 7 – 20122 MILANO (<i>Institute of Agricultural Engineering</i>)</p> <p>Research and Assistance to University Teaching</p> <p>RESEARCHER – Scientific Sector: G05B – MECCANICA AGRARIA</p> <p>Researches on farm machinery modeling and use of renewable energy sources at farms; designing of farm integrated energy systems. Teaching Assistance in the courses of Farm Machinery, Computer Sciences and Mathematics.</p>
<p>EDUCATION AND TRAINING</p>	
<ul style="list-style-type: none"> • Date • Name and type of organisation providing education and training • Principal subjects/occupational skills covered • Title of qualification awarded 	<p>September 1990</p> <p>University of Milan – Inst.of Agric.Engineering</p> <p>Post-graduate studies in engineering disciplines (focusing on Mathematical Analysis, Computer Sciences, Electrical and Energy Technologies, Construction Machinery with designing activity) applied to biological, agricultural and livestock contexts. PhD thesis on the <i>development of a model to design and assess farm integrated energy systems</i>.</p> <p><u>PhD in Agricultural Engineering</u></p>
<ul style="list-style-type: none"> • Date • Name and type of organisation providing education and training • Principal subjects/occupational skills covered • Title of qualification awarded 	<p>November 1985</p> <p>University of Milan – Public qualification to practice the profession of <u>Agronomist</u></p> <p>All the professional disciplines included in the National Register of Doctors Agronomist</p> <p><u>Doctor Agronomist</u></p>
<ul style="list-style-type: none"> • Date • Name and type of organisation providing education and training • Principal subjects/occupational skills covered • Title of qualification awarded 	<p>July 1983</p> <p>University of Milan – Faculty of Agricultural Sciences; achievement of the 5yr Master Degrees on Agricultural Sciences</p> <p>Study plan with disciplines oriented to engineering, economic and animal-science topics. Master thesis on the <i>development and test of an air-heater solar collector for forage drying</i></p> <p><u>Master in Agricultural Sciences</u></p>
<ul style="list-style-type: none"> • Date • Name and type of organisation providing education and training 	<p>July 1977</p> <p>Scientific High School at Liceo Scientifico Statale di Legnano (MI)</p>

**PERSONAL SKILLS
AND COMPETENCES**

MOTHER TONGUE

ITALIAN

OTHER LANGUAGES

- Reading skills
- Writing skills
- Verbal skills

ENGLISH

Excellent
Good
Good

FRENCH

Good
Basic
Basic

GERMAN

Basic
In learning
In learning

In the studies undertaken in the 3-yrs PhD period ('87-'90), he had the occasion of refining his scientific preparation on engineering topics as well as on information technologies matters. The latter have been faced from both a theoretical (*systems theory*) and practical (*programming and operations research, computational sensors and systems*) point of view. That enabled the autonomous development of analytical tools for the assessment and evaluation of different types of problems (*simulation models and decision support systems*) that he used, from a methodological standpoint, in all the studies he then carried out on the issues typical of his scientific disciplinary sector. These themes are summarized in the following three lines of research.

FARM MACHINERY

- ❑ Studies on the use of various types of farm machinery on hilly and mountain environments, with particular reference to the equipments for soil tillage and seeding, transplanting, cereal and forage harvesting, post-harvest techniques (including forage drying and conservation methods), management of dairy-cow livestock with special focus on effluent treatment and spreading.
- ❑ Studies on the use of machines and tools for meadows and turf grass in urban and recreational environments.
- ❑ Designing, developing and testing new devices for the use of information technologies on tractors and equipments, with special reference to the following issues: use of GPS/DGPS receivers for swath guidance applications, monitoring activities and high accuracy operations (transplanting); sensors for the operative monitoring of farm processes; identification systems for the automated detections of farm operations; cereal yield mapping systems; development of ground-sensing devices for automating crop monitoring activities in vineyard.
- ❑ Development of automated systems for the operational control of some machines (automatic guidance and transplanters).
- ❑ Development of small tractors based on a new type of constructing architecture, to be used on situations of extreme slopes.
- ❑ Development of testing methodologies for checking actual stability conditions of tractor-implement combinations on sloped context, in static and dynamic conditions.

