

Antonio Marigonda

Curriculum Vitæ

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Personal data

Place of birth Rome, Italy
Date of birth 30th November 1977
Nationality Italian
Gender Male

Education

1996–2000 **Bachelor and Master of Science in Mathematics**, University of Padova, Italy.
Graduated on 27th February 2001 with score 110/110 magna cum laude
2001–2005 **Ph.D. in Mathematics**, University of Padova, Italy.
Graduated on 3rd February 2006

Master thesis

title *Globalization problems in Relativistic Geometric Optics and Synge's World Function*
supervisor Prof. Franco Cardin
description Using the finite reduction methods by Ahmann-Conley-Zehnder and generalizing a result by C. Viterbo, we discuss the existence of a global generating function with a finite number of auxiliary parameters describing the characteristic relation for a geodesic problem in the Hamiltonian formulation, and we show some applications both in Analytic Mechanics and in General Relativity Theory. We construct a global object generalizing the "World Function" introduced by Synge in *Relativity: the General Theory* (North Holland Publishing Company, Amsterdam, 1960), which in the original formulation had only local meaning. In the case where all the auxiliary parameters can be removed, we recover the classical (local) World Function of Synge.

Ph.D. thesis

title *Differentiability properties for a class of non-Lipschitz functions and applications*
supervisor Prof. Giovanni Colombo
description Given a control system $\dot{x} = f(t, x, u)$, denoted with \mathcal{A} the class of admissible controls, and given a closed target set \mathcal{T} with compact boundary, we denote by $y_x(\cdot, u)$ the trajectory starting from x subject to the control strategy u , and define $t_x(u) := \inf\{t : y_x(t, u) \in \mathcal{T}\}$ (we set $\inf \emptyset = +\infty$). We are interested in the study of the differential properties of the minimum time function $T(x) := \inf_{u \in \mathcal{A}} t_x(u)$. There are some well known result on Lipschitz or Hölder continuity of the minimum time function, but in the Hölder case, there are no strong result on differentiability, while in the Lipschitz case, Rademacher's theorem ensures this property almost everywhere. Within a class of problems enjoying strong controllability properties (i.e. granting locally Lipschitz continuity of T), the natural regularity of the minimum time function is semiconcavity or semiconvexity. This property was deeply studied by Cannarsa and Sinestrari in their book (2004). Under milder controllability assumptions, however, one can expect only Hölder continuity. Therefore a good class of regularity for the minimum time function cannot consist of semiconcave or semiconvex function (which are locally Lipschitz).
The main aim of the thesis was to introduce and study a regularity property, generalizing semiconvexity or semiconcavity, which may be suitable for general minimum time problems.

Scientific interests

- Nonsmooth Analysis
- Geometric Measure Theory
- Control Theory and Optimization
- Viscosity solutions of Hamilton–Jacobi equations
- Optimal Transportation Theory
- Multiagent systems

Research Projects

- 2002 Italian PRIN 2002: Metodi di viscosità, metrici e di teoria del controllo in equazioni alle derivate parziali nonlineari (*Viscosity, metric and control theoretic methods in nonlinear partial differential equations*). National Scientific Coordinator: Italo Capuzzo Dolcetta, Sapienza University of Roma, Italy. Role in the project: member of the local unity of University of Padova, Italy (local scientific coordinator: Martino Bardi, University of Padova, Italy).
- 2009 Italian PRIN 2009: Metodi di viscosità, geometrici e di controllo per modelli diffusivi nonlineari (*Viscosity, metric and control theoretic methods in nonlinear diffusive models*). National Scientific Coordinator: Italo Capuzzo Dolcetta, Sapienza University of Roma, Italy. Role in the project: member of the local unity of University of Padova, Italy (local scientific coordinator: Martino Bardi, University of Padova, Italy).
- 2009 Italian INdAM - GNAMPA Project 2009: Metodi di viscosità e metrici per l'omogeneizzazione (*Viscosity and metric methods in homogenization*). National Scientific Coordinator: Andrea Davini, Sapienza University of Roma, Italy. Role in the project: member of the local unity of University of Padova, Italy.
- 2010 Italian INdAM - GNAMPA Project 2010: Fenomeni di propagazione di fronti e problemi di omogeneizzazione (*Front propagation phenomena and homogenization problems*). National Scientific Coordinator: Luca Rossi, University of Padova, Italy. Role in the project: member of the local unity of University of Padova, Italy.
- 2010 Project funded by the Dept. of Computer Science of the University of Verona (Recently hired researcher project): Applicazione della teoria del Trasporto Ottimo alla modellizzazione delle fibre nervose del cervello (*Application of Optimal Transport Theory to the modeling of brain's neural fibers*). Role in the project: coordinator.
- 2012 Italian INdAM - GNAMPA Project 2012: Fenomeni di propagazione su grafi ed in mezzi eterogenei (*Front propagation phenomena on graphs and heterogeneous media*). National Scientific Coordinator: Claudio Marchi, University of Padova, Italy. Role in the project: supervisor of the local unity of University of Verona, Italy.
- 2015 Italian INdAM - GNAMPA Project 2015: Metodi di set-valued analysis e di teoria del trasporto ottimo per la modellizzazione di mercati finanziari con costi di transazione in ambito deterministico e stocastico (*Set-valued Analysis and optimal transportation methods for modeling of financial markets with transition costs from a deterministic and stochastic viewpoint*). Role in the project: national coordinator.
- 2016 Italian INdAM - GNAMPA Project 2016: Equazioni alle derivate parziali stocastiche e controllo ottimo stocastico con applicazioni alla matematica finanziaria (*Stochastic Partial Differential Equations and Stochastic Optimal Control with Applications to Mathematical Finance*). National Scientific Coordinator: Luca Di Persio, University of Verona, Italy. Role in the project: member of the local unity of University of Verona, Italy.

