

## CURRICULUM VITAE

Filippo Cianetti is Full Professor of Machine Design (Italian Academic Discipline, alias SSD, named ING-IND/14) at Department of Engineering of University of Perugia (Italy) where he develops his teaching and research activity.

He was Assistant Professor of Machine Design in the period 1992-2002 at the Faculty of Engineering of same University, where, starting from March 2002, was Associate Professor in the same SSD until January 2022. In 2012, he reached the first National Academic Qualification (ASN) as Full Professor in the Italian Academic Recruitment Field, alias SC, named 09/A3, and in particular in ING-IND/14 SSD. Then, in 2016, he reached again ASN Qualification as Full Professor for the same SC.

He is member of the Groups of evaluation experts (GEV) in the Italian Evaluation of Research Quality 2015-2019 (VQR) for Area "Industrial and Information Engineering".

He is actually Member of the Experts Committee for Evaluation of Research (CIVR) within the first evaluation of national research (VTR).

He is member of the university experts aimed at supporting the orientation and coordination activities of scientific and technological research of interest to the Defence for the Integrated Technological Group (GTI) - 5th Department - Technological Innovation of the General Secretariat of Italian Defence.

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.

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 is the Head of the School of Mechanical Engineering at University of Perugia (BSc and MSc)

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

He was member of Parithetic Commission of the Department of Engineering of University of Perugia.

He teaches "Machine Design - Costruzione di Macchine" (9 CFU) for the Bachelor of Science in Mechanical Engineering and "Dynamics in Machine Design - Progettazione in Campo Dinamico" (11 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 "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 100 degree and 5 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 September 1998 he was co-organizer in Perugia of the National Congress of Italian Scientific Society of Machine Design – AIAS 1998.

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 member of the International Editorial Board of Journal of Mechanical Engineering (ISSN 0039-2480), of the Editorial Board of Vehicles (ISSN 2624-8921) and of Editorial Board of Materials (ISSN 1996-1944).

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  
Journal of Multibody Dynamics  
Advances in Mechanical Engineering  
Fatigue and Fracture of Engineering Materials and Structures  
ASME IDETC Conferences

### **NATIONAL AND INTERNATIONAL GRANTS (AS PRINCIPAL INVESTIGATOR)**

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 leader of the research unit of Perugia University of another PRIN project, 2015, with the title "Smart Optimized Fault Tolerant WIND turbines" in which Prof. Cianetti's Unit has the aim to foresee the dynamic behaviour 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 was also leader of a research project funded by Fondazione Cassa di Risparmio of Perugia (IT) – inside the research program Ricerca di Base 2009. The research project is entitled "Development and experimental validation of theoretical models, simulation techniques and experimental methods aimed at evaluating the fatigue behaviour of mechanical systems subject to random loads" (2009-2011).

He is also leader of research projects funded by University of Perugia (IT), inside the research programs Ricerca di Base 2017, 2018, 2019 (2017-2020). The research projects are focused on the Random and Vibration Fatigue.

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" (Young Researchers Project 2000).

### **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 " Development of an alternative methodology for the evaluation of the fatigue behavior of mechanical components subjected to random loads - 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 " Experimental multiaxial fatigue tests carried out with specimens of particular geometry - Test sperimentali di fatica multiassiale realizzati con provini di particolare geometria".

### **BIBLIOMETRIC INDECES**

O Scopus: H-index = 19, Number of Documents = 94, Number of citations = 1061

### **PRINCIPAL SCIENTIFIC PUBLICATIONS OF ASSOCIATED INVESTIGATORS**

[1] Palmieri, M., Zucca, G., Morettini, G., Landi, L., Cianetti, F., Vibration Fatigue of FDM 3D Printed Structures:

- The Use of Frequency Domain Approach, *Materials*, 15 (3), art. no. 854, 2022.
- [2] Landi, L., Stecconi, A., Morettini, G., Cianetti, F. Analytical procedure for the optimization of plastic gear tooth root Mechanism and Machine Theory, 166, art. no. 104496, 2021.
  - [3] Palmieri, M., Slavič, J., Cianetti, F. Single-process 3D-printed structures with vibration durability self-awareness Additive Manufacturing, 47, art. no. 102303, 2021.
  - [4] Zucca, G., Palmieri, M., Cianetti, F. On the statistical distribution of the maxima of sine on random process Mechanical Systems and Signal Processing, 158, art. no. 107726, 2021.
  - [5] Palmieri, M., Cianetti, F., Zucca, G., Morettini, G., Braccesi, C. Spectral analysis of sine-sweep vibration: A fatigue damage estimation method Mechanical Systems and Signal Processing, 157, art. no. 107698, 2021.
  - [6] Cianetti, F., Fabellini, L., Formica, V., Ambrogi, F. Development and validation of a simplified automotive steering dynamic model Proceedings of the Institution of Mechanical Engineers, Part D: Journal of Automobile Engineering, 235 (8), pp. 2188-2199, 2021.
  - [7] Morettini, G., Braccesi, C., Cianetti, F., Razavi, S.M.J. Design and implementation of new experimental multiaxial random fatigue tests on astm-a105 circular specimens International Journal of Fatigue, 142, art. no. 105983, 2021.
  - [8] Cianetti, F. How to experimentally monitor the fatigue behaviour of vibrating mechanical systems? Strojnicki Vestnik/Journal of Mechanical Engineering, 66 (10), pp. 557-566, 2020.
  - [9] Morettini, G., Braccesi, C., Cianetti, F., Razavi, S.M.J., Solberg, K., Capponi, L. Collection of experimental data for multiaxial fatigue criteria verification Fatigue and Fracture of Engineering Materials and Structures, 43 (1), pp. 162-174, 2020.
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  - [11] 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? Frontiers in Bioengineering and Biotechnology, 7, art. no. 419, 2019.
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  - [13] Maurizi, M., Slavič, J., Cianetti, F., Jerman, M., Valentinčič, J., Lebar, A., Boltežar, M. Dynamic measurements using FDM 3D-printed embedded strain sensors Sensors (Switzerland), 19 (12), art. no. 2661,
  - [14] Cianetti, F., Ciotti, M., Palmieri, M., Zucca, G. On the evaluation of surface fatigue strength of a stainless-steel aeronautical component Metals, 9 (4), art. no. 455, 2019.
  - [15] Morettini, G., Braccesi, C., Cianetti, F. Experimental multiaxial fatigue tests realized with newly developed geometry specimens Fatigue and Fracture of Engineering Materials and Structures, 42 (4), pp. 827-837, 2019.
  - [16] Viespoli, L.M., Leonardi, A., Cianetti, F., Nyhus, B., Alvaro, A., Berto, F. Low-temperature fatigue life properties of aluminum butt weldments by the means of the local strain energy density approach Material Design and Processing Communications, 1 (1), art. no. e30, 2019.
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losses using the damping heat coefficient Conference Proceedings of the Society for Experimental Mechanics Series, 6, pp. 89-91, 2019.

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