DAVIDE ASTOLFI

Curriculum Vitae, 5 dicembre 2022

CONTACTS

QUALIFICATIONS

2022	Ph.D. in Industrial and Information Engineering - University of Perugia
2013	Tirocinio Formativo Attivo, qualifying for teaching Mathematics and Physics in the secondary school - University of Perugia - 96/100
2009	Ph.D. in Physics - University of Perugia
2005	Master degree in Physics - University of Perugia - 110/110 e lode

ACADEMIC POSITION

January 2022–August 2022 **Collaborator** at the Department of Engineering, University of Perugia: "Development of techniques for wind farm operation performance analysis and for the characterization of wind turbine and main components residual lifetime".

14/12/2020–14/12/2021 **Research Fellow** at the Department of Engineering, University of Perugia: "Statistical analysis of wind turbine operation data for early fault diagnosis".

01/02/2020–01/07/2020 **Research Fellow** at the Department of Engineering, University of Perugia: "Analysis of wind turbine performance and assessment of upgrades and lifetime extension".

15/12/2015–01/09/2019 **Post-doc** at the Department of Engineering, University of Perugia: "Development of analysis techniques of SCADA and vibration data for early diagnosis of faults and performance optimization of wind farms".

01/12/2014–30/11/2015 **Post-doc**. Winner of the public announcement for post-docs "Tipologia A: Regime speciale “Scheda Università” Proposta Progettuale "Promozione della ricerca e dell’Innovazione" Codice Progetto UM12024L002 POR Umbria FSE 2007-2013 - Asse Capitale Umano Determina Dirigenziale n. 10949 del 27/12/2012". The research is funded by the Umbria region, Italy, and held at the Department of Engineering, University of Perugia. The funded project is entitled "Optimization of the performances of wind turbines through the analysis of operational data".

15/09/2014–30/11/2014 **Post-doc** at the Department of Engineering, University of Perugia: "Performance analysis and fault diagnosis through SCADA data mining from wind farms".

01/09/2013–30/04/2014 **Research fellow** at the Department of Industrial Engineering, University of Perugia: "SCADA data analysis of operating wind farms".

01/08/2012–31/07/2013 **Post-doc** at the Department of Industrial Engineering, University of Perugia: "Mathematical models and numerical analysis in applied engineering".

PROFESSIONAL AND ACADEMIC ACHIEVEMENTS

Awards

Top 2% scientist according to the "2022 Annual Scientific Influence Ranking" published by the Stanford University

Participation at national and international conferences as oral presenter (2013-2018)

- The Science of Making Torque from Wind (TORQUE 2016), Munich (Germany), 05-07/10/2016. Title of the contribution: Wind Power Forecasting techniques in complex terrain: ANN vs. ANN-CFD hybrid approach.
- 35th UIT Heat Transfer Conference, Ancona, Italy, 26-28/06/2017. Title of the contribution: Wind turbine wake distortion in complex terrain: a numerical and experimental analysis.
- XXIII Congresso - Associazione Italiana di Meccanica Teorica e Applicata (AIMETA 2017), Salerno, Italy, 04-07/09/2017. Title of the contribution: "Numerical and experimental three-dimensional analysis of wakes in complex terrain".
- The Science of Making Torque from Wind (TORQUE 2018), Milano, Italy 20-22/06/2018. Title of the contribution: "A SCADA data mining method for precision assessment of performance enhancement from aerodynamic optimization of wind turbine blades".
- IN-VENTO-2018, XV Conference of the Italian Association For Wind Engineering. Napoli, 09-12/09/2018. Title of the contribution: "A SCADA-based method for estimating the energy improvement from wind turbine retrofitting".
- SURVISHNO (Surveillance, Vibrations, Shock and Noise), Lyon, France, 08-10/07/2019. Title of the contribution: "Numerical and experimental loads analysis on a horizontal-axis wind turbine in yaw".
- AIAS2019, Assisi, Italy, 04-07/09/2019. Title of the contribution: "Mechanical behaviour of wind turbines operating above design conditions".
- XXIV Congresso - Associazione Italiana di Meccanica Teorica e Applicata (AIMETA 2019), Roma, Italy, 15-19/09/2019. Title of the contribution: "Condition monitoring of wind turbine gearboxes through on-site measurement and vibration analysis techniques".
- ISMA 2020 and 2020 International Conference on Uncertainty in Structural Dynamics, Lueven, Belgium, 07-09/09/2020. Online event. Title of the contribution: "Wind turbine drive-train condition monitoring through tower vibrations measurement and processing".