- 2017 Italian INdAM - GNAMPA Project 2017: Metodi di controllo ottimo stocastico per l'analisi di problemi di debt-management (*Methods of Stochastic Optimal Control for the Analysis of Debt-Management Problems*). Role in the project: national coordinator.
- 2020 - 2022 Basic Research Project University of Verona: GEMS - Geometric Evolution of Multi Agent Systems (*GEMS - Geometric Evolution of Multi Agent Systems*). Role in the project: member.

Experience

Research positions

- 1.Feb.2006 **Research collaborator**, *Department of Mathematics, University "La Sapienza", Rome, Italy.*
 30.Jul.2006 Enrolled in the Italian national research project (PRIN) *Viscosity, metric and control theoretic methods for nonlinear partial differential equations* (supervisors prof. I. Capuzzo-Dolcetta and prof. A. Siconolfi).
- 1.Aug.2006 **Post-doc position**, *Department of Mathematics, University of Pavia, Italy.*
 21.Dec.2008 Postdoctoral research position on the project "Partial Differential Equations: models, applications, and variational methods" (supervisor prof. G. Savaré)
- 22.Dec.2008 **Researcher**, *Department of Computer Sciences, University of Verona, Italy.*
 30.Sep.2019 Permanent position as researcher
- 1.Oct.2019 **Associate Professor**, *Department of Computer Sciences, University of Verona, Italy.*
 present time Permanent position as Associate Professor

Teaching activities

- 2002–2005 **Teaching assistant**, *Department of Mathematics, University of Padova, Italy.*
 Teaching assistant at the following classes of Bachelor in Mathematics (supervisor Prof. T. Valent): Calculus 1 (25 hours, years 2002-2003); Calculus 2 (25 hours, years 2003-2004 and years 2004-2005).
- 2006–2008 **Teaching assistant**, *Department of Mathematics, University of Pavia, Italy.*
 Teaching assistant at classes of Functional Analysis, Graduating course in Mathematics, and Mathematics Complements for Applied Sciences, Graduating course in Biology, supervisor prof. P. Colli (16 hours, years 2006-2007). Teaching assistant at class of Mathematical Methods for Engineering, Master in Engineering, supervisors prof.s G. Savaré and U. Gianazza (12 hours, years 2007-2008)

