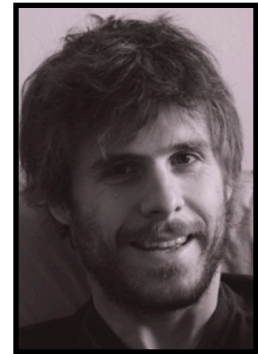


**MARC HUERTAS-COMPANY**

Maitre de Conférences (Associate Professor)

**PERSONAL INFORMATION**

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Lang: Spanish, Catalan (Mother Tongues), French (Bilingual), English (Current)

**SUMMARY - RESEARCH ACTIVITY**

I am an Assistant Professor (Maitre de Conférences) at the Paris Observatory and Paris Diderot University and a junior member of the Institut Universitaire de France since 2015. Since 2020 I am also Adjunct Professor at the University of California Santa Cruz. Currently I am on sabbatical leave at the Canary Islands Astrophysics Institute in Spain funded by a grant of excellence from the Spanish government called Ramón y Cajal. I am an expert in the formation and evolution of galaxies with as main specialties the formation of massive galaxies and the morphology of galaxies in the context of large cosmological surveys. Since the beginning of my career, my lines of research are at the crossroads between two fields: astrophysics and machine learning. I was one of the pioneers in the use of machine learning in astronomy. I was indeed the first researcher to apply SVM to the classification of galaxy morphologies in 2007 and the author of the second article using deep learning in astrophysics in 2015. Since then, I have led more than 15 papers on astronomy and deep learning.

I am a confirmed independent researcher (77 articles referred - 34 first / second author, 2700+ citations, H-index 30) and professor (+1000hrs undergraduate and graduate levels) with excellent international visibility (20+ invited talks in international symposiums). I am also involved in several of the major projects of the next decade in my field of research (eg Euclid, JWST, Roman, J-PAS, etc.) in which I lead working groups (ie morphology of galaxies in Euclid). I also have a good experience in supervision (5 PhDs, 15+ Master students and 4 postdocs) and in research management (PI of three projects of 150Keuros).

**EDUCATION**

Year	Title	Host institution
2015	<b>HDR</b> - Maximum academic qualification in France - certifies research leadership and allows student supervision - <a href="#">More info here.</a>	Université Paris Diderot
2008	<b>PhD in Astrophysics</b> Supervisors: D. Rouan, G. Soucail, M. Moles	Observatoire de Paris (France) Universidad de Granada (Spain)
2005	Master's Degree Astrophysics	Observatoire de Paris
2004	Master's Degree Image Processing	Ecole des Mines de Paris
2004	Graduate (Telecom. Engineer)	Universidad Politécnica de Madrid

**CURRENT AND PAST POSITIONS**

Year	Title	Host institution
2020-present	Adjunct Professor (with no Salary)	University of California Santa Cruz (USA)
2018-present	RyC Fellow	Instituto de Astrofísica de Canarias (Spain)
2016-2017	Visiting Scholar (Sabbatical)	University of Pennsylvania / University of California Santa Cruz (USA)
2015-present	Junior Member	Institut Universitaire de France (IUF) - see AWARDS section
2010-present	Assistant Professor (Maitre de Conférences)	Université de Paris - Observatoire de Paris
2009	ESO Fellow	European Southern Observatory
2005-2009	PhD student	Observatoire de Paris

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**SCIENTIFIC PRODUCTIVITY**

- 77 refereed papers (ApJ, MNRAS, A&A + NeurIPS, ICLR), 33 first/second author (3 only with PhD supervisor), 2700+ citations, 3 first author papers with more than 100 citations, h-index~30 (ADS database - full list here)
- 20+ invited talks in international workshops and meetings
- 20+ invited seminars in Universities and at private companies (GoogleBrain, Microsoft, DeepMind)

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**TEACHING AND OUTREACH ACTIVITIES**

- Regular teaching load at Paris Diderot: 192h/year (2009-2015), 64h/year (2015-2016, 2017-2018) - Teaching at all levels. Head of 4 Courses. On sabbatical since 2018.
  - Since 2017 I organize a one-week intensive course for graduate students in Paris: “AI for Astrophysics”
  - Invitations as Lecturer to 4 international schools for graduate students (e.g. Saas Fee 2020, IAC Winter School 2018)
  - Multiple outreach talks
  - Articles in outreach journals in France (*Ciel et Espace*) and in the US (American Scientist)
  - Participation to a documentary in Japan on Astronomy and Machine Learning, research featured in Discovery Channel
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**SUPERVISION OF GRADUATE STUDENTS AND POSTDOCTORAL FELLOWS**

