

FIORATI STEFANO

Curriculum Vitae



PERSONAL INFORMATION

Name Stefano Fiorati

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WORK EXPERIENCES

- Dates (from-to) January 2014 – Today
- Company **CNH Industrial Italia SPA**
Tractor Innovation and Advanced Engineering (Product Development Organization)
- Projects/Main Activities
Project manager for tractor related innovation and advanced engineering projects.
Projects involving all tractor systems, suspension like front axle, cab and seat, steering system, driveline, hydraulics, cooling system (HEHRS presented at SIMA 2017), engine and ATS.
Electrification projects related to tractor-implement combination (according to AEF standard), tractor's auxiliaries and drivetrain hybridization.
E-source generator on New Holland tractor: Technical and Blue awards at EIMA 2020/21.
Alternative fuels projects: Methane tractor proto presented at Farm progress show 2017, previously displayed at New Holland pavilion at EXPO 2015 in Milan and in progress to be launched into the market (sustainable tractor of the year 2019).
Prototypes of Dual Fuel and LPG tractor.
Automation and autonomous operation projects considering the tractor as system in combination with the implement (Tractor – Large Square Baler silver medal at Agritechnica 2019) and looking at the automation of each single tractor function to have it prepared for full autonomous operations.
- Qualification Global manager for Tractor Innovation and Advanced Engineering

- Dates (from-to) July 2011 – December 2013
 - Company **CNH Italia SPA**
Tractor Innovation and Advanced Engineering (Product Development Organization)
- Projects/Main Activities **Alternative fuels projects:** prototypes of Hydrogen tractor, Ethanol tractor, Ethanol Sugar Cane Harvester for Brazil market, LPG and methane tractors.
Electrification projects like Hydrogen powered tractor NH² with electric driveline presented at Agritechnica 2011 and electric power generator on tractor to power electric implements.
- Qualification Tractor Innovation Design Engineer – Technical leader for Electrification and Alternative Fuels projects

EDUCATION AND TRAINING

- Dates (from-to) March 2011 – July 2011
- Name and type of organisation providing education or training **Università degli Studi di Ferrara, FERRARA ITALY**
Engineering Department
- Principal subject/occupational skills covered
Projects developed in collaboration with:
 - API COM S.r.l.
“**Development of vibration techniques useful for the quality control of internal combustion engines in newly developed test benches**”
 - Technogym Spa
- Qualification Post Doc Researcher

- Date March 2011
- Name and type of organisation providing education or training **Università degli Studi di Ferrara, FERRARA ITALY**
Engineering Department
- Principal subject/occupational skills covered **Monitoring of the threshing process by using advanced vibro-acoustic indicators**
- Title of qualification awarded **Thesis for degree of Doctor of Philosophy**
Doctoral Program in Engineering – Curriculum: Industrial Engineering
Branch of study: Mechanics of Machine

- Dates (from-to) June 2010 – February 2011
- Name and type of organisation providing education or training **Università degli Studi di Ferrara, FERRARA ITALY**
Engineering Department
- Principal subject/occupational skills covered
Projects developed in collaboration with FUTURA ROBOTICA SpA:
 - **Flexible multibody analysis of a PM robot and experimental assessment**
- Qualification Ph.D. student in Mechanical Vibrations

- Date September 2009
- Name and type of organisation providing education or training **Katholieke Universiteit Leuven, LEUVEN BELGIUM**
- Principal subject/occupational skills covered
 - **MDCM International Course on Machine Diagnostic and Condition Monitoring**

- Dates (from-to)
- Name and type of organisation providing education or training
- Principal subject/occupational skills covered
- Qualification

March 2010 – May 2010

Università degli Studi di Ferrara, FERRARA ITALY
Engineering Department

Projects developed:

- **Quality control of the mechanical systems by means of vibro-acoustic techniques**

Ph.D. student in Mechanical Vibrations

- Date
- Name and type of organisation providing education or training
- Principal subject/occupational skills covered

September 2009

Katholieke Universiteit Leuven, LEUVEN BELGIUM

- **ISMA 34 International Course on Modal Analysis: Theory and Practice**

- Date
- Name and type of organisation providing education or training
- Principal subject/occupational skills covered

March 2009

BRUSSELS BELGIUM

- **Advanced Course on Active Noise and Vibration Control and Structural Health Monitoring**

- Dates (from-to)
- Name and type of organisation providing education or training
- Principal subject/occupational skills covered
- Qualification

