



Antonio Bacciaglia

RESEARCH FELLOW · DEPARTMENT OF INDUSTRIAL ENGINEERING (DIN) - UNIVERSITY OF BOLOGNA

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Professional Experience

- UNIVERSITY OF BOLOGNA, DEPARTMENT OF INDUSTRIAL ENGINEERING (DIN)** Forlì, Italy
RESEARCH FELLOW From Feb. 2022
Research Project: *Innovative methodologies for the Design for Additive Manufacturing in aerospace applications*
Supervisor: Prof. Ceruti Alessandro
- UNIVERSITY OF BOLOGNA, DEPARTMENT OF INDUSTRIAL ENGINEERING (DIN)** Forlì, Italy
RESEARCH FELLOW May 2018 - Nov. 2018
Research Project: *Additive manufacturing and topology optimization for the design of unmanned vehicles*
Supervisor: Prof. Ceruti Alessandro

Education

- PHD IN AUTOMOTIVE FOR INTELLIGENT MOBILITY - DEPARTMENT OF INDUSTRIAL ENGINEERING (DIN)** 2018 - 2022
ALMA MATER STUDIORUM - UNIVERSITY OF BOLOGNA Bologna, Italy
Research Project: *Advanced voxel-based CAD modelling for FSI simulations for automotive structures design*
Academic discipline: *Design Methods for Industrial Engineering*
Supervisor: Prof. Liverani Alfredo
- MASTER OF SCIENCE IN AEROSPACE ENGINEERING** 2015 - 2018
ALMA MATER STUDIORUM - UNIVERSITY OF BOLOGNA Forlì, Italy
Thesis: *Design and development of a propulsion system for a water-air unmanned vehicle*
Grade: 110/110 cum laude
Supervisor: Prof. Ceruti Alessandro
- BACHELOR'S DEGREE IN AEROSPACE ENGINEERING** 2010 - 2015
ALMA MATER STUDIORUM - UNIVERSITY OF BOLOGNA Forlì, Italy
Thesis: *Preliminary design of a multimodal UAV*
Grade: 110/110 cum laude
Supervisor: Prof. Ceruti Alessandro
- SCIENTIFIC HIGH SCHOOL DIPLOMA** 2007 - 2012
LICEO SCIENTIFICO G. TORELLI Fano, Italy
Grade: 90/100

Experiences Abroad

- VISITING GRADUATE STUDENT** Sept. 2017 - Feb. 2018
ROYAL MELBOURNE INSTITUTE OF TECHNOLOGY Melbourne, Australia
Research Project: *Design and development of a propulsion system for a water-air unmanned vehicle*

Scientific Publications

JOURNAL ARTICLES

- Geometry reconstruction for additive manufacturing: from G-CODE to 3D CAD model 2022
A. BACCIAGLIA, F. FALCETELLI, E. TROIANI, R. DI SANTE, A. LIVERANI AND A. CERUTI *Materials Today: Proceedings*
doi.org/10.1016/j.matpr.2022.09.496

- A 3D Voxel-based Approach for Fast Aerodynamic Analyses in Conceptual Design Phases 2022
A. BACCIAGLIA, A. CERUTI AND A. LIVERANI
 doi.org/10.14733/cadaps.2022.1236-1254
Computer-Aided Design and Applications
- A design of experiment approach to 3D-printed mouthpieces sound analysis 2021
A. BACCIAGLIA, A. CERUTI AND A. LIVERANI
 doi.org/10.1007/s40964-021-00183-5
Progress in Additive Manufacturing
- Controllable pitch propeller optimization through meta-heuristic algorithm 2021
A. BACCIAGLIA, A. CERUTI AND A. LIVERANI
 doi.org/10.1007/s00366-020-00938-8
Engineering with Computers
- Structural Analysis of Voxel-Based Lattices Using 1D Approach 2021
A. BACCIAGLIA, A. CERUTI AND A. LIVERANI
 doi.org/10.1089/3dp.2020.0178
3D Printing and Additive Manufacturing
- Surface smoothing for topological optimized 3D models 2021
A. BACCIAGLIA, A. CERUTI AND A. LIVERANI
 doi.org/10.1007/s00158-021-03027-6
Struc. and Multidisciplinary Opt.
- Evaluation of 3D printed mouthpieces for musical instruments 2020
A. BACCIAGLIA, A. CERUTI AND A. LIVERANI
 doi.org/10.1108/RPJ-07-2019-0187
Rapid Prototyping Journal
- Proposal of a standard for 2D representation of bio-inspired lightweight lattice structures in drawings 2020
A. BACCIAGLIA, A. CERUTI AND A. LIVERANI
 doi.org/10.1177/0954406220951595
Proceedings of the Institution of Mech. Eng., Part C: Journal of Mech. Eng. Science
- A systematic review of voxelization method in additive manufacturing 2019
A. BACCIAGLIA, A. CERUTI AND A. LIVERANI
 doi.org/10.1051/meca/2019058
Mechanics and Industry
- CONFERENCES AND WORKSHOPS**
- Topology optimization for thin-walled structures with distributed loads 2022
A. BACCIAGLIA, A. CERUTI, F. CICCONE AND A. LIVERANI
 JCM 2022
Ischia, Italy
- Methodology for Image Analysis in Airborne Search and Rescue Operations 2022
 F. CICCONE, **A. BACCIAGLIA** AND A. CERUTI
 JCM 2022
Ischia, Italy
- A voxel-based 2.5D panel method for fluid-dynamics simulations 2021
A. BACCIAGLIA, A. CERUTI AND A. LIVERANI
 ADM 2021
Rome, Italy
- Towards Large Parts Manufacturing in Additive Technologies for Aerospace and Automotive applications 2021
A. BACCIAGLIA, A. CERUTI AND A. LIVERANI
 2021 3rd International Conference on Industry 4.0 and Smart Manufacturing
Linz, Austria
- Advanced smoothing for voxel-based topologically optimized 3D models 2020
A. BACCIAGLIA, A. CERUTI AND A. LIVERANI
 2020 IEEE 10th International Conference Nanomaterials: Applications & Properties
Sumy, Ukraine

