

Filippo Cianetti

Filippo Cianetti was Assistant Professor of Machine Design (Italian Academic Discipline, alias SSD, named ING-IND/14) in the period 1992-2002 at the Faculty of Engineering of the University of Perugia, where, starting from March 2002, is Associate Professor in the same SSD. He develops his teaching and research activity at the Department of Engineering of the same University. In 2012, he reached the first National Academic Qualification as Full Professor in the Italian Academic Recruitment Field, alias SC, named 09/A3, and in particular in ING-IND/14 SSD.

In the past years was expert (peer reviewer) of the Italian Ministry of Education, University and Research (MIUR) for the evaluation of the research programs of national interest. He is actually Member of the Experts Committee for Evaluation of Research (CIVR) within the first evaluation of national research (VTR). From September 2007 to 2013 he was elected as member of the national board of the Italian Association of Stress Analysis (AIAS).

In 2013 he was elected as member and actually he is member of the National Council of Italian Professors of Machine Design (ING-IND/14 SSD).

He was also a member of the Academic Board of the PhD of the University of Perugia in Industrial Engineering. He is now member of the Academic Board of the PhD in Industrial and Information Engineering. He is member of Parithetic Commission of the Department of Engineering of University of Perugia.

He teaches "Costruzione di Macchine" (Machine Design) (9 CFU) for the Bachelor of Science in Industrial Engineering and "Progettazione in Campo Dinamico" (Dynamics in Machine Design) (9 CFU) for the Master of Science in Mechanical Engineering at the University of Perugia.

He was Distinguished Lecturer of the 1-st IEEE Italy Section Summer School teaching "Modeling and Simulation of Mechatronic Systems (MSMS)"

In the summer of 2006 he was lecturer of "Affidabilità strutturale e qualità nella progettazione e costruzione di macchine" (Structural reliability and quality in the machine design) at the Faculty of Engineering of the Universidad Nacional de Mar del Plata (Argentina) inside a cooperation program funded by CUIA.

He has been supervisor of more than 90 degree and PhD theses.

His research activity is aimed to solve mechanical design problems with particular attention to systems dynamics. This activity is carried on by developing techniques for the analytical/numerical modelling and simulation of mechanical systems.

The actual main activity is oriented on durability analysis of systems and mechanical components in virtual simulation (FEA and MBS) environment and it is considerable as the natural appendix of the previous one. The main obtained result are the development of stress state recovery tools in time and frequency domain of mechanical components and systems modelled in finite element and multibody simulation environments and the development of analysis procedures and evaluation methods for the fatigue analysis, in time and frequency domain, of mechanical components undergoing to random loads.

In march 2015 he was co-organizer in Prague of the Symposium "Fatigue life assessment with random loadings: spectral methods, dynamic simulations, testing" , during the 3rd International Conference on Material and Component Performance under Variable Amplitude Loading, VAL 2015.

In September 2019 he was organizer in Assisi (Perugia) of the National Congress of Italian Scientific Society of Machine Design – AIAS 2019.

He is author of about 100 among papers edited on international journals and memories presented to national and international conferences.

He is reviewer of a lot of journals that are reference journals for category Mechanical Engineering, such as:

International Journal of Fatigue
Mechanism and Machine Theory
Mechanical Systems and Signal Processing
Meccanica
Journal of Mechanical Engineering Science
Structural Durability & Health Monitoring

NATIONAL AND INTERNATIONAL GRANTS (AS PRINCIPAL INVESTIGATOR)

He was coordinator in 2000 of a research project financed by Perugia University by the title "Tuning of criteria and procedures for the evaluation in time domain of the fatigue damage of mechanical components subjected to variable loads" (Progetto Giovani Ricercatori 2000, Young Researchers Project 2000). He was leader of the research unit of Perugia University of the PRIN 2004 Italian research project funded by Italian Ministry of Education, University and Research (MIUR) with the title "Structural durability of mechanical components under random loading". He was also leader of a research project funded by Fondazione Cassa di Risparmio di Perugia (IT) – inside the research program Ricerca di Base 2009. The research project is entitled "Sviluppo e validazione sperimentale di modelli teorici, tecniche di simulazione e metodiche sperimentali atti alla valutazione del comportamento a fatica di sistemi meccanici soggetti a sollecitazioni di tipo aleatorio" (2009-2011). Actually he is leader of the research unit of Perugia University of another PRIN project, 2015, funded by "Italian Ministry of Education, University and Research (MIUR)" with the title "Smart Optimized Fault Tolerant WIND turbines" in which Prof. Cianetti's Unit has the aim to foresee the dynamic behavior of the whole machine (wind turbine, blades and structure) by numerical models (i.e. multibody, state-space, sdof approaches) and to foresee the cumulated fatigue damage by theoretical approaches (i.e. frequency or time domain, multiaxial stress state). He is also leader of a research project funded by University of Perugia (IT), inside the research program Ricerca di Base 2017. The research project is entitled "Validazione delle tecniche di progettazione a fatica di componenti meccanici soggetti a carichi dinamici di tipo aleatorio" (2017-2018).

NATIONAL AND INTERNATIONAL ACKNOWLEDGMENTS

He received the award for best paper of 2005 Italian Association of Stress Analysis Conference (AIAS, Associazione Italiana Analisi delle Sollecitazioni) with the work entitled "Sviluppo di una metodologia alternativa per la valutazione del comportamento a fatica di componenti meccanici soggetti a sollecitazioni di tipo random".

He received the award for best paper of 2019 National Congress of Italian Scientific Society of Machine Design – AIAS 2019 with the work entitled "Test sperimentali di fatica multiassiale realizzati con provini di particolare geometria".

