SERGIO DANIEL HERNANDEZ CHARPAK

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Colombian ◦ French

Education

École Polytechnique Fédérale de Lausanne — Lausanne**, Switzerland**
Computational Science and Engineering, Master Student — *September 2017-Present*

Universidad de los Andes — Bogotá**, Colombia**
Physics, Bachelor of Science — *January 2010 - March 2017* - GPA **4.23**/5.00
Computing Engineering, Bachelor of Engineering — *January 2010 - March 2017* - GPA **4.23**/5.00
Japanese Language and Culture, Minor

Tokyo University of Marine Science and Technology — Tokyo**, Japan**
Visiting Student — *May 2014-June 2014*
Control and Robotics Laboratory

Kyoto Institute of Culture and Language — Kyoto**, Japan**
Intermediate Japanese Student — *October 2013-March 2014*

Lycée Français Louis Pasteur — Bogotá, **Colombia**
Student — *Graduated, July 2009*
Scientific Bachalauréat, Mention Bien

Research Experience

École Polytechnique Fédérale de Lausanne (EPFL)
G-Lab
Geneva, Switzerland
August 2018 - Present

Master Semester Project - Prof. Courtine's Laboratory
Attempting to artificially represent the brain input to the spinal sensorimotor circuits through the implementation of unsupervised learning strategies based on reinforcement learning to drive a biomechanical model of the lower limbs of a human. Working under the direction of PhD student Andreas Rowald.

École Polytechnique Fédérale de Lausanne (EPFL)
MIP Lab
Geneva, Switzerland
February - July 2018

Master Semester Project - Medical Image Processing Laboratory
Processed high resolution 7-Tesla 1-TR fMRI data FMRI data using novel methods, and found the innovation-driven Co-Activation Patterns (iCAPs) and their time-courses and thereafter explored them. Worked under the direction of PhD student Anjali Tarun and the supervision of prof. Dimitri Van De Ville.

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

Software and programming

Github: https://github.com/sercharpak

Proficient
Python, MATLAB, C, C++, Java, Git, LaTeX, Bash, Pytorch.
OS: Linux, Windows and MAC OS.

Experienced
FLUENT, Javascript, HTML5, CSS, Firebase, Processing, Arduino, Assembler, UML, PHP

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

Techniques

Familiar with group work: TSP

Basic electronic circuits skills (design and fabrication of prototypes)

Languages

French (fluent)

English (fluent)

Spanish (fluent)

Japanese (Intermediate, JLPT level 3-2)