Photogrammetry and Additive Manufacturing based methodology for decentralized spare part production in automotive industry A. BACCIAGLIA, A. CERUTI AND A. LIVERANI 2020 IHSI - Intelligent Human Systems Integration 2020	2020 <i>Modena, Italy</i>
Additive manufacturing challenges and future developments in the next ten years A. BACCIAGLIA, A. CERUTI AND A. LIVERANI ADM 2019	2020 <i>Modena, Italy</i>
Additive manufacturing in automotive: advantages and criticalities A. BACCIAGLIA, A. CERUTI AND A. LIVERANI M2D 2019	2019 <i>Bologna, Italy</i>
Lattice structures representation in 2D drawings: a proposal for a standard A. BACCIAGLIA, A. CERUTI AND A. LIVERANI M2D 2019	2019 <i>Bologna, Italy</i>
Design and Development a Bimodal Unmanned System D. GUO, A. BACCIAGLIA , M. SIMPSON, B. CEES AND P. MARZOCCA 2019 AIAA SciTech Forum	2019 <i>San Diego, USA</i>
Bimodal Unmanned Vehicle: Propulsion System Integration and Water/Air Interface Testing A. BACCIAGLIA, D. GUO, P. MARZOCCA, B. CEES AND A. CERUTI 31st Congress of the International Council of the Aeronautical Sciences, ICAS 2018	2018 <i>Belo Horizonte, Brasil</i>
Design and Development of a Transition Propulsion System for a Bimodal Unmanned Vehicles D. GUO, A. BACCIAGLIA , P. MARZOCCA, B. CEES AND A. CERUTI 2018 International Conference on Unmanned Aircraft Systems, ICUAS 2018	2018 <i>Dallas, USA</i>

VERIFIED PEER REVIEWS

	PROGRESS IN ADDITIVE MANUFACTURING: 10
PROCEEDINGS OF THE INSTITUTION OF MECH. ENG. PART L JOURNAL OF MATERIALS DESIGN AND APPLICATIONS:	3
	ENGINEERING COMPUTATIONS: 2
	RAPID PROTOTYPING JOURNAL 2
STRUCTURAL AND MULTIDISCIPLINARY OPTIMIZATION	1

Language

- ITALIAN: **Mothertongue**
- ENGLISH: **B2/C1 Level**
- 2021/2022 - Language Empowerment for Academics (C1 level) at the University of Bologna Language Centre
 - 2020/2021 - Academic English Skills (Advanced Level) at the University of Bologna Language Centre
- RUSSIAN: **Basic**

Teaching Activity

- UNIVERSITY OF BOLOGNA Forlì, Italy
TEACHING TUTOR From Sept. 2018
- Support the teaching activities for the Aerospace Technical Drawing course
- UNIVERSITY OF BOLOGNA Bologna, Italy
TEACHING TUTOR Sept. 2019 - Aug. 2021
- Support the teaching activities for the Mechanical and Automated Drawing - Applications of Mechanical Drawing course
- CNA FORMAZIONE FORLÌ Forlì, Italy
CAD LECTURER - RHINOCEROS From 2020
- Lecturer for two consecutive years for a Higher technical education and training course about complex surface modelling for naval architectures
- ECIPAR BOLOGNA Bologna, Italy
CAD LECTURER - RHINOCEROS From 2021
- Lecturer for two consecutive years for a Higher technical education and training course about complex surface modelling for Additive Manufacturing 3D design

- Lecturer for a Higher technical education and training course about CAD modelling for process industrialization in materials composites

SVILUPPO PMI

- Lecturer for a Higher technical education and training course about CAD modelling for PLC programming and maintenance

Skills

LANGUAGES: Python, MATLAB, \LaTeX

CAD: Solidworks, Rhinoceros, FreeCAD, AutoCAD, Autodesk Inventor, Fusion360

FEM: Nastran/Patran

CFD: Ansys Fluent

OTHER SOFTWARE: MS Office, Cura Ultimaker, ANSA, MeshMixer

Extracurricular Activity

ADM - ASSOCIAZIONE NAZIONALE DISEGNO E METODI DELL'INGEGNERIA INDUSTRIALE

ADM MEMBER

- Effective member of the association

UNIBO MOTORSPORT - FORMULA SAE TEAM

CAD AND CFD ENGINEER

- Management of the aerodynamic department
- Conceptualization, design, manufacturing, mechanical testing and aerodynamic numerical simulation of the car

Certificates & Awards

2022	<p>IET Young Investigator's Award for iM3F 2022 (Manufacturing and Mechanics - Issued by the iM3F 2022 Innovative Manufacturing, Mechatronics and Materials Forum for the paper <i>Geometry reconstruction for Additive Manufacturing: from G-CODE to 3D CAD model</i></p>	Pekan, Malaysia
2022	<p>Best Paper Award - Issued by the JCM 2022 International Conference for the paper <i>Topology optimization for thin-walled structures with distributed loads</i></p>	Ischia, Italy
2019	<p>Professional Engineering License in Industrial Engineering - Issued by the University of Bologna, II Session 2018</p>	Bologna, Italy
2012	<p>Driving Licence - B</p>	Fano, Italy