AGRICULTURAL MECHANIZATION

- ❑ Studies on the organization of farm production processes at different scale (single tractor/equipment combination; mechanization chain with sequences of operations in specific tasks; whole farm machinery set).
- ❑ Definition of a *farm ontology* for modelling and management applications, able to provide a coherent conceptual contextualization of the production environment in which machines are used.
- ❑ Simulation of the performances of the machines while working in a field, as well as of stationary plants carrying out specific processes at the farm centre; this including the evaluations of all the possible tractor/implement combinations in terms of *power requirements, fuel consumptions, externalities released* into the environment, effects on product yields. An estimation of *work times* and *exercise costs* is always provided.
- ❑ Development of *decision support system for agricultural mechanization*, dealing with farm machinery selection, planning and scheduling problems. Development of *multicriteria evaluation models* to be used in strategic designing of farm resources as well as in comparing alternative management solutions.
- ❑ Application aspects of *information management* and *precision farming systems*: development of the so-called Computerized Farm-Registers, based on the automatic detection of all the mechanized processes carried out at the farm (including hardware and software components) and designing of Farm Information Systems. Application of these solutions in arable and mixed farming systems (including viticulture), with particular reference to the automatic detection of slurry spreading activities in vulnerable areas.
- ❑ Application of unmanned aerial vehicles (UAV) to perform crop monitoring tasks in farm management and precision agriculture.

**SCIENTIFIC SKILLS
AND COMPETENCES**
(continue...)

ENERGY AND AGRI-ENVIRONMENTAL ISSUES

- ☐ Farm installation and use of renewable energy technologies, with related test on their performances. Forecasting and monitoring of energy consumptions at farms. Application of heat pumps in dairy-cowsheds and in forage drying. Use of air-solar collectors in air heating for low-temperature drying of products. Application of micro-hydro power generators in hilly farming.
- ☐ Designing and construction of farm integrated energy systems. Development of decision support systems for selecting, sizing and managing energy plants.
- ☐ Development of environmental impact evaluation models for hydro generators, based upon multicriteria approaches
- ☐ Designing and construction of farm integrated energy systems. Development of decision support systems for selecting, sizing and managing energy plants.
- ☐ Analysis of the farmers' adoption processes of the cross-compliance PAC measures, through the development of cognitive maps defined by land surveys and multiagent modelling applications.
- ☐ Comparative evaluation of phytoremediation techniques by modelling and multicriteria approaches.
- ☐ .Analysis of agricultural sustainability of cropping systems in arable and dairy farms in intensively cultivated plain and in mountain areas.
- ☐ Development of methods to perform environmental monitoring tasks in mountain areas.

**OTHER ACADEMIC
RESPONSIBILITIES AT FUB.**

- ☐ **Member of the PhD Teaching Board in Management of the Mountain Environment (DOT10C3958), at the Free University of Bolzano; (January 2011 - present)**
- ☐ Responsible of the FaST Research Commission (November 2010-December 2013);
- ☐ Appointed by the Rector to develop the study "Gli ambiti di ricerca del futuro Parco Tecnologico di Bolzano" for the Alpine Technologies sector (November 2011-June 2012).
- ☐ Vice-coordinator of the Capacity Building contract for the Technology Park of Bolzano – Alpine Technologies (Sviluppo della Ricerca tecnologica, Convenzione programmatico-Finanziaria con la Provincia Autonoma di Bolzano, 2013-2016) (September 2013-present).
- ☐ Member of the Examining Commission for the state habilitation to the profession of Agronomist/ Doctor on Forestry, at the Free University of Bolzano; (June 2012 - present).
- ☐ Member of the FUB Evaluation Board (Nucleo di Valutazione) (January 2012 – March 2016).

**SOCIAL SKILLS
AND RELATED COMPETENCES**

Mainly achieved with educational activities, as well as with professional activities carried out outside the university environments.