- 2008–today **Teacher**, *Department of Computer Sciences, University of Verona, Italy.*
 Teacher of the following classes of BSc. in Applied Mathematics and of MSc. in Mathematics:
- Mathematical Models in Biology (BSc., 24 hours, a.y. 2008-2009);
 - Advanced Calculus 2 (BSc., 8 hours, a.y. 2008-2009);
 - Advanced Calculus 2 - Modulus Exercises (BSc., 45 hours in each of the following a.y. 2009-2010, 2011-2012, 2012-2013, 2013-2014);
 - Advanced Calculus 2 - Modulus Exercises (BSc., 48 hours in each of the following a.y. 2014-2015, 2015-2016, 2016-2017, 2017-2018);
 - Functional Analysis - Modulus Exercises (MSc., 24 hours, a.y. 2009-2010);
 - Functional Analysis - Modulus Exercises (MSc., delivered entirely in English, 36 hours, a.y. 2018-2019, 2019-2020);
 - Teaching assistant in Functional Analysis (MSc., 6 hours, a.y. 2010-2011);
 - Game Theory (MSc., 8 hours, a.y. 2012-2013);
 - Optimization (MSc., 48 hours in each of the following a.y. 2011-2012, 2012-2013);
 - Optimization (MSc., delivered entirely in English, 48 hours in each of the following a.y. 2013-2014, 2014-2015, 2015-2016);
 - Optimization (MSc., delivered entirely in English, 52 hours in each of the following a.y. 2016-2017, 2017-2018, 2018-2019, 2019-2020);
 - Methods for Applied Mathematics (MSc., delivered entirely in English, 8 hours, a.y. 2014-2015);
 - Research and modeling seminar (MSc., delivered entirely in English, 8 hours, a.y. 2016-2017);
 - Partial Differential Equations (MSc., delivered entirely in English, 48 hours, a.y. 2019-2020).
- 2017 **Teacher**, *Department of Mathematics, University of Trento, Italy.*
 Teacher of the following course for the Ph.D. program in Mathematics: Control Systems and Applications: from single particles to complex systems. Module: Differential Inclusions and Control Systems (15 hours).
- 2019 **Teacher**, *Department of Mathematics, University of Trento, Italy.*
 Teacher of the following course for the Ph.D. program in Mathematics: Mean Field Games and Optimal Transport. Module: Optimal Transport (15 hours).
- 2019 **Teacher**, *Department of Mathematics and Mechanics, Ural Federal University.*
 Teacher of the following course for the Ph.D. program, part of the International (50-th National) Youth School-Conference “Modern problems in mathematics and its applications”, 4-8 Feb 2019, Ekaterinburg, Russia: Introduction to Optimal Transport (8 hours).

Student supervision

Ph.D. Students.

- Giulia Cavagnari, XXIX Cycle of Ph.D. School in Mathematics, University of Trento, Italy, *Time optimal control problems in the space of measures*, defended on 29 November 2016.

M.Sc. Students.

- Silvia Rigo, Masters Programme in Mathematics, University of Verona, Italy, *Controllability of some nonlinear systems with drift via generalized curvature properties*, defended on 19 March 2013.
- Anna Pietropoli, Masters Programme in Mathematics, University of Verona, Italy, *On the approximation of geodesics for a class of modified Wasserstein distances induced by concave mobility functions*, defended on 19 March 2013.
- Giulia Cavagnari, Masters Programme in Mathematics, University of Verona, Italy, *Generalized control systems in the space of probability measures*, defended on 15 October 2013.
- Alice Bordin, Masters Programme in Mathematics, University of Verona, Italy, *Evolution of levels structures: from the rigid structure to the flexible one*, defended on 18 March 2014.
- Ilaria Brocco, Masters Programme in Mathematics, University of Verona, Italy, *Values for games with non-feasible coalitions*, defended on 18 March 2014.
- Martina Zamboni, Masters Programme in Mathematics, University of Verona, Italy, *Set-valued optimization and applications to economics*, defended on 21 July 2015.
- Andrea Materassi, Masters Programme in Mathematics, University of Verona, Italy, *Geometric controllability problems in a quadcopter model*, defended on 13 July 2016.
- Marta Mogentale, Masters Programme in Mathematics, University of Verona, Italy, *The Optimal Shepherd. Methods of optimal transport in crowd control*, defended on 14 October 2020.

B.Sc. Students.

- Silvia Ortolani, Bachelor's Programme in Applied Mathematics, University of Verona, Italy, *Generalized gradients and distance function*, defended on 19 March 2013.
- Martina Zamboni, Bachelor's Programme in Applied Mathematics, University of Verona, Italy, *Regularity of the minimum time function for control problems*, defended on 22 July 2013.
- Andrea Materassi, Bachelor's Programme in Applied Mathematics, University of Verona, Italy, *Geometric equilibrium conditions in some thermodynamical systems*, defended on 15 October 2013.
- Iris Basso, Bachelor's Programme in Applied Mathematics, University of Verona, Italy, *Analysis of attainability for control-affine systems via splitting methods*, defended on 27 November 2014.
- Erik Pillon, Bachelor's Programme in Applied Mathematics, University of Verona, Italy, *Small time local attainability for control systems*, defended on 19 July 2016.
- Valentina Cattelan, Bachelor's Programme in Applied Mathematics, University of Verona, Italy, *Politiche di controllo ottimo per il contenimento della diffusione di epidemie (Optimal control policies for the containment of epidemics)*, defended on 14 November 2017.
- Alessandro Braggi, Bachelor's Programme in Applied Mathematics, University of Verona, Italy, *Metodi di analisi nonsmooth per problemi di operazioni SAR (Nonsmooth Analysis methods to the study of SAR operations)*, defended on 19 March 2020.

