Javier Villarroel

Physicist, Developer, Data Scientist and Maker

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skills

Profficent
- Digital Fabrication
- 3D Printing
- Laser Cutting

Confortable
- Python
- JavaScript
- Pandas
- Numpy
- SciKitLearn
- Matplotlib
- D3.js
- Github
- Arduino
- Processing
- Kinect

Familiar
- MapReduce
- TensorFlow
- SQL
- OpenFramework
- BCI
- Raspberry Pi

Others
- Rhino
- Plotly
- Mac OS
- Linux
- Windows
- Photoshop

lenguages

Native
- Spanish

Professional
- English

Summary

Doctor in Physics since 2010, with experience as a researcher in simulations, model theory and experiments. Deep knowledge of mathematical physics, technical experimentation, computational methods and prototyping. Enthusiast of new technologies: Machine Learning, Digital Fabrication (3D Printer, Laser Cutting, CNC), Open Hardware Physical Computing, Interactive Instalations and Visualizations, creating and developing prototypes and solutions in these technologies. Personal qualities: creative, motivated with high degree of flexibility and adaptation to different professional situations, teams and technologies.

Work Experience

Feb 2018 - Feb 2019 **Fablab Manager at ESNE FABLAB.**
- Managment of the laboratory.
- Teaching in Product Design.

Digital Fabrication | CNC, 3DP, Laser cut | Open Hardware Prototype | Teaching

Feb 2017 - Feb 2018 **Digital Fabrication coordinator at IED Madrid FABLAB.**
- Technical support for student and projects.
- Use, optimisation, maintenance and coordination of the fablab's machines.

Digital Fabrication | CNC, 3DP, Laser cut | Open Hardware Prototype

Sept 2016 - Feb 2017. **Data Scientist at MerakiTech.** (indepent project, Portugal)
- Analysis of Brain Computer Interface (BCI) data in order to predict "like" and "dislike" response for neuromarketing applications.
- Solution Design of BCI experiments for neuromarketing and music applications.

Machine Learning | Data Analysis | Python | BCI

Jun 2015 - Sept 2016. **FabLab advisor at the MediaLab-Prado.**
- Technical support for projects, workshops and working groups.
- Use, optimisation and maintenance of the fablab's machines (3D printers, Laser Cutter, CNC, etc).

Digital Fabrication | Solution Design | Open Hardware Prototype

Jan 2014 - Jun 2015. **Educational Coordinator at Ultra-Lab.**
- Coordinate the project "Creative Technologies in the Classroom" commissioned by Fundación Telefónica and carried out by Arduino Verkstad and Ultra-Lab.
- Design and teach courses of Arduino, Processing and 3D printing at Ultra-Lab.
- 3D printing issues: design and print for clients, repair and optimization of 3DP.

Digital Fabrication | Open Hardware | Programming | Teaching | Solution Design

Sep 2013 – Dec 2013. **Freelance creative coder for Easy-Code.**
- Developed of different interactive installations titled "eMotions" using the Kinect camera.

Programming | Interactive Installations | Kinect | Computer Vision

Jun 2013 – Dec 2013. **Creative technologist at Think Big Factory**

- Developed the retail interactive products using Processing and Arduino.
- Researched on technologies such as Websocket, NodeJS, Bluetooth and Near Field Communication and developed prototypes for retail proposes.
- Drafted prototype and product documentation.

Open Hardware Prototype | Solution Design | Programming | Javascript

Sep 2012 - Dec 2012. **Creative coder and Co-Founder at MerakiTech**, (Portugal)

- Developed the interactive installations for TEDx Woman Guimarães on Dec 1st.
- Developed the BCI application MeMe Music

Programming | Interactive Installations | Kinect | Computer Vision | BCI | R+D

Jun 2012 – Mar 2013. **Researcher at Mecano Group**, School of Aeronautics, Universidad Politécnica de Madrid.

- Research on simulations of the beam propagation method in nonlinear crystals

Numerical Simulations | Data Analysis | C++ | R+D

2006 – 2011. **Research and teaching assistant at the Nonlinear Optics Lab**, Universidad Autónoma de Madrid.

- Research on Non-Linear Optics and Photonics (Theory and Experiments).
- Teaching Laboratory of physics.

Theoretical Model | Data Analysis | Optics | R+D | Teaching

2009. **Visitor researcher at the Université Paul Verlaine de Metz**, France.

Data Analysis | R+D

2002 – 2005. **Research and teaching assistant at Computational Physics Group**, Universidad Simón Bolívar (USB), Venezuela.

- Research in Monte Carlo Simulations and genetic algoritmics.
- Teaching Physiscs I, II and III, Laboratory of Physics I and II.

Numerical Simulations | Data Analysis | C++ | BCI | R+D | Teaching

2000 – 2002. **Undergraduate research assistant at Physics of Plasmas Lab. USB**, Venezuela.

1998 – 1999. **Undergraduate research assistant at Solid State Physic Lab, USB**, Venezuela.

Education

- **Ph.D. in Physics** (with honors), Universidad Autónoma de Madrid, Spain (Dec 2010).
- **Master in Photonic**, Universidad Autónoma de Madrid, Spain (Jul 2006).
- **M.Sc. in Physics**, Universidad Simón Bolívar, Venezuela (Jul 2005).
- **B.Sc. in Physics**, (+5 years), Universidad Simón Bolívar, Venezuela (Jan 2002)

Honours and Awards

- Mention of Ph.D. thesis: Cum Lauden, 2010.
- Best student poster presentation TOM6, EOS Annual Meeting 2010.
- Spanish Ministry of Education and Science, doctoral fellowship (FPI), 2006.
- Graduate of M.Sc in Physics with honours. Mention of master thesis: outstanding, 2005.
- Best student oral presentation at the IV Congreso de la Sociedad Venezolana de Física, 2003.

Relevant Courses

- Introduction to Machine Learning, Udacity (Oct 2016)
- Data Visualization and D3.js, Udacity (Oct 2016)
- Data Scientist Path completed, Dataquest (Oct 2016)*
- Data Analyst Path completed, Dataquest (Sept 2016)*
- Introduction to Data Analysis, Udacity (Sept 2016)
- Introduction to Artificial Intelligence, Stanford University Online (2011)*
- Introductions to Machine Learning, Stanford University Online (2011)*