EDUCATIONAL ACTIVITIES

October 1984 – June 1998: Teaching Assistant organizing seminars, exercise, lectures within the course of *Farm Machinery and Mechanization, Fundamental of Farm Machinery, Rural Electrification, Mathematics*.

March 1990 – June 2013: Tutor of more than 60 students of the Faculty of Agricultural Sciences of Milan. He directly followed 55 students in the course of writing their degree or master dissertations. Tutor of 10 PhD students in the field of Agricultural Engineering at the Universities of Milan and Bolzano.

September 2002 – September 2008: Responsible and coordinator for the Faculty of Sciences of Milan of the extra-curricular activities of *introduction to mathematics*, consisting in a series of early, ad-hoc courses for the students of the Faculty with particular problems with such

a matter.

October 1993 – June 2010: Substitute Teacher of the following courses

- ☐ *Mathematics*
- ☐ *Fundamental of computer science*
- ☐ *Forage harvesting and conservation technologies*
- ☐ *Rural energy technologies*
- ☐ *Agricultural mechanization and energy systems*
- ☐ *Agricultural and Forestry Mechanization*
- ☐ *Plant and machinery for special farm processes*
- ☐ *Technological methods for organic farming*
- ☐ *Planning and Management of Farm Mechanized Processed*
- ☐ *Advanced technologies for farm mechanisation*
- ☐ *Information Technologies for Farm Management*

EXTRA UNIVERSITY PROFESSIONAL ACTIVITIES

January 1986 – December 1989: FAO consultant for renewable energy use in European farming systems; under this role, he coordinated the work of various local teams in Italy, Greece, Malta, Poland and ex-Yugoslavia through specific abroad stages, during which he helped the local technicians in designing and constructing pilot plants.

January 1990 – October 1990: Fiat-Geotech (MO) consultant to study the possibilities of applying the Total Quality concepts and methods in agriculture, with special regards to farm machinery management.

July 1993 – November 1993: Lova s.r.l. (Sannazzaro de' B. - PV) consultant to design, realizing and testing of a stripper header to be used on combines for cereal and rice harvesting.

January 1999 – February 2001: Consultant of the Studio Frosio - Brescia, with the role of Subcontractor in an UE-Thermie B project for developing a decision support system to be used in designing and evaluating hydro-power generating plants in protected areas.

September 1983 – December 2008: Occasional assistance to private and public enterprises working in to the educational and professional training sector, with reference to issues related agricultural engineering aspects (IFOA, Sogesta, AGIP Petroli, Reg. Lombardia, ERSAF, CIVDA, CIVFRUCE, CONAMA, UNACOMA, TADINI). In addition, he collaborated with the *Associazione Laureati in Scienze Agrarie* as teacher of engineering courses preparatory to the agronomist professorship.

January 2002 – June 2010: Supporter of the early establishment of a new enterprise (ARVatec srl, Rescaldina, MI; 2002) – formed by his past-students – working in the sector of the development of practical automated solutions for agricultural applications (from Precision Agriculture techniques, to information management solutions)

January 2014 – in progress: Member of the Scientific Board of the Fraunhofer Italia Institute, section Automation, Farm Mechatronics and Precision Farming.

ORGANISATIONAL SKILLS AND COMPETENCES

*Mainly achieved in the following **research projects**, in which he was the principal investigator, having been assigned the coordination and scientific responsibility tasks.*

EU Pproject (October '94 – September '97): How improved systems of farm equipment can increase farmers' net income and take account of environmental protection? (CE-AIR CT94/1584) - Team.: 4 people.

MURST 60% (June '96 – May '98): Work organization in the management of public . green areas - Team: 3 people.

CONAMA – Roma (May – October '98): Development of a decision support system for a

rational selection of farm machinery - Team: 3 people

CNR – Progr. Amb. (L. 95/95) (November '98 – December '02): Designing, realization and testing of positioning systems for slurry tanks - Team: 4 people

MURST - Cofin99 (November '99 – October '01): Development and application of a multicriteri decision support system for the technical and economical evaluation of alternative arable farming systems to be proposed in protected areas of the Lombardy Region - Team: 9 people.