Miscellaneous

- 12.Apr.2010 **Visiting Professor**, *École Polytechnique, Palaiseau, France*.
- 11.May.2010 Visiting professor for scientific collaboration with prof. U. Boscain, grant funded by COOPERINT 2009 Project, University of Verona, Italy.
- 18.Oct.2010 **Member of Ph.D. Evaluating Committee**, *University of Évora, Portugal*.
Member of the commission for the evaluation of Ph.D. Thesis of Dt. Fatima Pereira, supervisor prof. Vladimir Goncharov.
- 28.Jan.2013 **Congress Organizer**, *University of Verona, Italy*.
- 29.Jan.2013 Organizer of the "Workshop on Optimization, Control Theory and Applications".
- 30.Ago.2013 **Visiting Professor**, *Bulgarian Academy of Sciences, Sofia, Bulgaria*.
- 28.Sep.2013 Invited visiting professor for scientific collaboration with prof. M. Krastanov.

- 15.Oct.2013 today **Coordinator for Foreign Affairs, Area of Science and Engineering, University of Verona, Italy.** Associated Coordinator of Science and Engineering Area and Coordinator of the Department of Computer Science for Foreign Affairs and ERASMUS+ agreements. The main duties concern the management of all the activities of the Area and of the Department related to the international study programs, in particular EU programs Socrates/Erasmus and Worldwide Study. More precisely, this includes the management of incoming and outgoing students of the exchange programs for the Area of Science and Engineering, the organization of Erasmus Day where the international exchange programs are presented to the students, the tutoring of the students during their choice of study period in an university abroad, the student consueling during the preparation of the learning agreements and study plans. Among the assignments of the coordinators for Foreign Affairs, there is also the advertising among faculties and students about the international activities and exchange programs.
- 21.Oct.2014 **Responsible of Teacher Training Activities (Italian TFA) Class A/048 Applied Mathematics, University of Verona, Italy.**
13.Apr.2017 General coordinator of the TFA activities for the class A/048 Applied Mathematics at University of Verona, Italy. Following the Ministerial Decree of 10 sept. 2010, No. 249, the Tirocinio Formativo Attivo (TFA) teacher certification course is a 1-year programme to prepare future secondary school teachers at either upper or lower level. Those who pass the final exam at the end of the TFA will gain a nationally-recognised teaching qualification for a specific subject area and type of school. Entry to the TFA course is limited in number. To enrol, candidates must first pass a competitive exam in their subject area. The Class A/048 has been activated jointly with the University of Padova, Italy.
- 14.Mar.2016 **Visiting Professor, Penn State University, State College, PA, USA.**
02.Apr.2016 Invited visiting professor for scientific collaboration with prof. A. Bressan.
- 28.Feb.2017 **Visiting Professor, North Carolina State University, Raleigh, NC, USA.**
19.Mar.2017 Invited visiting professor for scientific collaboration with prof. K.T. Nguyen.
- 01.May.2017 **Visiting Professor, Université de Bretagne Occidentale, Brest, France.**
31.May.2017 Invited visiting professor for scientific collaboration with prof. M. Quincampoix.
- 22.Jan.2018 **Congress Organizer, University of Padova, Italy.**
24.Jan.2018 Organizer of the "12th International Young Researchers Workshop on Geometry, Mechanics and Control".
- 7.Feb.2018 **Visiting Professor, North Carolina State University, Raleigh, NC, USA.**
24.Feb.2018 Invited visiting professor for scientific collaboration with prof. K.T. Nguyen.
- 1.Mar.2018 **Visiting Professor, LMBA - Université de Bretagne Occidentale, Brest, France.**
31.May.2018 Invited visiting professor for scientific collaboration with prof. M. Quincampoix, CNRS Project: Control with Uncertainty.
- 26.Nov.2018 **Congress Organizer, University of Verona, Italy.**
30.Nov.2018 Organizer of the Autumn School "From interacting particle systems to kinetic equations".
- 28.Mar.2019 **Congress Organizer, GSSI - L'Aquila, Italy.**
29.Mar.2019 Organizer of the "Workshop on Control Theory and Applications".
- 28.Mar.2017 **National Scientific Qualification, (art.16 of the law 30 December 2010, n.240), .**
28.Mar.2023 National Scientific Qualification to function as a associate university professor in the Italian Scientific Sector 01/A3 Mathematical Analysis, Probability and Statistics.
- 30.Jun.2020 **National Scientific Qualification, (art.16 of the law 30 December 2010, n.240), .**
29.Jun.2029 National Scientific Qualification to function as a full university professor in the Italian Scientific Sector 01/A3 Mathematical Analysis, Probability and Statistics.

