Lamberto DELL'ELCE

McTao team
Inria Sophia Antipolis Méditerranée
Route des Lucioles 2004
B.P. 93 – 06902, Sophia Antipolis Cedex – France
E-mail: lamberto.dell-elce@inria.fr

EDUCATION AND PROFESSIONAL EXPERIENCE

Nov 2018 – Present: Researcher, **Inria**, France.

Jan 2017 – Aug 2018: Postdoctoral researcher, Inria, France.
Hosts: Prof. Jean-Baptiste Caillau and Dr Jean-Baptiste Pomet.
Research topic: Optimal orbital transfer by averaging multiple frequencies.

Jan 2016 – Dec 2016: Postdoctoral researcher, **University of Colorado Boulder**, US.
Host: Prof. Daniel J. Scheeres.
Research topic: Robust deflection of asteroids trajectories.

Oct 2015 – Oct 2018: FNRS Postdoctoral researcher, **University of Liège**, Belgium
(on hold during Jan 2017 – Aug 2018).

Oct 2011 – Apr 2015: PhD in Engineering Science, University of Liège, Belgium.
"Satellite Orbits in the Atmosphere: Uncertainty Quantification, Propagation and Optimal Control".

Sep 2009 – Jun 2011: MSc Aerospace Engineering, University of Liège, Belgium (Magna cum laude).

Sep 2008 – Jul 2011: MSc Space Engineering, **Politecnico di Milano**, Italy (110/110).

Sep 2005 – Jul 2008: Bachelor Aerospace Engineering, Politecnico di Milano, Italy (110/110 cum laude).

PROJECT INVOLVEMENT AND COLLABORATIONS

Jan 2019 – Present: Collaborator in the project "NiceCube" (Attitude Determination and Control System)

Jul 2015 – Dec 2015: Collaborator in the CNES project "Passive resonance mitigation of uncertain mechanical systems", Grant: RFQ/3-14000/13/NL/MH, P.I.: Prof. Gaetan Kerschen.

Oct 2014 – Dec 2014: Research period at the Distributed Space System Laboratory (DSSL) at the **Technion – Israel Institute of Technology**, Israel.
Host: Prof. Pini Gurfil.
Research topic: Satellite drag estimation using a particle filter.

Oct 2013 – Apr 2015: Collaborative PhD with the **von Karman Institute for Fluid Dynamics**, Belgium.

Sep 2013 – Sep 2015: Collaborator in the ESA project "QARMAN",
Grant: RFQ/3-14000/13/NL/MH, P.I.: Dr Vincent Van der Haegen.

Sep 2012 – Jun 2016: Teaching assistant.
Courses: Astrodynamics, Stochastic modeling in mechanics.

Jan 2012 – Sep 2015: Member of the QB50 Orbital Dynamics Working Group.

Jan 2012 – Jan 2013: Collaborator in the ESA project "Uncertainty quantification for aerospace applications",
Grant: AO /1-6938/11/NL/SFE, P.I.: Prof. Thierry Magin.

AWARDS

Outstanding Paper Award for Young Scientists (2018)
Awarded by COSPAR for the paper “Numerical Investigation of the Dynamical Environment of (65803) Didymos”

European Embedded Control Institute (EECI) sponsorship for attending the EECI Control School (2013)

European Space Agency (ESA) sponsorship for attending the 63rd International Astronautical Congress (2012)

RESEARCH INTERESTS

Astrodynamics, Optimal control, Robust optimization, Uncertainty quantification, Formation flying.

PUBLICATIONS

Journal papers

N. Baresi, L. Dell'Elce, J. Cardoso dos Santos, and Y. Kawakatsu. On the Long-term Evolution of Mid-altitude Quasi-satellite Orbits. **Nonlinear Dynamics**, 2020.

L. Dell’Elce and D.J. Scheeres. Sensitivity of Optimal Control Problems Arising from their Hamiltonian Structure. **The Journal of the Astronautical Sciences**, 2019.

L. Dell’Elce, E. Gourc, and G. Kerschen. A Robust Equal-Peak Method for Uncertain Mechanical Systems. **Journal of Sound and Vibration**, Volume 414, 97-109, 2018.

L. Dell'Elce, N. Baresi, S.P. Naidu, L.A.M. Benner, and D.J. Scheeres. Numerical Investigation of the Dynamical Environment of (65803) Didymos. **Advances in Space Research**, 59, Issue 5, 1304-1320, 2017.

L. Dell'Elce, O. Ben Yaacov, and P. Gurfil. Bayesian Inference of Non-gravitational Perturbations from Satellite Observations. **Journal of Guidance, Control, and Dynamics**, Volume 40, Issue 5, 1231-1240, 2017.

V. Martinusi, L. Dell'Elce, and G. Kerschen. First-Order Analytic Propagation of Satellites in The Exponential Atmosphere of an Oblate Planet. **Celestial Mechanics and Dynamical Astronomy**, 127, Issue 4, 451-476, 2016.

L. Dell’Elce and G. Kerschen. Optimal Propellantless Rendez-vous Using Diffferential Drag. **Acta Astronautica**, Volume 109, 112-123, 2015.

V. Martinusi, L. Dell'Elce, and G. Kerschen. Analytical propagation for the near-circular satellite motion in the atmosphere of an oblate planet: The case of constant density. **Celestial Mechanics and Dynamical Astronomy**, 123, Issue 1, 85-103, 2015.

L. Dell'Elce and G. Kerschen. Probabilistic Assessment of the Lifetime of Low-Earth-Orbit Spacecraft: Uncertainty Propagation and Sensitivity Analysis. **Journal of Guidance, Control, and Dynamics**, Volume 38, Issue 5, 886-899, 2015.

L. Dell'Elce, M. Arnst, and G. Kerschen. Probabilistic Assessment of the Lifetime of Low-Earth-Orbit Spacecraft: Uncertainty Characterization. **Journal of Guidance, Control, and Dynamics**, Volume 38, Issue 5, 900-912, 2015.

Selection of conference papers

J.-B. Caillau, L. Dell'Elce, J.-B. Pomet, and J. Rouot. Optimal control of slow-fast mechanical systems. UCA Complex days, Nice, France, 2018.

L. Dell'Elce, N. Baresi, G. Kerschen, and D.J. Scheeres. Robust Mission Design Using Invariant Manifolds. In Proceedings of the 67th International Astronautical Congress (IAC), Guadalajara, Mexico, 2016.

L. Dell'Elce, V. Martinusi, and G. Kerschen. Robust optimal rendezvous using differential drag. In Proceedings of the 2014 AIAA/AAS Astrodynamics Specialist Conference, San Diego, California, US, 2014.

A comprehensive list of conference papers is available at:
http://www-sop.inria.fr/members/Lamberto.Dell-Elce/