EU Comm – DGTREN (November '98 – June '00): Small hydroelectric plants: guide to the environmental approach and impact assessment – Team: 3 people.

EU IMAGES Project (January '97 – December '00): Improving Agri-Environmental Policies: a Simulation Approach to the Role of the Cognitive Properties of Farmers and Institutions - Team: 4 people.

SEAR – Pesaro - Project MESOVIP (November '03 – December '05): Sviluppo di Metodi e Soluzioni tecnologiche per la Vlticoltura di Precisione in Italia - Team: 5 people.

MIPAF –SIPEAA Priject (November '01 – December '06): Development of information tools for a sustainable planning of farming systems - Team: 4 people.

Province of Modena – MOSAICO Project (January '03 – December '06): Monitoring animal effluent spreading activities in the Province of Modena in order to reduce risks of nitrogen leaching in hilly vulnerable areas - Team: 6 people.

MIUR –FIMONT Project (October '06 – September'09): Methods to increase the value of traditional foods in mountain areas, with special regards to strategies for addressing field processes - Team: 4 people.

Reg.Lombardy – Div.Industry (TLC) –METAMORFOSI Project (October '07– March '10): METAdistretto industriale per lo sviluppo di tecnologie di MOnitoraggio e controllo Remoto a Favore dello svolgimento delle Operazioni di Spandimento di effluenti zootecnici secondo logiche a basso Impatto ambientale - Team: 5 people.

ENAMA- Rome (September '09 – September '10): Development of a retrofit modular mechatronics controller for automating field chemical input spreading through site-specific approaches. - Team: 4 people.

WM srl, Prato all'Isarco (BZ) (January '11 – May '12): Trattore 360° - Designing a new tractor architecture for applications in slope extreme conditions. - Team: 3 people.

FaST-FUB (December '11 – December '12): Development of investigation methods for assessing sustainability indeces of agricultural and livestock in South Tyrol - Team: 1 people

FUB (September '11 – August '13): Development of simplified sensors for continuous monitoring of energy and environmental performances of tractors by a local telemetry network - Team: 4 people.

CIV, Ferrara (June '11 – August '12): Valutazione comparative degli impatti energetici e dell'impronta di carbonio nella mela varietà MODI - Team: 2 people.

TECNOVIA, Bolzano (December '12 – December '14): Studi e ricerche per la rimozione dell'azoto ammoniacale dai reflui zootecnici e dagli scarti dell'industria della carne per la digestione anaerobica e produzione di biogas

ENAMA- Rome (December '12 – December '15):TrabtGUT – Sviluppo di un trattore articolato portattrezzi per una buona gestione della meccanizzazione in contesti estremi di collina e montagna atto a garantire condizioni di ergonomia e sicurezza adeguate – Team: 4 people

Territorium Online, Bolzano (August '13 – August '15): AEFIS: Studi e ricerche inerenti servizi di monitoraggio in remoto per aziende agroambientali e forestali a supporto di attività direttive ed operative legate ai processi in campo – Team: 4 persone

AlpiBiogas, Bolzano (June '14 – June '15): DigTREATY: Assistenza allo sviluppo di uno schema di trattamento del digestato per il recupero e il riutilizzo dei nutrienti, da applicare a impianti agricoli alpini di piccola/media taglia. Team: 3 people

Prov.Autonoma Bolzano (August '13 – December '16): MONALISA: Monitoring key environmental parameters in the Alpine Environment involving science, technology and application – Monitoring at field scale (SubWP3) – Team: 12 people (in coll. con Proff.M.Tagliavini e G.Tonon)

TECNOVIA, Bolzano (September '13 – in progress): MESSO: Ricerca, sviluppo sperimentale ed acquisizione di elementi progettuali di moduli essiccativi di strutture

solarizzate per la conservazione dei foraggi nel rispetto delle tipologie costruttive alpine.
Team: 4 people;

