

# John Eduard Martínez Fernández

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📍 Madrid, Spain  
📅 27/Dec/1995 Cali, Valle del Cauca

## EDUCATION

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- MSc in Astrophysics (60 ECTS)** **Madrid, Spain**  
*Universidad Complutense de Madrid (UCM)* *Sep 2019 - Sep 2020*
- **Thesis:** High-resolution image analysis with NOEMA
  - **Advisor:** Dr. Javier Alcolea Jiménez
- BSc in Physics (250 ECTS)** **Madrid, Spain**  
*Universidad Complutense de Madrid (UCM)* *Sep 2014 - Feb 2019*
- Fundamental Physics, astrophysics specialization
  - **Thesis:** Light pollution analysis through sky measurements
  - **Advisor:** Prof. Dr. Jaime Zamorano Calvo
- High school with the specialisation in Sciences and Technology** **Madrid, Spain**  
*I.E.S. Ciudad de los Ángeles* *Jun 2014*

## OTHER COURSES

- 4th Institute of Space Sciences Summer School. Artificial Intelligence for Astronomy** **Virtual**  
*Institute of Space Sciences (CSIC, IEEC)* *12 Jul 2021 - 16 Jul 2021*
- Code/Astro. A Software Engineering Workshop for Astronomy** **Virtual**  
*Heising-Simons Foundation* *21 Jun 2021 - 25 Jun 2021*
- ESCAPE Summer School 2021** **Virtual**  
*Laboratoire d'Annecy de Physique des Particules (LAPP)* *07 Jun 2021 - 18 Jun 2021*
- IAA-SO Course. An Introduction to IFU Spectroscopy** **Virtual**  
*Instituto de Astrofísica de Andalucía (IAA - CSIC)* *14 Jun 2021*
- English Immersion program. Health and Life Sciences** **Barcelona, Spain**  
*Scholarship at Universidad Internacional Menéndez Pelayo (UIMP)* *14 Dec 2020 - 18 Dec 2020*
- I International School on Particle Physics and Cosmology** **Santander, Spain**  
*Scholarship at Universidad Internacional Menéndez Pelayo (UIMP)* *01 Jul 2019 - 05 Jul 2019*  
New Windows to the Universe: Gravitational Waves, and Multi-Messengers
- XIV SVO SCHOOL. Introduction to Virtual Observatory Software** **Madrid, Spain**  
*Spanish Virtual Observatory, Centro de Astrobiología, (CAB, INTA-CSIC)* *18 Nov 2019 - 25 Nov 2019*

## WORK EXPERIENCE

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- Centro de Astrobiología (CAB, INTA-CSIC)** **Madrid, Spain**  
*Extracurricular Internship* *08 Apr 2020 - 30 Jun 2020*
- **Department:** Spanish Virtual Observatory (SVO)
  - **Description:** Compilation of different software tools (images reduction, detection of Solar System Objects and rotation periods estimation) in a single pipeline written in Python to automate the process of identifying Solar System Objects.  
**Pipeline:** <https://github.com/johnedmartz/Automatic-SSOs>
- Centro de Astrobiología (CAB, INTA-CSIC)** **Madrid, Spain**  
*Curricular Internship* *01 Feb 2020 - 07 Apr 2020*
- **Department:** Spanish Virtual Observatory (SVO)
  - **Description:** Use of tools and services to identify Solar System Objects from different astronomical surveys using Gaia DR2 as reference catalogue.

## SEMINARS

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### Journal Club. Analysis of high-resolution images with NOEMA

Observatorio Astronómico Nacional (OAN)

28 Sep 2020

Scientific seminar given at the OAN presenting the results and methods used in my Masters Thesis work.

## RELEVANT COURSEWORK

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### Master's Thesis

Interferometric data reduction and mapping of the pPN M1-92 using SO emission lines as a dense gas tracer to obtain physical parameters.

Currently, with the advice of my Master Thesis supervisor (Dr. Javier Alcolea Jiménez), I am writing a paper for A&A based on the results of this work.

### Experimental Techniques and Astronomical Instrumentation

Knowledge of the most important instruments used in astronomy as well as spectroscopy, image reduction and astrometric calibration in the optical range and interferometric data reduction in radio. Besides an introduction to data handling of the IFU mode of MEGARA.

### Interstellar medium

Understanding of components and main properties of the interstellar medium. Including its effects on star formation and astronomical observations.

### Data analysis and statistical techniques

Classical and bayesian statistics with a focus on the Markov Chain Monte Carlo methods (MCMC) in R language.

### Cold stars and substellar objects

High resolution spectrum analysis of stellar and substellar objects to obtain their properties.

### Stellar atmospheres

Basic knowledge of physical mechanisms that take place within the stars and radiative transfer.

## LANGUAGE SKILLS

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Mother tongue: **Spanish**

Other languages:		Listening	Reading	Speaking	Writing
(CEFR Levels)	<b>English</b>	C1	C1	B2	B2

## DIGITAL SKILLS

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- o **Operating Systems** – Linux - Ubuntu, Windows
- o **Programming Languages** – R, Python
- o **Scientific Software** – MATLAB, WolframAlpha
- o **Text Editors** – LaTeX, Word
- o **Statistical Programming Languages** – R, Stan
- o **Version Control** – Git and GitHub
- o **Other data plotting and analysis software** – Excel, SciDAVis
- o **Other Astronomy Software** – TOPCAT, IRAF, GILDAS, AstrOmatic software (SExtractor, SCAMP and SWarp), Aladin