

SERGIO DANIEL HERNANDEZ CHARPAK

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Education

École Polytechnique Fédérale de Lausanne

Computational Science and Engineering, Master Student

Lausanne, Switzerland

September 2017-Present

Universidad de los Andes

Physics, Bachelor of Science

Computing Engineering, Bachelor of Engineering

Japanese Language and Culture, Minor

Bogotá, Colombia

Graduated, March 2017 - GPA **4.23**/5.00

Graduated, March 2017 - GPA **4.23**/5.00

Tokyo University of Marine Science and Technology

Visiting Student

Control and Robotics Laboratory

Tokyo, Japan

May 2014-June 2014

Kyoto Institute of Culture and Language

Intermediate Japanese Student

Kyoto, Japan

October 2013-March 2014

Lycée Français Louis Pasteur

Student

Bogotá, Colombia

Graduated, July 2009

Scientific Bachelauréat, Mention Bien

Research Experience

Universidad de los Andes

Department of Computing
Engineering

Bogotá, Colombia

August - December 2016

Undergraduate Thesis

Perfect Score of 5.0/5.0. Worked on medical images analysis in order to develop a tool for the Segmentation of the aorta artery for applications such as the quantification of the elasticity of the aorta artery and quantification of the aorta artery calcifications under the direction of prof. Marcela Hernandez.

Laboratoire CPPM

LSST Project

Marseille, France

June 2016

Internship - LSST Project

Studied and implemented different image processing techniques for the detection of transients in astrophysical images. Under the supervision of scientist Dominique Fouchez.

Universidad de los Andes

Department of Physics

Bogotá, Colombia

January - May 2016

Undergraduate Thesis

Titled Laniakea in a Cosmological Context. Worked on detection of galaxies superclusters in simulated cosmological structures based on galaxies velocities properties under the direction of prof. Jaime E. Forero.

Universidad de los Andes

School of Engineering

Bogotá, Colombia

August 2015 - December
2016

Undergraduate Research Assistant

Developed Python tools for testing prototypes in the project Astronomical Image processing from large all-sky photometric surveys for the detection and measurements of transients under the mentorship of prof. Marcela Hernandez.

Fermi National Laboratory
Neutrino Division
Batavia, U.S.A.
June – July – August 2015

IPM Intern – Muon G-2 Experiment

Part of the team for the Test Beam of a Straw Detector Prototype in charge of the High Voltage and assisted with the analysis of the data taken under the mentorship of scientist Brendan C Casey.

Tokyo University of Marine Science and Technology
Tokyo, Japan
May – June 2014

Visiting Student - Control and Robotics Laboratory

Assisted with the integration and control of a helicopter with Arduino under the supervision of professors Sho and Ito.

Teaching Experience

Universidad de los Andes
Bogotá, Colombia
2011, 2012, 2013, 2014, 2015

Undergraduate Teaching Assistant

Undergraduate Teaching Assistant for sections of Object Oriented Programming 1, Data Structures, Modeling, Simulation and Optimization, and Computational Methods courses.

Publications and Conferences

XV LARIM (Latin American Regional IAU Meeting)
Cartagena, Colombia
October 2016

Oral Talk - Laniakea in a Cosmological Context

Worked on detection of galaxies superclusters in simulated cosmological structures based on galaxies velocities properties under the direction of prof. Jaime E. Forero.

Additional Work Experience

Mariño Math
Bogotá, Colombia
Sept 2011-Present

Tutor

High School Physics, Chemistry, Math and Biology Tutoring in both French and Spanish.

Skills

Online certified courses

Udemy (2017) - Machine Learning A-Z: Hands-On Python and R in Data Science

Udemy (2017) - Deep Learning A-Z: Hands-On Artificial Neural Networks

Software and programming

-Java, Python, IPython, C, Javascript, HTML5, CSS, Firebase, MATLAB, Processing, Arduino, Assembler, UML, Git, PHP.

-Familiar with Linux, Windows and MAC OS.

-Github: <https://github.com/sercharpak>

Techniques

-Familiar with group work techniques: TSP.

-Basic electronic circuits skills (design and fabrication of prototypes).

Languages

-French (fluent)

-Spanish (fluent)

-English (fluent)

-Japanese (Upper Intermediate, JLPT level 3-2)