Daniel Montoya

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Candidate for Internship in Complex Systems

EDUCATION

M1 General Physics
Université Paris-Saclay
Interests: Complex systems, interfaces with other sciences.
Sep 2020-Sep 2021

Physics
Universidad de Antioquia
Strengths: Computing/ Artificial Intelligence/ Instrumentation
Aug 2020 | GPA: 4.1/5.0

Psychology
Universidad de Antioquia
Strengths: Statistical modeling/ Quantitative methods/ Psychometrics
Dec 2013 | GPA: 4.3/5.0

SKILLS

Programming
Python • C • R

ML Frameworks
Tensorflow• Scikit-learn• Keras• Colab Notebooks • RStudio

FPGAs
Vivado• Vivado HLS• PYNQ

Simulation
Comsol• Python• C•Arduino

Others
MS Office • SPSS•GitHub

LANGUAGES

Spanish (Native)
English (Fluent, certified)
German (Intermediate)
French (Basic)

EXTRA-CURRICULAR

- Co-Founder & Head @ SPECI U de A (students association): we organize seminars, talks & workshops from students to open audience about science and research interests.

OTHER INTERESTS

Reading • Travelling•
Road cycling and urban cycling enthusiast!

STATEMENT

Currently pursuing a career in physics. My strengths lie within computational and experimental physics, with a big interest in interdisciplinary areas, artificial intelligence and complex systems. With experience implementing machine learning techniques to sensor data processing in FPGAs. I have background in basic and social sciences.

EXPERIENCE

Corporación ACTIVAMENTE
Data Scientist | Jan-Dec 2018 | Medellín
I carried out the design, implementation, and analyses of assessment tests in the field of sports psychology. I developed a principal components analysis model to detect groups of young athletes who were in need of an ensuing social intervention

Optimista Innovaciones S.A.S.
Research Assistant | Jan 2016 - Dec 2017 | Medellín
I designed and carried out the quantitative evaluation of the software application, which included the collection and analyses of data, and writing of the report. I also developed a logistic regression model to detect students in high-schools who were at risk of depression or suicidal ideas.

Proyecto Icaro, Medellín Mayor's Office
Research Assistant | Jan 2014 - Dec 2015 | Medellín
I designed and carried out the quantitative evaluation of the "Proyecto Icaro" of the Mayor's Office in Medellín, which included the collection and analyses of data, and writing the report. I developed a repeated measures factorial ANOVA test on top of a principal components analysis to evaluate the effectiveness of the intervention.

RESEARCH AND PROJECTS

FPGAs & ML for scientific instrumentation
Universidad de Antioquia. Mar 2019 - May 2020
I studied the acceleration of inference of neural networks on FPGAs, with emphasis on using High-Level Synthesis to facilitate faster translation from high-level programming language specification of Neural Networks to low-level RTL implementation.

Scholarship-Internship Colciencias
Facultad Nacional de Salud Pública Jan-Dec 2014
I developed a statistical model using the Wilcoxon signed-rank test to evaluate the effectivenes of a social intervention to promote resilience among youth. I was responsible for the design of the overall data acquisition, processing, and analysis methodology.

OTHER COURSES

Advanced Workshop on Modern FPGA Based Technology for Scientific Computing
International Centre for Theoretical Physics, Trieste, Italy. May 2019
Course that covered implementation of scientific algorithms on FPGAs from various perspectives, including low-level handling of FPGA systems such as GPIO, MIO, EMIO, DMA and arithmetic optimization.

Data Science
Correlation One. May-Aug 2020
Certified course, which covered data preprocessing, exploratory analyses, statistical inference, regression models, machine learning models, data products, and a final project where we applied computer vision to detect social distancing compliance in public spaces.