<b>Year</b>	<b>Type</b>	<b>Name</b>	<b>Project/Topic (current position)</b>	<b>Production</b>
2020-present	<b>PhD</b>	Regina Sarmiento	Unsupervised learning for IFU data	
2019-present	<b>PhD</b>	Hubert Bretonniere	Euclid Morphology	2 papers in prep
2019-present	PostDoc	Diego Tuccillo	Euclid Morphology	
2017-2019	PostDoc	Berta Margalef	ASTROBRAIN (PI)	1 paper published
2014-2017	<b>PhD</b>	Paola di Mauro	Star-formation of bulges and disks - SHARDS+ CANDELS	2 paper published,
2015-present	<b>PhD</b>	Fernando Caro	Morphologies for EUCLID	1 paper published
2011-2013	<b>PhD</b>	Lauriane Delaye	Mass-size relation in clusters (Engineer position LATMOS)	2 papers published
2016-2018	PostDoc	Diego Tuccillo	GAMOCCLASS (PI)	1 paper
2017-2019	PostDoc	Helena Dominguez	ASTROBRAIN (PI)	2 papers published
2010-2018	15+ Master students			3 papers published

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**SELECTED SCIENTIFIC RESPONSIBILITIES (INCLUDING OBTAINED FUNDING)**

<b>Year</b>	<b>Responsibility</b>	<b>Description</b>
2019 - present	Lead of Research Group at IAC (2 PhD students, 2 postdocs, Master Students)	<i>Group focussed on applying AI techniques for galaxy evolution</i>
2019-present	PI of project ASTROMIND	<i>Project funded by the Spanish National Research Agency (110.000 euros) - Deep-Learning and Galaxy Evolution</i>
2018-present	Member of the Illustris-TNG collaboration	<i>IllustrisTNG is a cosmological hydro numerical simulation. I am comparing the morphologies of observed and simulated galaxies at <math>z=0</math>.</i>
2018-present	Science collaborator in JWST ERS successful proposal CEERS	<i>ERS proposal to observe deep fields with JWST. I will be analyzing the morphological properties of <math>z&gt;3</math> galaxies.</i>
2016-present	<b>PI of project ASTROBRAIN</b>	<i>Project funded by the French National Research Agency (150.000 euros) - Deep-Learning and Galaxy Evolution</i>
2015-2018	<b>PI of project GAMOCLASS</b>	<i>PSL funded project to develop new algorithm for galaxy morphology estimation - Funds a postdoc in collaboration with the Ecole des Mines de Paris - 150.000 Euros</i>
2020-present	Member of the Roman Collaboration	
2014-present	J-PAS morphology lead	<i>I am leading the morphology group in J-PAS, a narrow band survey of the nearby Universe with the Javalambre Observatory (Spain)</i>
2016-present	<b>EUCLID morphology WP lead + ML working group lead</b>	<i>EUCLID is an ESA/NASA space mission to be launched in 2022. I am leading the morphology WG. Developments of algorithms to estimate galaxy morphologies in EUCLID</i>
2016 - present	Member of the CANDELS collaboration	<i>CANDELS is the largest HST survey ever done. I have produced several public morphology catalogs for CANDELS - both parametric and visual using deep learning</i>

AWARDS

Year	Award	Description
2018	Google Faculty Research Award	Research Award from Google to carry out research on deep learning and galaxies - in coll with Pr. Joel Primack (UCSC). Funding of 2 months stays at the University of California Santa Cruz for the last 3 years (2016, 2017, 2018)
2017	Ramón y Cajal Research Senior Fellowship	Competitive tenure Track Fellowship award awarded by the Spanish Ministry of Research to young researchers (PhD+5-PhD+10). Success rate is 5%
2016	ERC Starting Grant (Ranked A at step 2)	1.5 million euros proposal at the European Research Council ranked A at second step (interview) and proposed for funding. Not finally funded because of insufficient funds.
2016	Visiting Scholarship - University of Pennsylvania (USA)	Funding for a sabbatical year at UPenn to continue collaboration with Prof. M. Bernardi
2015	IUF - Institut Universitaire de France	5 year nomination - distinguishes each year a small number of university professors for their research excellence - Only 2% of French University Professors have been awarded
2014	PEDR	Award acknowledging research excellence and student supervision

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OTHER INSTITUTIONAL RESPONSIBILITIES

Year	Responsibility	Description
2020 - present	Creation of big-data and ML research group at the IAC	<i>Leading efforts to build up a new research line at the IAC</i>
2019-present	Member of the "Commission Scientifique Astronomie / Astrophysique (CSAA)"	<i>National Scientific policies and funding for Astrophysics in France</i>
2018-2019	Expert member of French National Panel recommending scientific priorities for the next years	<i>Preparing and analyzing questionnaires and writing reports</i>
2011-2017	International relations coordinator physics department	<i>receiving and sending students from all across Europe (and abroad).</i>
2015-present	Elected member national university council (GNU)	<i>decisions related to national university policies in France</i>
2013-2016	Elected member GEPI council	<i>decides all aspects of department life (hirings, scientific priorities...)</i>
2016-2018	Member of the Committee for Time Allocation (CAT) of the <i>Roque de los Muchachos Observatory</i>	<i>evaluates proposals sent to the Observatory twice a year (GACOS panel)</i>
2018-2019	Member of panel of experts to establish French scientific priorities for the next 5 years	<i>production of a report on priorities in terms of artificial intelligence applied to astronomy</i>