- 15.Oct.2013 today **Chairman of the Admission Committee, Masters Programme in Mathematics, University of Verona, Italy.**
Chairman of the Admission Committee of the Masters Program in Mathematics. The main duties of the Admission Committee concern the selection and recruitment of international students for the Masters Program in Mathematics (which is entirely taught in English). This includes the advertising among international institution, the coaching of the prospective students from the academic point of view (helping them to compare their background with the Italian standard), providing also legal and administrative assistance for VISA, accommodation, student support opportunities, scholarships, in cooperation with the central administrative office of the University of Verona.
- 2012 today **Member of QA (Quality Assurance) Committee, Masters Programme in Mathematics, University of Verona, Italy.**
The QA Committee monitors the activities of the Masters Programme, writes periodically a report to the central bodies of the University and to the Italian National Agency of University Evaluation (ANVUR), in particular analyzing the quality of the Programme by means of the indicators proposed by the University and by the evaluation of the joint Teachers-Students Committee. The QA committee also suggests the improvement actions to be taken to tackle possibile problems.
- 2015 today **Member of Teaching Board of the Ph.D. School in Mathematics, Joint Ph.D. Program University of Trento and University of Verona, Italy.**
The Teaching Board of the Ph.D. School in Mathematics is the governing body of the Ph.D. School in Mathematics. Its main duties concern the supervision of the Ph.D. students, and the organization of the scientific activities designed for them. The admission request and the membership in the Teaching Board are subjected to an assessment of the scientific production, in order to grant always the highest scientific quality.
- 12.Feb.2021 today **Member of the Italian National University Council, Representative of Associate Professor - Area 01 Mathematics and Informatics, Italy.**
The ITALIAN NATIONAL UNIVERSITY COUNCIL (CUN) is an elected body representing the Italian University System. It serves as an independent source of advice and recommendations to Italian Ministry of University on matters considered relevant to the University System, such as national programs, policies and administrative practices affecting Higher Education, classification and definition of academic fields and disciplines for the purposes of recruitment, teaching and research, funding issues, approval of University teaching regulations.

Languages

Italian	native speaker
English	fluent
Russian	basic

*European language level: Russian B2,
Certified by Linguistic Center of University of Verona, Italy*

Talks

- 2003 XVII Congress of Unione Matematica Italiana, Milano (Italy), 8-13 September: "Differenziabilità delle funzioni φ -convesse" (Differentiability of φ -convex functions)
- 2004 Seminars "Differential Equations and Applications", Padova (Italy), 10 June: "Risultati di regolarità per una classe di funzioni non lipschitziane" (Regularity results for a class of non-Lipschitz functions)
- 2004 IV World Congress of Nonlinear Analysts, Orlando, FL (USA), 30 June - 8 July: "Differentiability properties for a class of non-Lipschitz functions"
- 2004 Workshop COFIN "Viscosity, metric and control theoretic methods in nonlinear PDEs", Gaeta (Italy), 27 September - 1 October: "Differentiability of functions with φ -convex epigraph"

- 2005 Seminars "Hamiltonians, Metrics and Control", University La Sapienza, Roma (Italy), 2 December: "Proprietà differenziali per una classe di funzioni non lipschitziane ed applicazioni" (Differentiability properties for a class of non-Lipschitz functions and applications)
- 2006 MCT 2006 Louisiana Workshop on Mathematical Control Theory, Baton Rouge, LA (USA), 16-25 May: "Differentiability properties for a class of non-Lipschitz functions and applications"
- 2006 Seminars "Analysis and applications", Pavia (Italy), 5 October: "Proprietà differenziali per una classe di funzioni non lipschitziane ed applicazioni" (Differentiability properties for a class of non-Lipschitz functions and applications)
- 2007 Workshop "Control Day", Padova (Italy), 30 March: "Condizioni del second'ordine per la controllabilità di sistemi non lineari con drift" (Second-Order Conditions for the Controllability of Nonlinear Systems with Drift)
- 2007 MCT 2007 Louisiana Workshop on Mathematical Control Theory, Baton Rouge, LA (USA), 22-31 May: "Second-Order Conditions for the Controllability of Nonlinear Systems with Drift"
- 2007 6th International Conference on "Large-Scale Scientific Computations", Institute for Parallel Processing, Bulgarian Academy of Sciences, Sozopol (Bulgaria), 5-9 June: "Regularity Properties of the Minimum Time Function for a Class of Linear Control Problems"
- 2008 V World Congress of Nonlinear Analysts, Orlando, FL (USA), 2-9 July: "Differentiability properties for a class of non-Lipschitz functions and applications to Control Theory"
- 2008 Seminars ECE, Carnegie-Mellon University, Pittsburgh, PA (USA), 11 July: "Differentiability properties for a class of non-Lipschitz functions and applications to Control Theory"
- 2009 Workshop "Problems in Calculus of Variations and Partial Differential Equations", Department of Mathematics, University of Trento, Trento (Italy), 22 June: "Regularity results for a class of non Lipschitz functions and applications"
- 2010 SIMAI 2010 Meeting, Cagliari (Italy), 23 June: "A mathematical model of neuronal fibers"
- 2010 Mini-symposium of Functional Analysis and Applications, Évora (Portugal), 18 October: "A mathematical model of neuronal fibers"
- 2011 Seminar at Department of Mathematics, University La Sapienza, Roma (Italy), 22 February: "A mathematical model of neuronal fibers"
- 2011 Seminar at Department of Mathematics, University of Padova, Padova (Italy), 28 April: "Some regularity results for a class of upper semicontinuous BV functions"
- 2011 8th International Conference on "Large-Scale Scientific Computations", Institute for Parallel Processing, Bulgarian Academy of Sciences, Sozopol (Bulgaria), 6-10 June: "Optimal Mass Transportation-based Models for Neuronal Fibers"
- 2011 I.N.D.A.M. Workshop "Weak KAM Theory in Italy", Cortona (Italy), 12-17 September: "The Clarke generalized gradient for functions whose epigraph has positive reach"
- 2013 9th International Conference on "Large-Scale Scientific Computations", Institute for Parallel Processing, Bulgarian Academy of Sciences, Sozopol (Bulgaria), 3-7 June: "BV regularity and differentiability properties of a class of upper semicontinuous functions"
- 2013 Seminar of Analysis, Institute of Mathematics and Informatics, Bulgarian Academy of Sciences, Sofia (Bulgaria), 17 September: "Singularities and SBV regularity of minimum time function for a class of differential inclusions"
- 2014 I.N.D.A.M. Workshop "Analysis and Geometry in Control Theory and its Applications", Roma (Italy), 9-13 June: "Controllability of some nonlinear systems with drift via generalized curvature properties"
- 2015 10th International Conference on "Large-Scale Scientific Computations", Institute for Parallel Processing, Bulgarian Academy of Sciences, Sozopol (Bulgaria), 8-12 June: "STLA for a class of control systems with state constraints"

