

CURRICULUM VITAE of Dario Corona

Updated in September 2021

EDUCATION AND TRAINING

- from 2020 **Post-Doc Researcher**
on Field of Research: Mathematical Analysis
Project Title: “Sistemi dinamici e applicazioni in ambito energetico”
Advisor: prof. Maria Letizia Corradini
- 2019 **Research scholarship**
Project: “Advanced control design for fatigue alleviation for wind turbine”
Advisor: prof. Maria Letizia Corradini
- 2019 **PhD in Mathematics and Applications**, University of Camerino
Field of Research: Control Systems
Thesis: “Decomposition of Optimal Tracking Controllers for Weakly Dual Redundant Systems”
Advisors: prof. Maria Letizia Corradini and prof. Roberto Giambò
- 2018 **Master Degree in Mathematics and Applications**, University of Camerino
Final Grade: full marks (110/110) and *summa cum laude*
Thesis: “A Mathematical Model for the Development of a Lower Extremity Exoskeleton”
Advisors: prof. Fabio Giannoni and prof. Maria Letizia Corradini
- 2014 **Research scholarship**
Project: “Development of a lower limb exoskeleton for disabled people”
founded by *MES S.p.a.* and the University of Camerino
- 2012 **Bachelor Degree in Mathematics and Applications**, University of Camerino
Final Grade: full marks (110/110) and *summa cum laude*
Thesis: “GARCH Model and Volatility Analysis in Finance”
Advisor: prof. Carlo Lucheroni
- 2009 **Indam** (Istituto Nazionale di Alta Matematica) **scholarship**
- 2009 **High School**, Scientific Lyceum, Liceo Costanza Varano Camerino
Final Grade: 100/100

WORK EXPERIENCE

- from Sept **Teacher of Mathematics**
2021 at public secondary school “IPSIA Don Pocognoni”, Matelica, Italy,
Temporary replacement as Post-Doc Researcher (Italian Law 240/2010)
- Aug **Teacher Qualification at secondary level (A026 - Mathematics)**
2021 First place in the open examination for Marche region
- Feb-June* **External Expert and Tutor**
2019 For the PON/FSE project “10.6.6 A-FSEPON-LA-2017-27”
Title “IPSIA: Immaginare per creare” - Module “Talking Hands: i segni prendono voce” - 108h
I.S.I.S.S. Magarotto, Rome
- from 2015 **Project Leader**
Talking Hands: a wearable device for gesture recognition for Augmentative and Alternative
Communication (Limix Srl)
- from 2015 **Founding Partner and CEO of “LiMiX Srl”**,
Innovative Start-up and Spin-off of the University of Camerino (Italy)
- 2015 **Project Leader**
Creation and implementation of a 3D mounting and maintenance manual for electric cars
University of Camerino and “*Belumbury Spa*”

LIST OF PUBLICATIONS

In the first years of my research career, I have worked on both **Optimal Control Theory** and **Gesture Recognition**. Nowadays, my research is focused on **Mathematical Analysis**, with a special regard to the study of Hamiltonian systems.

Journal papers

- 1 D. Corona, F. Giannoni, “Brake orbits for Hamiltonian systems of classical type via Finsler geodesics”, *Advances in Nonlinear Analysis*, (Submitted, under revision), **2021**
- 2 D. Corona, A. Della Corte, “The critical exponent functions”, *Comptes Rendus Mathématique*, (Submitted, under revision), **2021**
- 3 D. Corona, “A multiplicity result for orthogonal geodesic chords in Finsler disks”, *Discrete and Continuous Dynamical Systems*, vol. 41(11), **2021**
doi: [10.3934/dcds.2021079](https://doi.org/10.3934/dcds.2021079)
- 4 F. Pezzuoli, D. Corona, and M. L. Corradini, “Recognition and classification of dynamic hand gestures by a wearable data-glove”, *SN Computer Science*, vol. 2, **2021**
doi: [10.1007/s42979-020-00396-5](https://doi.org/10.1007/s42979-020-00396-5)
- 5 D. Corona, “A multiplicity result for Euler–Lagrange orbits satisfying the conormal boundary conditions”, *Journal of Fixed Point Theory and Applications*, vol. 22, pag. 60, **2020**
doi: [10.1007/s11784-020-00795-4](https://doi.org/10.1007/s11784-020-00795-4)
- 6 D. Corona and F. Giannoni, “A New Approach for Euler-Lagrange Orbits on Compact Manifolds with Boundary”, *Symmetry*, vol. 12, n. 11, pag. 1917, **2020**
doi: [10.3390/sym12111917](https://doi.org/10.3390/sym12111917)
- 7 F. Pezzuoli, D. Tafaro, M. Pane, D. Corona, and M. L. Corradini, “Development of a new sign language translation system for people with autism spectrum disorder”, *Advances in Neurodevelopmental Disorders*, **2020**,
doi: [10.1007/s41252-020-00175-6](https://doi.org/10.1007/s41252-020-00175-6)
- 8 D. Corona, A. Cristofaro, and D. Rotondo, “Reachability and stabilization of scheduled steady-states for LPV single-input systems”, *Journal of the Franklin Institute*, vol. 356, n. 8, pagg. 4478–4495, **2019**
doi: [10.1016/j.jfranklin.2019.04.007](https://doi.org/10.1016/j.jfranklin.2019.04.007)
- 9 D. Corona and A. Cristofaro, “Optimality principles and decomposition of tracking controllers for weakly dual redundant systems”, *Optimal Control Applications and Methods*, 16, **2018**
doi: [10.1002/oca.2420](https://doi.org/10.1002/oca.2420)

