Jaume de Dios Pont

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Curriculum Vitae

Education

2018 – **PhD. Mathematics**, *University of California, Los Angeles*.

2017 – 2018 **MS. Mathematics**, *Eidgenössiche Tecnische Hochschule Zürich*, Grade: 5.76/6.
Master Thesis: Quantum Loewner Evolution, *supervised by E. Powell and W. Werner*

2012 – 2017 **BS. Mathematics**, *Autonomous University of Barcelona*, Grade: 9.71/10, (#1 Rank).

2016 – 2017 **Exchange Program**, *University of California los Angeles*, .
Bachelor Thesis: Oscillatory integrals and the Kakeya Conjecture, *supervised by J. Garnett, J. Verdera*

2012 – 2017 **BS. Physics**, *Autonomous University of Barcelona*, Grade: 9.62/10.
Bachelor Thesis: Design of KCM-related experiments *supervised by F. Álvarez, A. Lopeandía*

Scolarships

2017 **Beca 'La Caixa'**.
Granted the 'La Caixa' scolarship to pursue graduate studies in the US starting August 2018. The scolarship covers full tuition and a stipend for the first two years of the graduate program. Obtained the highest score given by the selection commitee.

2017 - 2018 **Excellence Scolarship**, *ETH Zurich*.
Granted the Excellence scolarship for the Master in Mathematics, wich covers tuition, living costs, and a special mentorship program.

Research & Work experience

2017 **GNAM**, *Grup de Nanomaterials, UAB*.
Research on the GNAM phyisics Group. Designed experiments to measure heat conduction beyond the scope of the Fourier equations at the Nanoscale, with a focus on the KCM diffusion model. At the moment the designed experiments are being performed in GNAM.

2016 **ICFO**, *Summer Fellowship of the Institute of Photonic Sciences*.
Research fellow in the group of Antonio Acín (Quantum Information). The main focus of my research was the creation of supperpositions of unknown quantum states. I proved that such creation is impossible even under more general circumstances that it was previously known, and studied the situation where more than one copy is given. Supervisor: Dr. Michal Oszmaniec

2015 **The Dark Energy Survey Project**, *IFAE- Institute for High Energy Physics*.
Short time intern in the Dark Energy Survey Project. My main goal was to perform numerical computations in python, in order to study the soundness of theoretical models regarding the harmonic spectrum of galaxy density distributions. Supervisor: Dr. Ramon Miquel

Publications

2017 **Noise removal and feature extraction of 2D CT radiographic images**, *Joint work with S. Harizanov and D. Wenzel*, Conference: 11th Annual Meeting of the Bulgarian Section of SIAM, At Sofia, Bulgaria, Volume: Advanced Computing in Industrial Mathematics, SCI Springer .

2020 **Role Detection in Bicycle-Sharing Networks Using Multilayer Stochastic Block Models**, *Joint work with J. Carlen, C.Mentus, S. Chang, S. Wang and M. Porter*, Preprint, arXiv:1908.09440.

Contests and Awards

2017 **Datafest**, *Data analysis contest*, Los Angeles.
First position in one of the most prestigious data science undergraduate competitions, data visualization category. Sponsoring company and data provider: Expedia.

2014-2016 **COMAP MCM**, *Team UAB*.
Took part for three consecutive years in the "COMAP modelling contest", a 96h international mathematics modeling contest. Remarkable results include "Meritorious Participant" team award as well as the 1st position for European teams.

2012 **Ajuts Universitaris**, *Caixa Catalunya*.
Grant awarded, given to the students with best university admission exams.

Courses and Workshops (Organised/Taught)

2015 **Go Photon!**, *ICFO*.
Worked as a guide for the ICFO exposition Go Photon!, which explains ICFO research using classic science fiction illustrations from Frank R. Paul.

2015 **An introductory course to financial mathematics**, *UAB*.
Organized (and then took part in as a student) a one-week long summer course on financial mathematics for undergraduate students, with the help of prof. Manuel Castellet.

2014-2016 **Dissabtes Transfronterers de les Matemàtiques** , *FPdGi*.
Organised workshops in the conference session 'Dissabtes transfronterers de les matemàtiques'. One of the years I programmed cryptography themed Web-App to be used in a cryptanalysis contest. It can be accessed in http://mat.uab.cat/ dissabtes2015. Try it!

Student Representation (University)

2014 - 2016 Elected representative for the students at the "Junta de Facultat" (Science School council), the highest body of collegiate government of that school. Reelected in 2016.

2013 - 2015 Elected representative at the "Consell d'estudiants de la UAB" (Student council for the whole university).

Computer skills

Languages & Frameworks

- **Python**
  High emphasis in scientific computations, image processing and scientific data analysis. Expertise using the scientific stack (scipy, numpy, statsmodels..), knowledge of opencv and the machine learning frameworks scikit-learn and TensorFlow.
- **MatLab/SciLab:**
  Relevant work includes ODE/PDE scientific simulation, image processing of microscopical Brownian Motion data and image processing for Computational Tomography scans.
- **R**
  Statistical data analysis, including machine learning, hypothesis testing, parameter estimation and data visualization
- **Javascript+HTML5+CSS**
  Programmed Chrome Apps, websites, and phone games. Casual user of node.js.
- **C / C++**
  High performance numerical simulations (using LAPACK/CUDA)
- **PHP** (and LAMP set-up)
  Programmed the back-end for web-apps and games, as well as for some projects in a Raspberry Pi.
- **LabView** (basic)
  Programmed interfaces for data acquisition in nanocalorimetry, developed a python interface for a preexisting labview module.

Miscellaneous Software

- LaTeX
- COMSOL
- Gnuplot
- GIT

Languages

Catalan	**Mothertongue**	
Spanish	**Mothertongue**	
English	**Fluent**	*CAE Advanced/ TOEFL 108/120*
French	**Intermediate**	*Conversationally fluent*
German	**Intermediate**	*B1*

Research and Academic Interests

- Harmonic analysis
- Theory of Machine Learning
- Stochastic Processes
- Numerical Analysis
- PDEs
- Statistical Physics