- IEEE RTSI 2021 6th online Forum on Research and Technologies for Society and Industry Innovation for a smart world. Naples, Italy, 06-09/09/2021. Online Event. Title of the contribution: "Long Term Wind Turbine Performance Analysis Through SCADA Data: A Case Study".
- WindEurope Technology Workshop 2022. Bruxelles, 23-24/06/2022. Title of the contribution: "Wind turbine lifecycle assessment and long-term performance evaluation through SCADA data analysis".

Editorial Board Membership

Applied Mechanics; Clean Technologies; Diagnostyka; Electronics; Energies; Machines; Stats

Special Issues Guest Editing

- *Energies*: Wind Turbines and Wind Farms Performance Analysis through Numerical and Experimental Methods
- *Energies*: Wind turbine power optimization technology;
- *Energies*: Wind Turbine Monitoring through Operation Data Analysis;
- *Electronics*: Power Electronics in Italy—Emerging Electronic Power Technologies and Electronic Devices in the Industrial 4.0 Era;
- *Electronics*: Wind Turbine Power Systems;
- *Electronics*: 10th Anniversary of Electronics: New Advances in Systems and Control Engineering;
- *Machines*: Wind Turbine Technologies;
- *Machines*: Condition Monitoring for Non-stationary Rotating Machines;
- *Machines*: Lifetime Extension of Industrial Machines;
- *Stats*: Applied Statistics in Engineering;
- *Clean Technologies*: Recent Advances in Wind Energy.

Reviewer for international conferences

Reviewer of abstracts and articles for:
The Science of Making Torque from Wind (TORQUE 2018), Milano, 20-22 June 2018.

MAIN RESEARCH ACTIVITIES

Data analysis methods for wind turbine performance evaluation and interpretation

Wind turbines operate under non-stationary conditions and their efficiency depends non-trivially on environmental factors and working parameters. Nevertheless, it is fundamental for several applications to evaluate the real-world performance of wind turbines. For example, systematic yaw errors dealing with the rotor (mass, pitch, yaw unbalances) can affect the power production and the residue lifetime. Also dynamic malfunctioning, for example related to the control, has a negative impact on the

efficiency of wind turbines. Therefore, performance analysis is a keystone in order to individuate possible faults. This research activity is therefore aimed at formulating innovative data analysis and machine learning methods for precision analysis of wind turbine performance. An in-depth analysis of wind turbine behavior is aimed not only at assessing performance, but also at interpreting them: in this sense, performance analysis is a fundamental support to fault diagnosis and the border between these two activities can be considered to be fleeting. In this research activity, the above depicted approach has been applied to several multi-faceted problems: systematic operation errors, dynamic malfunctioning, optimization technology evaluation, long-term analysis of wind farm behavior. In particular, the analysis of how wind turbine performance declines with age is a quite novel topic in wind energy literature and is motivated, for example, by the fact that around 30% of wind turbines operating in Europe is aged more than fifteen years: considerations about lifetime extension and repowering have therefore become particularly timely and a critical analysis of long-term wind turbine performance is very helpful in this sense.

Analysis of the operation conditions and fault diagnosis of wind turbines

The study of the operation conditions of wind turbines is a wide subject, that allows to elaborate on issues of engineering and applied mechanics. Employing the measurements from SCADA (Supervisory Control And Data Acquisition) and CMS (Condition Monitoring System), it is possible to connect the flow conditions to the behavior of the wind farm in terms of performances, yawing patterns, load conditions. It is very important also to develop techniques for early fault diagnosis of fundamental elements of the wind turbines, as for example the blades, the bearings and all the mechanical transmission of the slow rotation of the main shaft into the output fast rotation. At this aim, it is valuable to analyze the structural and drive-train vibrations and interpret them properly, in light of the non-stationary conditions to which wind turbines are subjected. This research activity has been partially funded by national and international companies owning and managing wind farms: especially, Renvico (www.renvicoenergy.com). To this subjects, the participations to the funded PRIN2015 "Softwind" (http://www.softwind.it), "Optowind" and "WIND4EV" (Fondazione Cassa di Risparmio di Perugia) projects are related.