October 2008 – February 2010

Katholieke Universiteit Leuven, LEUVEN BELGIUM

Department of Mechanical Engineering: Production Engineering, Machine Design and Automation (PMA) Section

Project developed in collaboration with Case New Holland (CNH):

- **Condition monitoring of the threshing process in harvesting machines by means of vibro-acoustic analysis**

Associate Academic Staff

- Dates (from-to)
- Name and type of organisation providing education or training
 - Principal subject/occupational skills covered
- Qualification

November 2007 – September 2008

Università degli Studi di Ferrara, FERRARA ITALY

Engineering Department

Projects developed in collaboration with VM Motori SpA:

- **Determination of rigid body properties by means of vibration measurements**
- **Experimental study of gear train noise in Diesel engines** (using LMS instruments and softwares)
- **Identification of Diesel engines noise sources using sound intensity techniques**

Ph.D. student in Mechanical Vibrations

- Dates (from-to)
- Name and type of organisation providing education or training
 - Principal subject/occupational skills covered
- Title of qualification awarded

October 2005 – October 2007

Università degli Studi di Ferrara, FERRARA ITALY

Faculty of Engineering

Project developed in collaboration with TRW SpA

“Experimental acoustic analysis of a gear pump prototype”

Master’s Degree in Mechanical Engineering with 99/110

- Dates (from-to)
- Name and type of organisation providing education or training
 - Principal subject/occupational skills covered
- Title of qualification awarded

October 2001 – October 2005

Università degli Studi di Ferrara, FERRARA ITALY

Faculty of Engineering

Project developed in collaboration with TRW SpA

“Dynamic analysis of external gear pumps”

Bachelor’s Degree in Mechanical Engineering with 98/110

PERSONAL SKILLS AND COMPETENCES

Mother tongue

Italian

OTHER LANGUAGES

- Ability to read
- Ability to write
- Ability to speak

English

Good

Good

Good

- Ability to read
- Ability to write
- Ability to speak

French

Good

Basic

Basic

SOCIAL SKILLS AND COMPETENCES

- Intercultural Skills: holiday English language course in Los Angeles
- Harvard ManageMentor courses - <https://hbr.org/harvardmanagementor>

TECHNICAL SKILLS AND COMPETENCES

Competent with the Microsoft computer programs

- LMS Test.Lab (Modal Analysis, Sound Diagnosis, Order Tracking during Signature Testing)
- LMS Virtual.Lab (Motion)
- Solid Works
- Pro/Engineer - Creo
- Catia
- Autocad
- LabVIEW
- Matlab
- Siemens PLM - Tcae teamcenter
- Vector CANalyzer

ACADEMIC PUBLICATIONS

1. E. Mucchi, S. Fiorati, **Analisi acustica sperimentale di una pompa prototipale TRW in camera semi-anecoica**, Preprints del Dipartimento di Ingegneria di Ferrara (Italy), Pubbl. n° 169, Ottobre 2007.
2. E. Mucchi, S. Fiorati, **Analisi acustica sperimentale di una pompa prototipale TRW al banco CAT**, Preprints del Dipartimento di Ingegneria di Ferrara (Italy), Pubbl. n° 171, Ottobre 2007.
3. E. Mucchi, S. Fiorati, R. Di Gregorio, G. Dalpiaz, **Determining the rigid-body inertia properties of cumbersome systems: comparison of techniques in time and frequency domain**, Paper n. 32, IMAC-XXVII Conference & Exposition on Structural Dynamics, 2009, Orlando (USA).
4. E. Mucchi, S. Fiorati, R. Di Gregorio, G. Dalpiaz, **Determining the rigid-body inertia properties of cumbersome systems: comparison of techniques in time and frequency domain**. EXPERIMENTAL TECHNIQUES (May/June 2011), vol. 35; issue 3; p. 36-43; ISSN: 0732-8818
DOI: 10.1111/j.1747-1567.2009.00603.x.
5. S. Delvecchio, S. Fiorati, B. Missotten, P. Sas, **Vibro-acoustic signature analysis of the threshing process in harvesting machine**, Paper n.105, ISMA International Conference on Noise and Vibration Engineering, 2010, Leuven (Belgium).
6. S. Fiorati, E. Mucchi, R. Di Gregorio, G. Dalpiaz, **Experimental validation and updating of the flexible multibody model of a commercial 3R planar manipulator**. Paper n.DETC2011-48202, ASME, Proceedings of the ASME 2011 International Design Engineering Technical Conference & Computer and Information in Engineering Conference IDETC/CIE 2011.
7. C. Bisaglia, M. Brambilla, M. Cutini, S. Fiorati, M. Howell, **Methane/Gasoline Bi-fuel Engines as a Power Source for Standard Agriculture Tractors: Development and Testing Activities**. Published by the American Society of Agricultural and Biological Engineers, St. Joseph, Michigan www.asabe.org. Applied Engineering in Agriculture. 34(2): 365-375. (doi: 10.13031/aea.12262) @2018.
8. Xin Tian, Josias Cruz Gomez, Andrea Vacca, Stefano Fiorati, Francesco Pintore, **Analysis of Power Distribution in the Hydraulic Remote System of Agricultural Tractors Through Modelling and Simulations**. Proceedings of the ASME/BATH 2019 Symposium on Fluid Power and Motion Control FPMC2019 October 7–9, 2019, Sarasota, FL, USA. FPMC2019-1686.
9. Giovanni Molari, Michele Mattetti, Nicola Lenzini, Stefano Fiorati, **An updated methodology to analyse the idling of agricultural tractors**. Biosystems Engineering Volume 187, November 2019, Pages 160-170.
10. Michele Mattetti, Stefano Davoli, Mirko Maraldi, Francesco Paolini, Stefano Fiorati, Giovanni Molari, **Experimental characterisation of front axle suspension systems for narrow-track tractors**. Biosystems Engineering Volume 185, September 2019, Pages 45-55.
11. Xin Tian, Maha Fluid Power Research Center, Purdue University, Lafayette, IN, USA, Stefano Fiorati, CNH Industrial S.p.A, Modena, Italy, **An Analysis of the Energy Consumption in the High Pressure System of an Agricultural Tractor through Modeling and Experiment**. 77th International Conference on Agricultural Engineering – Land.Technik AgEng 2019.