- 2015 27th IFIP TC7 Conference on System Modelling and Optimization, Nice-Sophia Antipolis (France), 29 June - 3 July: "Generalized control systems in the space of probability measures"
- 2016 Seminar of Analysis, Rutgers University–Camden, NJ (USA), 25 March: "Generalized control systems in the space of probability measures"
- 2016 11th AIMS International Conference on Dynamical Systems, Differential Equations and Applications, Orlando, FL (USA), 1 - 5 July: "Small-Time Local Attainability for a Class of Control Systems with State Constraints"
- 2017 Seminars of Differential Equations - Department of Mathematics, North Carolina State University, Raleigh, NC (USA), 1 March: "Control Problems in the Wasserstein Space and Applications to Multi-Agent Systems"
- 2017 Seminars of Department of Mathematics, Université de Bretagne Occidentale, Brest (France), 2 May: "Control Problems in the Wasserstein Space and Applications to Multi-Agent Systems"
- 2017 11th International Conference on "Large-Scale Scientific Computations", Institute for Parallel Processing, Bulgarian Academy of Sciences, Sozopol (Bulgaria), 5-9 June: "Superposition principle for Differential Inclusions and Applications to Multi-Agent Systems"
- 2017 SIAM Conference on Control and Its Applications, David Lawrence Conference Center, Pittsburgh, PA (USA), 10-12 July: "Control Problems in the Wasserstein Space and Applications to Multi-Agent Systems"
- 2017 Control of state constrained dynamical systems, University of Padova, Padova (Italy), 25-29 September: "Mayer and minimum time problem for multi-agent systems"
- 2017 Seminario di Dipartimento, University of Roma Tor Vergata, Roma (Italy), 28 November: "A comparison principle for viscosity solutions of an Hamilton-Jacobi Equation in Wasserstein spaces."
- 2018 Seminario di Dipartimento, University of Padova, Padova (Italy), 8 January: "Viscosity solutions of an Hamilton-Jacobi Equation in Wasserstein spaces and applications."
- 2018 Seminars of Differential Equations - Department of Mathematics, North Carolina State University, Raleigh, NC (USA), 12 February: "Mean-field optimal control of multi-agent systems"
- 2018 Seminars of Differential Equations - Department of Mathematics, North Carolina State University, Raleigh, NC (USA), 21 February: "Sovreign debt management problem with currency devaluation"
- 2018 Seminars of Department of Mathematics, Université de Bretagne Occidentale, Brest (France), 6 March: "Sovreign debt management problem with currency devaluation"
- 2018 14th Viennese Conference on Optimal Control and Dynamic Games, Technical University of Vienna, Vienna (Austria), 6 July: "New developments in the study of control of multi-agent systems"
- 2018 Workshop on "Optimal Control and Mean Field Games", University of Pavia (Italy), 19-21 September, Pavia (Italy): "Attainability property for mean field control problems"
- 2018 Seminars of the Department of Mathematics, University of Roma Tor Vergata (Italy), 2 October, Roma (Italy): "A Bolza problem for multiagent systems"
- 2018 Workshop "Analysis, Control and Inverse Problems for PDEs", University of Napoli (Italy), 26-30 November, Napoli (Italy): "A Bolza problem in Wasserstein space"
- 2018 Workshop day on Mathematics in memory of Vladimir Goncharov, University of Évora (Portugal), 30 November, Évora (Portugal): "Some aspects of differential inclusions in Wasserstein space and applications"
- 2019 XXI Congress of Unione Matematica Italiana, Pavia (Italy), 2-6 September: "Some aspects of control problems in Wasserstein spaces" (Some aspects of control problems in Wasserstein spaces)