LIST OF PUBLICATIONS FROM 2013 TO 2022

Here on, the bibliometric indexes from the Scopus database, as regards the scientific production from 2013 to 2021.
H-index: 20
Total number of citations: 1150
Number of journal papers: 63

Journal Papers

(JP1) Astolfi, D., Pandit, R., Gao, L., & Hong, J.
Individuation of Wind Turbine Systematic Yaw Error through SCADA Data.
(2022) Energies, 15(21), 8165.

(JP2) Pandit, R., Astolfi, D., Tang, A. M., & Infield, D.
Sequential Data-Driven Long-Term Weather Forecasting Models' Performance Comparison for Improving Offshore Operation and Maintenance Operations.
(2022) Energies, 15(19), 7233.

(JP3) Pandit, R., Astolfi, D., Hong, J., Infield, D., & Santos, M.
SCADA data for wind turbine data-driven condition/performance monitoring: A review on state-of-art, challenges and future trends.
(2022) Wind Engineering, 0309524X221124031.

(JP4) Astolfi, D., Pandit, R., Terzi, L., & Lombardi, A.
Discussion of wind turbine performance based on SCADA data and multiple test case analysis.
(2022) Energies, 15(15), 5343.

(JP5) Astolfi, D., Pandit, R., Celesti, L., Lombardi, A., & Terzi, L.
SCADA data analysis for long-term wind turbine performance assessment: A case study.
(2022) Sustainable Energy Technologies and Assessments, 52, 102357.

(JP6) Cascianelli, S., Astolfi, D., Castellani, F., Cucchiara, R., & Fravolini, M.
Wind Turbine Power Curve Monitoring Based on Environmental and Operational Data
(2022) IEEE Transaction on Industrial Informatics, 18(8), pp. 5209-5218

(JP7) Astolfi, D., & Pandit, R.
Wind turbine performance decline with age.
(2022) Energies, 15(14), 5225.

(JP8) Campagnolo, F., Castellani, F., Natili, F., Astolfi, D., & Mühle, F.
Wind Tunnel Testing Of Yaw By Individual Pitch Control Applied To Wake Steering.
(2022) Frontiers in Energy Research, 10, 883889

(JP9) Astolfi, D., & Castellani, F. (2022).
Editorial on the Special Issue "Wind Turbine Monitoring through Operation Data Analysis".
(2022) Energies, 15(10), 3664.

(JP10) Astolfi, D., Pandit, R., Celesti, L., Vedovelli, M., Lombardi, A., & Terzi, L.
Data-Driven Assessment of Wind Turbine Performance Decline with Age and Interpretation Based on Comparative Test Case Analysis.
(2022) Sensors, 22(9), 3180.

(JP11) Astolfi, D., & Pandit, R. .
Multivariate wind turbine power curve model based on data clustering and polynomial LASSO regression. (2022) Applied Sciences, 12(1), 72.

(JP12) Castellani, F., Eltayesh, A., Natili, F., Tocci, T., Becchetti, M., Capponi, L., Astolfi, D., & Rossi, G.
Wind Flow Characterisation over a PV Module through URANS Simulations and Wind Tunnel Optical Flow Methods
(2021) Energies, 14(20), 6546

(JP13) Astolfi, D., Castellani, F., Lombardi, A., & Terzi, L.
Data-driven wind turbine aging models.
(2021) Electric Power Systems Research, 201, 107495.

(JP14) Astolfi, D.
Perspectives on SCADA Data Analysis Methods for Multivariate Wind Turbine Power Curve Modeling.
(2021) Machines, 9(5), 100.

(JP15) Castellani, F., Astolfi, D., & Natili, F.
SCADA Data Analysis Methods for Diagnosis of Electrical Faults to Wind Turbine Generators.
(2021) Applied Sciences, 11(8), 3307.

(JP16) Astolfi, D., Castellani, F., & Natili, F.
Wind Turbine Multivariate Power Modeling Techniques for Control and Monitoring Purposes.
(2021) Journal of Dynamic Systems, Measurement, and Control, 143(3), 034501.

(JP17) Astolfi, D., Byrne, R., & Castellani, F.
Estimation of the Performance Aging of the Vestas V52 Wind Turbine through Comparative Test Case Analysis.
(2021) Energies, 14(4), 915.