PRINCIPAL SCIENTIFIC PUBLICATIONS OF ASSOCIATED INVESTIGATORS (2008-2020)

- [1] Morettini, G., Braccesi, C., Cianetti, F., Razavi, S.M.J., Solberg, K., Capponi, L., Collection of experimental data for multiaxial fatigue criteria verification, (2020) *Fatigue and Fracture of Engineering Materials and Structures*, 43 (1), pp. 162-174.
- [2] Slavič, J., Česnik, M., Capponi, L., Palmieri, M., Cianetti, F., Boltežar, M., Non-stationarity and non-gaussianity in vibration fatigue, (2020) *Conference Proceedings of the Society for Experimental Mechanics Series*, pp. 73-76.
- [3] Pascoletti, G., Catelani, D., Conti, P., Cianetti, F., Zanetti, E.M., Multibody Models for the Analysis of a Fall From Height: Accident, Suicide, or Murder?, (2019) *Frontiers in Bioengineering and Biotechnology*, 7, art. no. 419
- [4] Cetrini, A., Cianetti, F., Corradini, M.L., Ippoliti, G., Orlando, G., On-line fatigue alleviation for wind turbines by a robust control approach, (2019) *International Journal of Electrical Power and Energy Systems*, 109, pp. 384-394.
- [5] Maurizi, M., Slavič, J., Cianetti, F., Jerman, M., Valentinčič, J., Lebar, A., Boltežar, M., Dynamic measurements using FDM 3D-printed embedded strain sensors, (2019) *Sensors (Switzerland)*, 19 (12), art. no. 2661.
- [6] Morettini, G., Braccesi, C., Cianetti, F., Experimental multiaxial fatigue tests realized with newly developed geometry specimens, (2019) *Fatigue and Fracture of Engineering Materials and Structures*, 42 (4), pp. 827-837.
- [7] Cianetti, F., Ciotti, M., Palmieri, M., Zucca, G., On the evaluation of surface fatigue strength of a stainless-

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- [8] Braccesi, C., Cianetti, F., Ferri, A., Numerical evaluation of internal heat generation of roller coaster polyurethane wheels, (2019) *Procedia Structural Integrity*, 24, pp. 612-624.
- [9] Castellani, F., Natili, F., Astolfi, D., Cianetti, F., Mechanical behaviour of wind turbines operating above design conditions, (2019) *Procedia Structural Integrity*, 24, pp. 495-509.
- [10] Cianetti, F., Morettini, G., Palmieri, M., Zucca, G., Virtual qualification of aircraft parts: Test simulation or acceptable evidence?, (2019) *Procedia Structural Integrity*, 24, pp. 526-540.
- [11] Braccesi, C., Cianetti, F., Goracci, L., Palmieri, M., Sine-Sweep qualification test for engine components: The choice of simulation technique, (2019) *Procedia Structural Integrity*, 24, pp. 360-369.
- [12] Pascoletti, G., Catelani, D., Conti, P., Cianetti, F., Zanetti, E.M., A multibody simulation of a human fall: Model creation and validation, (2019) *Procedia Structural Integrity*, 24, pp. 337-348.
- [13] Maurizi, M., Cianetti, F., Slavic, J., Zucca, G., Palmieri, M., Piezoresistive dynamic simulations of FDM 3D-Printed embedded strain sensors: A new modal approach, (2019) *Procedia Structural Integrity*, 24, pp. 390-397.
- [14] Mihalec, M., Slavič, J., Javh, J., Cianetti, F., Moretti, M., Rossi, G., Boltežar, M., Relating vibration and thermal losses using the damping heat coefficient, (2019) *Conference Proceedings of the Society for Experimental Mechanics Series*, 6, pp. 89-91.
- [15] Braccesi, C., Cianetti, F., Development of a procedure for the structural design of roller coaster structures: The supporting structures, (2018) *Engineering Structures*, 168, pp. 643-652.
- [16] Česnik, M., Slavič, J., Capponi, L., Palmieri, M., Cianetti, F., Boltežar, M., The relevance of non-stationarities and non-Gaussianities in vibration fatigue, (2018) *MATEC Web of Conferences*, 165, art. no. 10011, .
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- [18] Conti, P., Cianetti, F., Pilerici, P., Parametric Finite Elements Model of SLM Additive Manufacturing process, (2018) *Procedia Structural Integrity*, 8, pp. 410-421.
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- [21] Cianetti, F., Palmieri, M., Braccesi, C., Morettini, G., Correction formula approach to evaluate fatigue damage induced by non-Gaussian stress state, (2018) *Procedia Structural Integrity*, 8, pp. 390-398.
- [22] Braccesi, C., Morettini, G., Cianetti, F., Palmieri, M., Evaluation of fatigue damage with an energy criterion of simple implementation, (2018) *Procedia Structural Integrity*, 8, pp. 192-203.
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- [24] Zucca, G., Cianetti, F., Palmieri, M., Braccesi, C., De Paolis, F., Fatigue Life Estimation of a Military Aircraft Structure subjected to Random Loads, (2018) *Procedia Structural Integrity*, 12, pp. 183-195.
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- [27] Pascoletti, G., Cianetti, F., Putame, G., Terzini, M., Zanetti, E.M., Numerical simulation of an intramedullary Elastic Nail: Expansion phase and load-bearing behavior, (2018) *Frontiers in Bioengineering and Biotechnology*, 6, art. no. 174.
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- [37] Nieslony A., Böhm M., Łagoda T., Cianetti F., The use of spectral method for fatigue life assessment for non-Gaussian random loads, *Acta Mechanica et Automatica*, vol. 10 (2), pp. 100-103, 2016
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H-index of associated investigators (only for the scientific fields in which the use of the H-index is usually adopted)

O Scopus: CIANETTI H-index = 17

