Jesús Aguado López

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Work experience

2023-current **Instructor**, *Universidad Autónoma de Madrid*, Madrid
Teaching 30 h course *Numerical Analysis* on computational analysis of programming algorithms in *Double Degree in Mathematics and Computer Science*.

2021-current **Research staff in training**, *Consejo Superior de Investigaciones Científicas CSIC*, Madrid
Four-year contract in program grant PRE2019-094407 at Instituto de Ciencias Matemáticas (CSIC).

2018 - 2019 **Undergraduate level professor**, *Academia ConoSer*, Sevilla
Physics and mathematics teaching in private academy at university and high-school level.

July 2017 **Research fellowship**, *CERN - High Energy Physics Institute (IFAE)*, Geneva
Research fellowship at CERN, developed algorithms for collision data from ATLAS detector.

Education

2021 **Master's Degree in Advanced Mathematics**, *Universidad Complutense de Madrid*
Awarded scholarship by CSIC for master thesis research in *Instituto de Ciencias Matemáticas*.

2023 **Master's Degree in Physics**, *University of Bonn*
Awarded scholarship by Bonn-Cologne Graduate School to study theoretical physics *Honors Branch*.

2019 **Double Bachelor's degree in Mathematics and Physics**, *Universidad de Sevilla*
Obtained both degrees: BSc in Mathematics and BSc in Physics.

Technological skills

Languages Python (pandas, numpy, scikitlearn, matplotlib, keras, tensorflow, pyspark), Haskell, MATLAB (simulink), Mathematica, ROOT, LaTeX.

Tools & OS Git, shell scripting (Bash), Vim. x86: Linux (Arch, Debian) and Windows. ARM: Raspbian.

Web developing AWS (with GPU computing), LEMP stack, dovecot/postfix mailserver, Gitolite, Nextcloud. HTML, CSS, Javascript.

Scientific skills

Computation Design and analysis of algorithms, numerical methods for differential equations, optimization in operations research.

Data science Hypothesis testing, parameter estimation, time-series analysis, Markovian and stochastic processes. Large data analysis in collision physics.

Experimental science Hardware and electronics tests with PSpice, wave-guide characterization, nuclear spectroscopy devices, material properties measurements in solid state physics. Detector physics.

Publications

2021 **Dimensional reduction of the Kähler–Yang–Mills equations**, Aguado López, Msc thesis.

2020 **Semigroup theory in Quantum Mechanics**, Aguado López et al, TEMat (link).

2019 **Propagator theory: electroweak processes**, Aguado López, Bachelor thesis (link).

Soft skills

Languages English (C1 level), Spanish (mother tongue), French (intermediate), German (basic).

Communication 1 year experience in high-school and university-level teaching. Ample experience communicating in international research and technical meetings. Graduation speech of first double degree Math-Phys in Universidad de Sevilla.

Management President of Sevilla Physics Student Association (2016-2017): organized astronomy trips, teaching courses in advanced mathematics for physics, and managing funding grants. Collaborator in organizing the *XVIII International Fall Workshop in Geometry and Physics*.

About me

A nature and sports enthusiast, I enjoy hiking, playing volleyball and recently, bouldering. Even though as an amateur, I am very passionate about music, playing electric and acoustic guitar. I am quite fond of travelling and being exposed to new cultures.