(JP18) Astolfi, D., Castellani, F., Lombardi, A., & Terzi, L.
Multivariate SCADA data analysis methods for real-world wind turbine power curve monitoring.
(2021) Energies, 14(4), 1105.

(JP19) Astolfi, D.
Wind Turbine Operation Curves Modelling Techniques.
(2021) Electronics, 10(3), 269.

(JP20) Astolfi, D., Castellani, F. & Natili, F.
Data-Driven Methods for the Analysis of Wind Turbine Yaw Control Optimization
(2021) Journal of Solar Energy Engineering, 143(1)

(JP21) Natili, F., Castellani, F., Astolfi, D., & Becchetti, M.
Video-Tachometer Methodology for Wind Turbine Rotor Speed Measurement.
(2020) Sensors, 20(24), 7314.

(JP22) Astolfi, D., Byrne, R., & Castellani, F.
Analysis of wind turbine aging through operation curves.
(2020) Energies, 13(21), 5623.

(JP23) Astolfi, D., Castellani, F., Becchetti, M., Lombardi, A. & Terzi, L.
Wind Turbine Systematic Yaw Error: Operation Data Analysis Techniques for Detecting It and Assessing Its Performance Impact
(2020) Energies, 13(9), 2351

(JP24) Byrne, R., Astolfi, D., Castellani, F., & Hewitt, N. J.
A Study of Wind Turbine Performance Decline with Age through Operation Data Analysis.
(2020) Energies, 13(8), 2086.

(JP25) Castellani, F., & Astolfi, D.
Editorial on Special Issue "Wind Turbine Power Optimization Technology".
(2020) Energies, 13(7), 1796

(JP26) Castellani, F., Garibaldi, L., Daga, A. P., Astolfi, D., & Natili, F.
Diagnosis of Faulty Wind Turbine Bearings Using Tower Vibration Measurements.
(2020) Energies, 13(6), 1474

(JP27) Mana, M., Astolfi, D., Castellani, F., & Meißner, C.
Day-Ahead Wind Power Forecast Through High-Resolution Mesoscale Model: Local Computational Fluid Dynamics Versus Artificial Neural Network Downscaling.
(2020) Journal of Solar Energy Engineering, 142(3).

(JP28) Astolfi, D., Castellani, F., & Terzi, L.
An Operation Data-Based Method for the Diagnosis of Zero-Point Shift of Wind Turbines Yaw Angle.
(2020) Journal of Solar Energy Engineering, 142(2).

(JP29) Astolfi, D., Castellani, F., & Natili, F.
Wind Turbine Yaw Control Optimization and Its Impact on Performance.
(2019) Machines, 7(2), 41.

(JP30) Castellani, F., Astolfi, D., Peppoloni, M., Natili, F., Buttà, D., & Hirschl, A.
Experimental Vibration Analysis of a Small Scale Vertical Wind Energy System for Residential Use.
(2019) Machines, 7(2), 35.

(JP31) Astolfi, D., Castellani, F., & Natili, F.
Wind turbine generator slip ring damage detection through temperature data analysis
(2019) Diagnostyka, 20(3), 3-9

(JP32) Astolfi, D., Castellani, F., & Terzi, L.
Definition and Interpretation of Wind Farm Efficiency in Complex Terrain: A Discussion.
(2019) Journal of Energy Resources Technology, 141(5), 055501.

(JP33) Astolfi, D., Castellani, F., Fravolini, M. L., Cascianelli, S., & Terzi, L.
Precision Computation of Wind Turbine Power Upgrades: An Aerodynamic and Control Optimization Test Case.
(2019) Journal of Energy Resources Technology, 141(5), 051205.

(JP34) Castellani, F., Astolfi, D., Natili, F., & Mari, F.
The Yawing Behavior of Horizontal-Axis Wind Turbines: A Numerical and Experimental Analysis.
(2019) Machines, 7(1), 15.

(JP35) Astolfi, D.
A Study of the Impact of Pitch Misalignment on Wind Turbine Performance.
(2019) Machines, 7(1), 8.

(JP36) Astolfi, D., Castellani, F., Lombardi, A., & Terzi, L.
About the extension of wind turbine power curve in the high wind region.
(2019) Journal of Solar Energy Engineering, 141(1), 014501.

(JP37) Astolfi, D., & Castellani, F.
Wind Turbine Power Curve Upgrades: Part II.
(2019) Energies, 12(8), 1503.