Publications

Publications in Journals

G. Cavagnari and A. Marigonda. Attainability property for a probabilistic target in wasserstein spaces. *Discrete & Continuous Dynamical Systems - A*, 41:777–812, 2021.

Y. Averboukh, A. Marigonda, and M. Quincampoix. Extremal shift rule and viability property for mean field-type control systems. *J Optim Theory Appl*, 2021. online first with DOI: <https://doi.org/10.1007/s10957-021-01832-z>.

C. Jimenez, A. Marigonda, and M. Quincampoix. Optimal control of multiagent systems in the wasserstein space. *Calculus of Variations and Partial Differential Equations*, 59(58):1–45, 2020.

G. Cavagnari, A. Marigonda, and B. Piccoli. Generalized dynamic programming principle and sparse mean-field control problems. *Journal of Mathematical Analysis and Applications*, 481(1):123437, 2020.

J. Calvo, A. Marigonda, and G. Orlandi. Anisotropic tempered diffusion equations. *Nonlinear Analysis*, 199:111937, 2020.

A. Marigonda and M. Quincampoix. Mayer control problem with probabilistic uncertainty on initial positions. *Journal of Differential Equations*, 264(5):3212 – 3252, 2018.

G. Cavagnari, A. Marigonda, and B. Piccoli. Averaged time-optimal control problem in the space of positive borel measures. *ESAIM Control Optim. Calc. Var.*, 24(2):721–740, 2018.

G. Cavagnari, A. Marigonda, K. T. Nguyen, and F. S. Priuli. Generalized control systems in the space of probability measures. *Set-valued and Variational Analysis*, 26(3):663–691, 2018.

G. Cavagnari and A. Marigonda. Measure-theoretic lie brackets for nonsmooth vector fields. *Discrete & Continuous Dynamical Systems - S*, 11(5):845 – 864, 2018.

T. T. T. Le and A. Marigonda. Small-time local attainability for a class of control systems with state constraints. *ESAIM Control Optim. Calc. Var.*, 23(3):1003–1021, 2017.

G. Cavagnari, A. Marigonda, and B. Piccoli. Optimal synchronization problem for a multi-agent system. *Netw. Heterog. Media*, 12(2):277–295, 2017.

A. Bressan, A. Marigonda, K. T. Nguyen, and M. Palladino. A stochastic model of optimal debt management and bankruptcy. *SIAM J. Financial Math.*, 8(1):841–873, 2017.

A. Marigonda and S. Rigo. Controllability of some nonlinear systems with drift via generalized curvature properties. *SIAM J. Control Optim.*, 53(1):434–474, 2015.

P. Cannarsa, A. Marigonda, and K. T. Nguyen. Optimality conditions and regularity results for time optimal control problems with differential inclusions. *J. Math. Anal. Appl.*, 427(1):202–228, 2015.

A. Marigonda, K. T. Nguyen, and D. Vittone. Some regularity results for a class of upper semicontinuous functions. *Indiana Univ. Math. J.*, 62:45–89, 2013.

G. Colombo, A. Marigonda, and P. Wolenski. The Clarke generalized gradient for functions whose epigraph has positive reach. *Math. Op. Res.*, 38(3):451–468, 2013.

A. Daducci, A. Marigonda, G. Orlandi, and R. Posenato. Neuronal fiber-tracking via optimal mass transportation. *Commun. Pure Appl. Anal.*, 11(5):2157–2177, 2012.

A. Marigonda and A. Siconolfi. Dirichlet problem for nonconvex Hamiltonians. *Advances in Differential Equations*, 16(7–8):691–724, 2011.