12. Fiorati S., Bernardini A., Hale N., Snauwaert P., Protano F., **Electric tractor perspectives**. Year 2019 - Hannover (Germany), Agritechnica, 10-11 November 2019. XXIX Members' Meeting "AGRICULTURAL MECHANIZATION AND SUSTAINABILITY".
13. Michele Mattetti, Massimiliano Varani, Mirko Maraldi, Francesco Paolini, Stefano Fiorati, Giovanni Molari, **Tractive performance of Trelleborg PneuTrac tyres**. Journal of Agricultural Engineering 2020; volume LI:1031, Pages 100-106.
14. Andrea Gaiola, Barbara Zardin, Paolo Casoli, Massimo Borghi, Francesca Mazzali, Francesco Pintore, Stefano Fiorati, **The Hydraulic Power Generation and Transmission on Agricultural Tractors: feasible architectures to reduce dissipation and fuel consumption – Part 1**. 75th National ATI Congress – #7 Clean Energy for all (ATI 2020), Volume 197, 2020.

PATENTS (Source: <https://www.epo.org/index.html>)

1. BR112015030063 (A2) - VEHICLE ANTI-ROLLOVER SYSTEM
2. US2019233030 (A1) - TRACK SYSTEM COMPRISING A SENSOR AND VEHICLE COMPRISING THE SAME
3. BR112019002134 (A2) - TRACK SYSTEM FOR A WORK VEHICLE
4. CN109562800 (A) - TRACK SYSTEM FOR A WORK VEHICLE
5. CN109562798 (A) - TRACK SYSTEM FOR A WORK VEHICLE
6. USD792482 (S) - AGRICULTURAL VEHICLE
7. EP3439895 (A1); EP3439895 (B1) - A CONNECTION DEVICE FOR AN AXLE OF A VEHICLE
8. BR102014023485 (A2) - ACCESS PORTS FOR ACCESSING COVERED FUEL TANKS OF A WORK VEHICLE
9. ITUB20155784 (A1) - METODO E SISTEMA PER LA DIAGNOSI PREDITTIVA
10. US2015292612 (A1); US9856967 (B2) - TORQUE ESTIMATION FOR WORK MACHINE POWER TRAIN
11. USD736270 (S) - OPERATOR'S CAB
12. EP2949497 (A1) - A TRANSMISSION SYSTEM FOR A VEHICLE
13. US2014345374 (A1); US9052011 (B2) - TORQUE SENSOR SYSTEM
14. EP3736162 (A1) - AGRICULTURAL VEHICLE PROVIDING AN AUTOMATIC DISPLAY SELECTION
15. WO2020120736 (A1) - TRACTOR POWERED BY ALTERNATIVE GAS FUEL
16. US2019308471 (A1) - COMBINATION AIR SUPPLY SYSTEM AND METHOD