(JP38) Natili, F., Castellani, F., Astolfi, D., & Becchetti, M.
Experimental and Signal Processing Techniques for Fault Diagnosis on a Small Horizontal-Axis Wind Turbine Generator.
(2019) Vibration, 2(2), 187-200.

(JP39) Astolfi, D., Castellani, F., & Terzi, L.
Wind Turbine Power Curve Upgrades.
(2018) Energies, 11(5), 1300.

(JP40) Castellani, F., Astolfi, D., Becchetti, M., & Berno, F.
Experimental and Numerical Analysis of the Dynamical Behavior of a Small Horizontal-Axis Wind Turbine under Unsteady Conditions: Part I.
(2018) Machines, 6(4), 52.

(JP41) Castellani, F., Sdringola, P., Astolfi, D.
Analysis of Wind Turbine Wakes Through Time-Resolved and SCADA Data of an Onshore Wind Farm
(2018) The Journal of Solar Energy Engineering, Transactions of the ASME, 140(4), 044501

(JP42) Astolfi, D., Castellani, F., Terzi, L.
A study of wind turbine wakes in complex terrain through RANS simulation and SCADA data
(2018) The Journal of Solar Energy Engineering, Transactions of the ASME, 140(3), 031001

(JP43) Castellani, F., Astolfi, D., Becchetti, M., Berno, F., Cianetti, F., Cetrini, A.
Experimental and Numerical Vibrational Analysis of a Horizontal-Axis Micro-Wind Turbine
(2018) Energies, 11(2), 456

(JP44) Sdringola, P., Proietti, S., Astolfi, D., & Castellani, F.
Combined Heat and Power Plant and District Heating and Cooling Network: A Test-Case in Italy With Integration of Renewable Energy.
(2018) Journal of Solar Energy Engineering, 140(5), 054502.

(JP45) Scappaticci, L., Castellani, F., Astolfi, D., Garinei, A.
Diagnosis of vortex induced vibration of a gravity damper
(2018) Diagnostyka, 19(2), 31-39

(JP46) Castellani, F., Buzzoni, M., Astolfi, D., D'Elia, G., Dalpiaz, G., Terzi, L.
Wind Turbine Loads Induced by Terrain and Wakes: An Experimental Study through Vibration Analysis and Computational Fluid Dynamics
(2017) Energies, 10(11), 1839

(JP47) Garinei, A., Castellani, F., Astolfi, D., Pucci, E., & Scappaticci, L.
Large Amplitude Oscillatory Shear From Viscoelastic Model With Stress Relaxation.
(2017) Journal of Applied Mechanics, 84(12), 121008.

(JP48) Castellani, F., Scappaticci, L., Bartolini, N., Astolfi, D.
Numerical and experimental investigation of a monotube hydraulic shock absorber
(2017) Archive of Applied Mechanics, 87(12), 1929-1946.

(JP49) Astolfi, D., Castellani, F., Pignattini, R.
A study of vortices in the wake of a road motorcycle through wind tunnel vibration measurement
(2017) International Journal of Vehicle Noise and Vibration, 13(3-4), 252-266

(JP50) Astolfi, D., Scappaticci, L., Terzi, L.
Fault Diagnosis of Wind Turbine Gearboxes Through Temperature and Vibration Data
International Journal of Renewable Energy Research (IJRER) 7 (2), 965-976

(JP51) Castellani, F., Astolfi, D., Mana, M., Piccioni, E., Becchetti, M., Terzi, L.
Investigation of terrain and wake effects on the performance of wind farms in complex terrain using numerical and experimental data.
(2017) Wind Energy, 20(7), 1277-1289.

(JP52) Astolfi, D., Castellani, F., Scappaticci, L., Terzi, L.
Diagnosis of wind turbine misalignment through SCADA data.
(2017) Diagnostyka, Vol. 18, No. 1, 17-24.

(JP53) Proietti, S., Sdringola, P., Castellani, F., Astolfi, D., Vuillermoz, E.
On the contribution of renewable energies for feeding a high altitude Smart Mini Grid
(2017) Applied Energy - Volume 185, Part 2, 1694–1701

(JP54) Castellani, F., Astolfi, D., Sdringola, P., Proietti, S., Terzi, L.
Analyzing wind turbine directional behavior: SCADA data mining techniques for efficiency and power assessment
(2017) Applied Energy- Volume 185, Part 2, 1076–1086

(JP55) Scappaticci, L., Bartolini, N., Castellani, F., Astolfi, D., Garinei, A., Pennicchi, M.
Optimizing the design of horizontal-axis small wind turbines: From the laboratory to market
(2016) Journal of Wind Engineering and Industrial Aerodynamics, 154, 58-68.

