

Curriculum vitae

Carlos M. Correia

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Scientific Interests: wide-field adaptive optics (design, modelling, testing), atmospheric tomography, wave-front sensing, wave propagation through random media, turbulence, signal processing, linear and non-linear optimisation, inverse (large scale) problems, dynamical control

Working Experience

2015-2017 : A*MIDEX Rising Star Fellow

LAM - Laboratoire d'Astrophysique de Marseille

PI of the project EXTRA: Expanding the Technological Readiness of Future Wide-field Adaptive-Optics Systems for Ground-based Astronomy

2013-2015 : Marie Curie Fellow

CAUP - Centre for Astrophysics, University of Porto

PI of project PHARAOH: Detection of exo-Planets via High-Accuracy Radial-velocity spectrographic measurements with Adaptive Optics enHancement

2010-2013: Research Associate in Adaptive Optics

CNRC-HIA - Canada National Research Council - Herzberg Institute of Astrophysics

Supervisor: [Jean-Pierre Véran](#)

Main projects:

- NFIRAOS ([Thirty Meter Telescope](#)): numerical modelling, atmospheric tomography, signal processing, optimality in inverse problems, dynamical control, PSF reconstruction
- GPI ([Gemini Observatory](#)): Strehl-optimising minimum-variance controllers for low-order modes
- SCEXAO ([Subaru Telescope](#)): non-linear optimisation for curvature wave-front sensing

2012-2015: Associate Member, Faculty of Graduate Studies, University Victoria FGS

Co-adviser of 1 Ph.D. and 1 M.Sc. student.

2012-2013: Visiting Scholar

University Victoria, [Adaptive Optics Lab](#)

Projects: [RAVEN \(Subaru Telescope\)](#): Multi-objects adaptive-optics, tomographic wave-front reconstruction, efficient real-time numerical solvers

2010-present: Invited Researcher

SIM – Systems, Instrumentation and Modelling Lab, University of Porto, Portugal

2007-2010: Ph. D. thesis in Natural Sciences (Physics), Université Paris XIII

Title: *Design of high-performance adaptive optics control laws for large/very large astronomical telescopes* [[web](#)]

ONERA – French National Aerospace Lab – Theoretic and applied optics dept.

Advisers: [Jean-Marc Conan](#), [Henri-François Raynaud](#) and [Caroline Kulcsár](#)

2004-2006: Research Trainee

ESO - European Southern Observatory–Adaptive Optics Group

Advisers: Enrico Fedrigo, Miska Le Louarn, Norbert Hubin

Publications

17 peer-reviewed, 68 international conference proceedings, 2 communications in workshops, 28 oral communications, 9 invited seminars, 7 posters [[web](#)]

Lecturing activities

2013-2015: UPorto PhD programme in Astronomy and Astrophysics(15h module on Advanced Topics in Instrumentation)

2013-2014: UPorto BSc. in instrumentation(1st semester, 4h/week)

2010-2011: UVic co-op students co-supervision

4 students in theoretical and experimental design and set up of AO systems

2007-2009: Assistant lecturer in wave propagation and wave-optics

ESIEE - Ecole Supérieure d'Ingénieurs en Électronique et Électronique

Education

2007-2010: Ph.D. student in Natural Sciences (physics)

University Paris XIII, France

1999-2004: Lic., Electronics and Computer Engineering (5-yr. dipl.)

University of Porto, Portugal

Languages: Portuguese Mother Tongue

	English	French	Italian
Writing	Excellent	Excellent	Basic
Reading	Excellent	Excellent	Fair
Speaking	Excellent	Excellent	Fair

Scientific grants and awards

- 2014: 5-year FCT Investigator Fellowship – reffused
- 2014: A*MIDEX "Chair d'Excellence" [400kEUR]
- 2012: EU Marie-Curie fellowship to work on high resolution spectrographs for exo-planet research at CAUP – *Centre for Astrophysics, University of Porto* [150kEUR]
- 2009: Galileo Doctoral School, *Accessit* Jury Award for the best posters
- 2007-2010: Ph.D. grant, Portuguese *Foundation for Science and Technology* (FCT)
- 2005-2006: Research traineeship, FCT and *Innovation Agency* [web]
- 2002-2003: *ERASMUS* – EU University student exchange programme at INSA , France

Scientific Reviewer

- JOSA-A, since 2010; Opt. Express, since 2012, ECC, since 2009, French *Agence National de la Recherche*, since 2012

Conference SOC-LOC

- AO tomography workshop: Leiden, July 2012 [web]; Edinburgh, March 2014 [web]
- Elbereth 2008, Conference for students in Astronomy and Astrophysics in Ile-de-France, Paris, Dec. 2008. [web]

Outreach activities

- Lecturer of *The spectacles of the telescopes?*, European Space Education Resource Office [web]
- Co-director of *Panique a Vera Cruz*, Scientific outreach documentary, 6', France, 2009 - Doc'Up jury prize winner [web]
- Co-director of *Superphoton et le jeu de l'OA*, Scientific outreach documentary, 6', France, 2008 - Doc'Up festival prize winner [web]