Conference papers

- 10 F. Pezzuoli, D. Corona, and M. L. Corradini, “Dynamic gestures recognition through a low-cost data glove”, in *2020 IEEE international conference on human-machine systems (ICHMS)*, pagg. 1–3, **2020**
doi: [10.1109/ICHMS49158.2020.9209424](https://doi.org/10.1109/ICHMS49158.2020.9209424)
- 11 D. Corona and A. Cristofaro, “Optimal controlled steady-states for multi-input underactuated systems”, *18th European Control Conference (ECC)*, 3734–3739, **2019**
doi: [10.23919/ECC.2019.8795796](https://doi.org/10.23919/ECC.2019.8795796)
- 12 F. Pezzuoli, D. Corona, and M. L. Corradini, “Improvements in a Wearable Device for Sign Language Translation”, in *Advances in Human Factors in Wearable Technologies and Game Design*, AHFE, pagg. 70–81, **2019**
doi: [10.1007/978-3-030-20476-1_9](https://doi.org/10.1007/978-3-030-20476-1_9)
- 13 D. Corona and A. Cristofaro, “Optimal closed-loop tracking controllers for weakly dual redundant systems with periodic references”, *IEEE CDC*, **2018**
doi: [10.1109/CDC.2018.8619169](https://doi.org/10.1109/CDC.2018.8619169)
- 14 D. Corona and A. Cristofaro, and D. Rotondo, “Optimizing output regulation for a class of underactuated LPV systems”, in *Mediterranean control conference*, pagg. 135–140, **2017**
doi: [10.1109/MED.2017.7984107](https://doi.org/10.1109/MED.2017.7984107)
- 15 D. Corona and A. Cristofaro, and M. L. Corradini, “Optimal output regulation for underactuated systems with quasiperiodic references”, *IFAC World Congress 2017*, pagg. 3717–3722, **2017**

- doi: [10.1016/j.ifacol.2017.08.712](https://doi.org/10.1016/j.ifacol.2017.08.712)
- 16 F. Pezzuoli, D. Corona, M. L. Corradini, and A. Cristofaro, “Development of a wearable device for sign language translation”, in Int. Workshop on human-friendly robotics (HFR2017), Cham, pagg. 115–126, **2017**
doi: [10.1007/978-3-319-89327-3_9](https://doi.org/10.1007/978-3-319-89327-3_9)
- 17 D. Corona and A. Cristofaro, “Some remarks on optimal output regulation for weakly dual redundant plants”, in Mediterranean control conference, pagg. 1205–1211, **2016**
doi: [10.1109/MED.2016.7536028](https://doi.org/10.1109/MED.2016.7536028)

TEACHING EXPERIENCE

- 2021/22 Adjunct Professor of Analysis 3, Unicam, Bachelor course in Mathematics and Applications, 42h
2021/22 Adjunct Professor of Analysis 2, Unicam, Bachelor Course in Physics, 17h
- 2020/21 Adjunct Professor of Analysis 3, Unicam, Bachelor course in Mathematics and Applications, 42h
2020/21 Adjunct Professor of Analysis 2, Unicam, Bachelor Course in Physics, 17h
- 2019/20 Adjunct Professor of Analysis 3, Unicam, Bachelor course in Mathematics and Applications, 42h
2019/20 Exercise Lectures of Analysis 1, Unicam, Bachelor course in Mathematics and Applications, 25h
2019/20 Exercise Lectures of Analysis 2, Unicam, Bachelor course in Mathematics and Applications, 14h
2019/20 Exercise Lectures of Mathematical Methods for Physics, Unicam, Bachelor Course in Physics, 25h
- 2018/19 Adjunct Professor of System Analysis, Unicam, Mathematics and Applications, 42h
2018/19 Exercise Lectures of Mathematical Methods for Physics, Unicam, Bachelor Course in Physics, 25h
2018/19 Exercise Lectures of Analysis 2, Unicam, Bachelor Course in Physics, 25h
- 2017/18 Exercise Lectures of Analysis 2, Unicam, Bachelor Course in Physics, 25h
- 2016/17 Programming Class, Unicam, Bachelor Course in Mathematics and Applications, 30h
2016/17 Exercise Lectures of Analysis 2, Unicam, Bachelor course in Mathematics and Applications, 25h
2016/17 Exercise Lectures of Analysis 1, Unicam, Bachelor course in Mathematics and Applications, 25h

THIRD MISSION

Through the spin-off Limix, I am translating the academic research into products with high social impact. The main project is Talking Hands, a wearable device for gesture recognition which aims to help people with severe speech or language problems.

Patent: Talking Hands is protected by the patent N. 102016000038807 granted by MISE (Ministero dello Sviluppo Economico).

Awards:

- 2020 **POR MARCHE FESR 2014/2020** “Promozione della ricerca e dello sviluppo negli ambiti della specializzazione intelligente”
- 2019 **Seal of Excellence** (SME Instrument Phase 2): Certificate delivered by the European Commission which states that Talking Hands was scored as a high-quality project proposal in a highly competitive evaluation process.
- 2018 **SME Instrument Phase 1:** EU Commission funds for feasibility study (project manager)
- 2018 **finalist of Chivas Venture**, international competition for start-up with high social impact
- 2017 **POR MARCHE FESR 2014/2020** “Sostegno allo Sviluppo ed al Consolidamento di Start-Up ad alta Intensità di Applicazione di Conoscenza”
- 2016 **R.O.M.E. Prize**, 100.000\$ for the European maker project with highest social impact
- 2016 **E-Capital**, regional Business plan competition
- 2015 **StartCup Marche**, regional Business plan competition