(JP56) Astolfi, D., Castellani, F., Terzi, L.
Mathematical methods for SCADA data mining of onshore wind farms: Performance evaluation and wake analysis
(2016) Wind Engineering, 40 (1), 69-85.

(JP57) Morettini, G., Bartolini, N., Astolfi, D., Scappaticci, L., Becchetti, M., Castellani, F.
Experimental diagnosis of cavitation for a hydraulic monotube shock absorber
(2016) Diagnostyka, 17 (3), 75-80.

(JP58) Castellani, F., Astolfi, D., Burlando, M., Terzi, L.
Numerical modelling for wind farm operational assessment in complex terrain
(2015) Journal of Wind Engineering and Industrial Aerodynamics, 147, 320-329.

(JP59) Astolfi, D., Castellani, F., Garinei, A., Terzi, L.
Data mining techniques for performance analysis of onshore wind farms
(2015) Applied Energy, 148, 220-233.

(JP60) Castellani, F., Garinei, A., Terzi, L., Astolfi, D.
Applied statistics for extreme wind estimate
(2015) Wind Energy, 18 (4), 613-624.

(JP61) Astolfi, D., Castellani, F., Terzi, L. Fault prevention and diagnosis through SCADA temperature data analysis of an onshore wind farm
(2014) Diagnostyka, 15 (2), 71-78.

(JP62) Castellani, F., Garinei, A., Terzi, L., Astolfi, D., Gaudiosi, M.
Improving windfarm operation practice through numerical modelling and Supervisory Control and Data Acquisition data analysis
(2014) IET Renewable Power Generation, 8 (4), 367-379.

(JP63) Castellani, F., Garinei, A., Terzi, L., Astolfi, D., Moretti, M., Lombardi, A.
A new data mining approach for power performance verification of an on-shore wind farm
(2013) Diagnostyka, 14 (4), 35-42.

Conference papers

(CP1) Castellani, F., Natili, F., Astolfi, D., Hirschl, A., & Peppoloni, M.
Vibration damping of a vertical axis wind turbine in operating conditions.
(2022) In Journal of Physics: Conference Series (Vol. 2265, No. 4, p. 042081). IOP Publishing.

(CP2) Castellani, F., Astolfi, D., Natili, F., Vedovelli, M., & Khedr, A.
Interpretation of wind turbine performance decline with age based on SCADA data analysis.
(2022) In IOP Conference Series: Earth and Environmental Science (Vol. 1073, No. 1, p. 012002). IOP Publishing.

(CP3) Castellani, F., Khedr, A., Astolfi, D., Celesti, L., Natili, F., & Vedovelli, M.
Study of blockage and wakes for an on-shore Wind Farm using SCADA data and CFD simulations.
(2022) In IOP Conference Series: Earth and Environmental Science (Vol. 1073, No. 1, p. 012004). IOP Publishing.

(CP4) Astolfi, D., Malgaroli, M., Spertino, F., Amato, A., Lombardi, A., & Terzi, L.
Long Term Wind Turbine Performance Analysis Through SCADA Data: A Case Study
(2021) 2021 IEEE 6th International Forum on Research and Technology for Society and Industry (RTSI)

(CP5) Natili, F., Campagnolo, F., Castellani, F., Bottasso, C.L., Astolfi, D. & Becchetti, M.
Experimental analysis of yaw by individual pitch control
(2020) Proceedings of ISMA 2020 - International Conference on Noise and Vibration Engineering and USD 2020 - International Conference on Uncertainty in Structural Dynamics, pp. 3493 - 3506

(CP6) Castellani, F., Natili, F., Astolfi, D., Peppoloni, M. & Hirschl, A.
Vibration analysis and system identification for a vertical-axis wind turbine installation in built environment
(2020) Proceedings of ISMA 2020 - International Conference on Noise and Vibration Engineering and USD 2020 - International Conference on Uncertainty in Structural Dynamics, pp. 3515 - 3524

