Diego **Porres**

PURE & APPLIED MATHEMATICIAN · PHYSICIST

☐ +1 (408) 520-8317 & +502 5527-7856 | ✉ daporres@ufm.edu | ⌥ PDillis | in diego-porres

Education

Università degli Studi dell'Aquila / Université Nice-Sophia Antipolis   *L'Aquila, Italy / Nice, France*

MSc. in Mathematical Engineering / Laurea Magistrale in Ingegneria Matematica
Masters of Mathematics and Interactions / Master de Mathématiques et Interactions, with specialty   *Sept. 2015 - Sept. 2017*
in Pure and Applied Mathematics

- Received a double degree for the Mathematical Modelling in Engineering (MathMods) Erasmus Mundus Master program.
- Received a Erasmus Mundus (Erasmus+) Scholarship that are awarded to the most talented applicants who will be full-time students enrolled in the MathMods MSc course, based on the ranking made by the MathMods Evaluation Committee.
- Emphasis on last semester was on mathematical modelling applications to Finance with courses on Stochastic Calculus, Stochastic Control, Statistics and Numerical Methods.

Modelling Camp (05/2016 - 06/2016): Development of a mathematical framework for describing
pedestrian motion and crowd dynamics. The implementation and simulation was done with MATLAB.   *Hamburg, Germany*

Thesis title: Reinforcement Learning for Self-Driving Cars   *Internship Report*

Universidad del Valle de Guatemala   *Guatemala City, Guatemala*

Bachelor of Science, Major in Physics   *Jan. 2007 - Nov. 2012*
- Theoretical physics, from Classical to Modern Physics, with numerical analysis of modern physics experiments.

Thesis title: Quality Control in the Information Acquisition of the patient using the CAT3D Computerized
Planning System for Cancer Treatment   *Internship Report*

Internships

Computer Vision Center (CVC) / Advanced Driver Assistance Systems (ADAS)   *Barcelona, Spain*

Graduate Research intern   *May 2017 - Oct. 2017*
- Researched how the state-of-the-art algorithm (specifically, the A3C) in Reinforcement Learning can be applied to self-driving cars.
- Used Atari 2600 games and flash games via OpenAI's Gym and Universe environments to test and train agents.
- Researched other possible new algorithms and technologies that self-driving cars can use to realize specific tasks, such as avoiding pedestrians.

Supervisor: Antonio M. López, PhD., head of R&D Group ADAS

Clínica de Radioterapia La Asunción / Radiotherapy Clinic La Asunción   *Guatemala City, Guatemala*

Research intern   *March 2011 - May 2012*
- Aided in the different phases of radiotherapy in the clinic, from planning, calibration of the linear accelerator, molds creation, aiding the control room of the linear accelerator, to radiosurgery.
- Conducted quality control tests on the CAT3D software used in the clinic for the planning of radiotherapy sessions and radiosurgery as part of the thesis for the BSc. in Physics.

Supervisors: Erick Estuardo Hernández García, MSc. & Ricardo E. Contreras Folgar, MSc.

Software Skills

Programming / Software

> 4 years	**Python** Numpy, Jupyter, Matplotlib, Scipy, Tensorflow, Keras, Pandas, Scikit-learn	*2.7, 3.5+*
> 1 year	**R & MATLAB** MATLAB R2014a	
< 1 year	**C++ & C**	*C++11*
> 2 years	LᴬTEX	

May 24, 2018   Diego Porres · Résumé   1

Operating Systems

> 5 years **Windows** XP, 7 & 10

1 year **Ubuntu** 16.04

Other Experience, Schools & Workshops

March 2018 Piscine/Intensive Basic Training
Fremont CA, U.S.A.

42 Silicon Valley
March 12 - June 6, 2018

- Intensive, 7-day a week training for programming on C.
- The basic training worked as part of the admission process to enter the 42 School Silicon Valley program.
- Final result: Accepted.

Andean Symposium of Relativistic Astrophysics
Bucaramanga, Colombia

Advanced topics in Relativistic Astrophysics.
June 10-12, 2015

- Numerical methods for finding solutions to Einstein's Field Equations of General Relativity.
- Attended lectures on the algorithms, codes and implementation of the numerical methods and state-of-the-art results in General Relativity.
- The coding laboratories were implemented on the Linux environment.

Lecturer at the Universidad Francisco Marroquín
Guatemala City, Guatemala

Courses: Statistical Thinking and Data Analysis & Calculus 3.
July 2014- May 2015

- Designed syllabus, lectures, homeworks and tests for both courses.
- The students attending the lectures were from the Faculty of Economical Sciences (FCE).

United States Particle Accelerator School (USPAS).
Knoxville TN, U.S.A.

Microwave Linear Accelerators
Jan. 20 - 31, 2014

- Intensive two-week graduate course on Microwave Linear Accelerators.
- The course consisted of lectures in the morning/afternoon, with some computer laboratory exercises in between.
- Final grade: A-.

CERN Accelerator School
Granada, Spain

Introduction to (Particle) Accelerator Physics
Oct. 28 - Nov. 9, 2012

- Introductory particle accelerator topics: from relativity to linear accelerators.
- Higher level particle accelerator topics: particle sources to warm magnets.

Teaching Assistant at the Universidad Francisco Marroquín
Guatemala City, Guatemala

Courses: Physics 1, Calculus 1, Mathematical Analysis 1 & 2 and Logistics & Supply Chain Management
July 2011 - May 2014

- Delivered tutorials to the undergraduates attending these courses.
- Involved in the development of new material, as well as the grading of quizzes and homework.

Research Assistant in the Centro de Estudios Atitlán (Center for Atitlán Studies)
Guatemala City & Lake Atitlán, Guatemala

Course and research on aquatic ecology.
March 2010 - May 2010

- Assisted in research of proliferation of the cyanobacteria *Lyngbya Robusta* on Lake Atitlán, Guatemala.
- The course and research was conducted by MSc. Margaret Ann Dix, laboratory chief at the Centro de Estudios Atitlán (CEA).

Teaching and Laboratory Assistant at the Universidad del Valle de Guatemala
Guatemala City, Guatemala

Courses: Physics 2, General Physics, and Modern Physics
Jan. 2009 - Nov. 2010

- Delivered tutorials to the undergraduates attending these courses, as well as the grading of quizzes and homework.
- Involved in the development of new experiments for the students to better understand the concepts taught during the lectures.

Online Degrees / Specializations

Deep Learning Specialization   *Coursera, deeplearning.ai*
NEURAL NETWORKS, THEORY AND APPLICATIONS   *March 2018*

- Obtained the Deep Learning Specialization from Coursera, which consisted of five interconnected courses.
- The five courses were imparted by Prof. Andrew Ng, where he showed how to build some of the latest AI algorithms from the ground up.
- All alrogithms were built first by using NumPy and we later moved to higher level packages like Tensorflow and Keras.
- The courses concentrated on theory and their applications in industry, like Computer Vision, Natural Language Processing, Speech Recognition, among others.

Languages (CEF Scale)

Spanish **Mother Tongue / Level C2**
English **Proficient User / Level C2**
French **Independent User / Level B1**
Italian **Basic User / Level A2**

Volunteer Work

2009-2015 **Volunteer** Worked on fundraising and construction of transitional houses in TECHO, a youth-led non-profit organization that seeks to overcome poverty in slums in Latin America & the Caribbean.   *TECHO - Guatemala*

2010-2011 **Volunteer Coordinator - UVG** Coordinated activities for TECHO, as well as the recruiting of new volunteers that were attending lectures at the Universidad del Valle de Guatemala (UVG).   *TECHO - Guatemala*