MavTech, Bolzano (September '13 – May '16): SMILE: Sistema a pilotaggio remoto per il supporto all'agricoltura di precisione. Team: 4 people;

Prov.Autonomia Bolzano – FESR (February '17 – in progress): WEQUAL: Centro servizi WEB per la progettazione multidimensionale di QUALità e il monitoraggio teleoperato di Green Infrastructures – Team: 4 people

Prov.Autonomia Bolzano – FESR (June '18 – in progress): BROTWEG – La via del pane negli ambienti alpini: nuove soluzioni meccanizzate per la filiera cerealicola in alta montagna.– Team: 5 people

SCIENTIFIC AWARDS

- ☐ **March 1986:** Winner of the National Award "*Anton Maria Lorgna*", proposed by the Accademia Nazionale delle Scienze detta dei XL, for his researches in the field of renewable energy sources
- ☐ **February 1989:** Winner of the National Award "*Antoniazzi-Antoldi*", proposed by the Istituto Lombardo-Accademia di Scienze e Lettere of Milano, for his researches in the field of agricultural mechanization
- ☐ **May 1990:** Winner of the National Award "*Philip Morris*" for the Scientific and Technology Research, proposed by MURST, CNR, ENEA e FAST, for his researches on the definition and development of integrated energy systems for the rural sector.

TECHNICAL SKILLS AND COMPETENCES

- ☐ Excellent computer skills with knowledge of developing platforms and programming languages (Delphi, Visual Basic), including visual object-oriented programming techniques (UML) and database development (ER approaches).
- ☐ Use of advanced electronic devices, including sensors, controllers and actuators, positioning systems, identification systems
- ☐ GIS/CAD competences and excellent knowledge of image digital processing packages.

ARTISTIC SKILLS AND COMPETENCES

- ☐ Good graphic skills, self-taught amateur painter applying oil on canvas and pastel techniques.
- ☐ Papier-mache sculptures and compositions.
- ☐ Classical and digital photography (also winner of some amateur competitions)
- ☐ Production dried flowers compositions (including the flower cultivation and drying processes)

AFFILIATION TO SCIENTIFIC ASSOCIATIONS

He is, or he has been, member of the following Associations:

- ☐ Associazione Italiana di Ingegneria Agraria (AIIA): since 1984;
- ☐ Associazione Termotecnica Italiana (ATI): since 1991 till 1994;
- ☐ American Society of Agricultural and Biological Engineers (ASABE): since 1998;
- ☐ Commission Internationale du Génie Rural (CIGR): since 1994;
- ☐ European Society of Agricultural Engineers (EurAgeng): since 1996.

1998-2003: Board Member IV CIGR Section (Rural Electricity And Other Energy Sources).

2005-2010: Board Member VII CIGR Section (Information Technologies for Agriculture).

2002-2010: Board Member of the AIIA National Executive Committee.

2012-2017 – Vice-President of the VII Section AIIA (Information Technologies & Precision

Farming Systems)

2017 – present: President of the VII Section AIIA (Information Technologies & Precision Farming Systems)

2001-present: Accademico Corrispondente of the Accademia dei Georgofili -Firenze.

PATENTS

- ☐ No. **PR94A.000032** – Dep. 9.08.1994 - *Procedimento di riconoscimento e registrazione di informazioni, e apparato che realizza il procedimento, in particolare per applicazione in campo agricolo* (in coll. with Michelotti V. and Puzzi E.)
 - ☐ No. **MI2005A002165** – Dep. 21.10.2005 - *Apparato per la posa automatica di elementi discreti su una superficie di destinazione e processo impiegante detto apparato* (in coll. with Landonio S. and Lazzari M.)
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DRIVING LICENCE(S)

B-Licence, since 1976

FURTHER INFORMATION:
PUBLISHED WORKS

His research and educational activities are documented through more than 280 works, that in short can be summarized as follow:

Papers on peer-review journals:	80
Works on other journals:	65
Memories at Congresses and Conferences:	197
Books and Monographs:	20

DATA, LUOGO E FIRMA

Bolzano, 1.X.2018