(CP7) Astolfi, D., Daga, A.P., Natili, F., Castellani, F. & Garibaldi, L.
Wind turbine drive-train condition monitoring through tower vibrations measurement and processing
(2020) Proceedings of ISMA 2020 - International Conference on Noise and Vibration Engineering and USD 2020 - International Conference on Uncertainty in Structural Dynamics, pp. 3481 - 3492

(CP8) Castellani, F., Natili, F., Astolfi, D., & Lini, A.
Field Vibrational Analysis of a Full Scale Horizontal-Axis Wind Turbine in Actual Operating

Conditions.
(2020) Lecture Notes in Mechanical Engineering, pp 299 - 309. 24th Conference of the Italian Association of Theoretical and Applied Mechanics, AIMETA 2019, Rome, 15 September 2019 - 19 September 2019

(CP9) Natili, F., Castellani, F., & Astolfi, D.
Numerical and Experimental Analysis of Small Scale Horizontal-Axis Wind Turbine in Yawed Conditions.
(2020) Lecture Notes in Mechanical Engineering, pp 285 - 298. 24th Conference of the Italian Association of Theoretical and Applied Mechanics, AIMETA 2019, Rome, 15 September 2019 - 19 September 2019

(CP10) Astolfi, D., Castellani, F., Garibaldi, L., & Daga, A. P.
Condition Monitoring of Wind Turbine Gearboxes Through On-site Measurement and Vibration Analysis Techniques.
(2020) Lecture Notes in Mechanical Engineering, pp 1295 - 1306. 24th Conference of the Italian Association of Theoretical and Applied Mechanics, AIMETA 2019, Rome, 15 September 2019 - 19 September 2019

(CP11) Castellani, F., Astolfi, D., & Terzi, L.
Wind turbine power curve upgrades: methods for the assessment and test cases study.
(2020) Journal of Physics: Conference Series (Vol. 1452, p. 012004). IOP Publishing.

(CP12) Cascianelli, S., Astolfi, D., Costante, G., Castellani, F., & Fravolini, M. L.
Experimental Prediction Intervals for Monitoring Wind Turbines: an Ensemble Approach.
(2019) International Conference on Control, Automation and Diagnosis (ICCAD) (pp. 1-6). IEEE.

(CP13) Castellani, F., Berno, F., Becchetti, M., Astolfi, D., & Piccioni, E.
Analyzing the Unsteady Dynamic Behaviour of a Small Wind Turbine for Urban Applications.
(2019) Colloquium on Research and Innovation on Wind Energy on Exploitation in Urban Environment Colloquium (pp. 245-254). Springer, Cham.

(CP14) Astolfi, D., Castellani, F., Fravolini, M. L., Cascianelli, S., & Terzi, L. (2019)
A SCADA-Based Method for Estimating the Energy Improvement from Wind Turbine Retrofitting.
(2019) Conference of the Italian Association for Wind Engineering (pp. 63-72). Springer, Cham.

(CP15) Castellani, F., Natili, F., Astolfi, D., & Cianetti, F.
Mechanical behaviour of wind turbines operating above design conditions.
(2019) Procedia Structural Integrity, 24, 495-509.

(CP16) Castellani, F., Astolfi, D., Natili, F., Senin, N., & Landi, L.
Condition monitoring techniques for machine bearings in non-stationary operation.
(2019) Procedia Structural Integrity, 24, 483-494.

(CP17) Castellani, F., Astolfi, D., Garibaldi, L., & Daga, A. P.
Wind turbine gearboxes fault detection through on-site measurements and vibration signal processing.
(2019) Proceedings of SURVISHNO (Surveillance, Vibrations, Shock and Noise), Lyon, 08/10/07/2019.

(CP18) Astolfi, D., Castellani, F., Natili, F., & Becchetti, M.
Numerical and experimental loads analysis on a horizontal-axis wind turbine in yaw.
(2019) Numerical and experimental loads analysis on a horizontal-axis wind turbine in yaw.

(CP19) Cetrini, A., Cianetti, F., Castellani, F., & Astolfi, D.
Dynamic modeling of wind turbines. How to model flexibility into multibody modelling.
(2018) Procedia Structural Integrity, 12, 87-101.

(CP20) Terzi, L., Lombardi, A., Castellani, F., & Astolfi, D.
Innovative methods for wind turbine power curve upgrade assessment.
(2018) In Journal of Physics: Conference Series (Vol. 1102, No. 1, p. 012036). IOP Publishing.

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