- S. Lisini and A. Marigonda. On a class of modified Wasserstein distances induced by concave mobility functions defined on bounded intervals. *Manuscripta mathematica*, 133:197–224, 2010. DOI: 10.1007/s00229-010-0371-3.
- F. Auricchio, E. Bonetti, and A. Marigonda. A metric approach to plasticity via Hamilton-Jacobi equation. *Mathematical Models and Methods in Applied Sciences*, 20(9):1617–1647, 2010. DOI: 10.1142/S0218202510004726.
- G. Colombo and A. Marigonda. Singularities for a class of non-convex sets and functions, and viscosity solutions of some Hamilton-Jacobi equations. *J. Convex Anal.*, 15(1):105–129, 2008.
- A. Marigonda. Second order conditions for the controllability of nonlinear systems with drift. *Commun. Pure Appl. Anal.*, 5(4):861–885, 2006.
- G. Colombo, A. Marigonda, and P. R. Wolenski. Some new regularity properties for the minimal time function. *SIAM J. Control Optim.*, 44(6):2285–2299 (electronic), 2006.
- G. Colombo and A. Marigonda. Differentiability properties for a class of non-convex functions. *Calc. Var. Partial Differential Equations*, 25(1):1–31, 2006.
- F. Cardin and A. Marigonda. Global world functions. *J. Geom. Symmetry Phys.*, 2:1–17, 2004.

Conference Proceedings

- G. Cavagnari, A. Marigonda, and B. Piccoli. Superposition Principle for Differential Inclusions. In *Large-scale scientific computing*, volume 10665 of *Lecture Notes in Comput. Sci.*, pages 201–209. Springer, Cham, 2018.
- F. Boriero, N. Sansonetto, A. Marigonda, R. Muradore, and P. Fiorini. Optimal Solution of Kinodynamic Motion Planning for the Cart-Pole System. *IFAC-PapersOnLine*, 50(1):6308–6313, 2017.
- G. Cavagnari, A. Marigonda, and G. Orlandi. Hamilton-Jacobi-Bellman Equation for a Time-Optimal Control Problem in the Space of Probability Measures. In *System Modeling and Optimization: 27th IFIP TC 7 Conference, CSMO 2015, Sophia Antipolis, France, June 29 - July 3, 2015, Revised Selected Papers*, pages 200–208. Springer International Publishing, Cham, 2016.
- A. Marigonda and T. T. Le. Sufficient conditions for small time local attainability for a class of control systems. In *Large-scale scientific computing*, volume 9374 of *Lecture Notes in Comput. Sci.*, pages 117–125. Springer, Cham, 2015.
- G. Cavagnari and A. Marigonda. Time-optimal control problem in the space of probability measures. In *Large-scale scientific computing*, volume 9374 of *Lecture Notes in Comput. Sci.*, pages 109–116. Springer, Cham, 2015.
- A. Marigonda, K. T. Nguyen, and D. Vittone. BV regularity and differentiability properties of a class of upper semicontinuous functions. In *Large-scale scientific computing*, volume 8353 of *Lecture Notes in Comput. Sci.*, pages 116–124. Springer, Heidelberg, 2014.
- A. Marigonda and G. Orlandi. Optimal mass transportation-based models for neuronal fibers. In *Large-scale scientific computing*, volume 7116 of *Lecture Notes in Comput. Sci.*, pages 131–138. Springer, Heidelberg, 2012.
- A. Marigonda and G. Orlandi. A mathematical model for neuronal fibers. *Commun. Appl. Ind. Math.*, 2(1):e–363, 18, 2011.
- A. Marigonda. Second order controllability conditions for the controllability of control systems with drift. In *Proceedings of the conference Control Systems: Theory, Numerics and Applications CSTNA2005 (30 Mar - 1 Apr 2005, Rome, Italy)*, number 12 in Proceedings of Science CSTNA2005 (2005), pages 1–7. SISSA, 2005.
- A. Marigonda. Comparison between some nonsmooth and geometric measure theory concepts. *Nonlinear Analysis: Theory, Methods & Applications*, 63(5):e1673–e1677, 2005. Invited Talks from the Fourth World Congress of Nonlinear Analysts (WCNA 2004).

Work in progress

A. Marigonda and K.T. Nguyen, A debt management problem with currency devaluation, in preparation.

G. Cavagnari and A. Marigonda and Marc Quincampoix, Compatibility of State Constraints and Dynamics for Multiagent Control Systems, in preparation.

Use of personal data

In compliance with the Italian legislative Decree no. 196 dated 30/06/2003, I hereby authorize you to use and process my personal details contained in this document.

Last update

Last update February 26, 2021.

Self-declaration affidavit (art. 46-47 DPR 445/00)

I, the undersigned Antonio Marigonda, born in Roma on 30 Nov 1977, of Italian citizenship, being aware of the consequences of making false statements, falsehood of acts and use of false facts, punishable by law according to art. 76 D.P.R. n. 445/2000 and art. 496 of the Italian Penal Code, under my own responsibility declare to possess all the titles declared in this CV and that all the included information are true.