



**João Vicente Dornas**

08/12/1979

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## **SUMMARY CV**

### **Present Position**

Senior Software Engineer at Hard Quale Ltda.

### **Main Skill:**

Build algorithms to solve scientific or business problems, in any programming language.

### **Productivity:**

1 scientific paper published in neuroscience as first author ([link](#))

6 poster presentations in international congresses about neuroscience (in 2016 and 2017)

[www.dornas.org/projects](http://www.dornas.org/projects)

1 Master of Science research project as co-supervisor

1 Apple iPhone App published on Apple Store

2 companies as entrepreneur

### **Awards:**

Marie Curie Fellowship (Early Stage Researcher) - (2013-2017)

(I was a fellow in INDIREA Marie Curie Training Network, [www.indirea.eu](http://www.indirea.eu))

### **Academic Formation:**

**PhD** in Neuroscience. Otto-von-Guericke Universität Magdeburg. (2014-2018). (Germany).

**Master of Science** in Neuroscience. Federal University of Minas Gerais (UFMG) (2011-2012). (Brazil).

**MBA** in Project Management. Getúlio Vargas Foundation (FGV) (2009-2010). (Brazil).

**Specialization** in Computers Networks. Catholic University Minas Gerais (2008-2009) (Brazil).

**Bachelor** in Physics. UNICAMP (2001-2002). UFMG (2003-2006). (Brazil).

### **Idioms:**

**Portuguese:** native. **English:** C1. fluent (reading, writing, speaking).

### **Technical Certifications:**

MCSE version Windows NT 4.0 Server (Microsoft Certified System Engineer)

MCP specialist in Systems Management Server 2.0

MCP version Windows 2000 Server

MCP version Windows 2003 Server

## Additional Information

### **Mathematical Methods:**

Information Theory, Mutual Information applied to Neural Data (Directed and Metric Space Methods), Directed Information and Granger Causality, K-Means and Wavelet clusterization, Graph Theory, PCA/ICA, Hilbert Transform. Signal Processing. Neural Network. Differential Equation. Support Vector Machine. Searchlight MVPA. Optimization. Curve Fitting. System Identification. Variance Analysis. Linear Regression. Gaussian Mixture Models. Nearest Neighbors. Hidden Markov Models. Machine Learning. Deep Learning.

### **Experimental Techniques:**

Electrophysiological Recording of Extracellular Activity of Neurons In Vivo.  
Animal Surgery for Craniotomy.  
fMRI Preprocessing pipeline (e.g.: unwarp, spatial normalization, signal cleaning).

### **Technical Knowledge:**

Programming Languages (C, C++, Objective-C, Java, JavaScript, Python, PHP, ASP, Perl, C#, F#, .NET, Scala, Go, Haskell, LabView, Matlab, Swift, Ruby, bash, GPU, Linux cluster computing)  
Search Technology (Apache Lucene/Solr, ElasticSearch, Splunk)  
Machine Learning/Deep Learning (Keras, Caffe, Theano, Apache Spark, TensorFlow, DeepLearning4j, Neural Networks, Clusterization, Microsoft Cognitive Toolkit)  
Computer Vision (OpenCV)  
  
Semantic Search (RDF/OWL, Ontologies, Natural Language Processing (NLP))  
  
Query Languages (SQL, BigSQL, NoSQL)  
Mathematical APIs (Numpy, BLAS, LAPACK, Intel MKL)  
  
Hardware Specific (OpenCL, Nvidia CUDA, Google Cloud TPU, Intel FPGA)  
  
Clouds (AWS, Google Cloud, Azure, IBM Cloud, Oracle Cloud)  
fMRI Software (SPM, FSL, FreeSurfer)  
EEG Software (EEGLab)

### **Publications:** (published)

Main Goal of My PhD: We did an fMRI experiment with 8 healthy subjects using three conditions: Resting State, Passive Viewing with Visual Stimulation and Attentive Tracking (MOT paradigm). Our aim was to apply several mathematical methods to analyze brain activity and understand the effects of LOAD of Attention in different brain regions.

João V. Dornas, Jochen Braun, Finer parcellation reveals detailed correlational structure of resting-state fMRI signals, In Journal of Neuroscience Methods, Volume 294, 2018, Pages 15-33, ISSN 0165-0270. DOI: [10.1016/j.jneumeth.2017.10.020](https://doi.org/10.1016/j.jneumeth.2017.10.020)

In this paper we developed a new method of parcellation of the human, reducing the data from ~160K time series to 758 time series, improving easiness of data analysis. We also computed a matrix of connections using all 758 regions in cluster of 140 computers using Linux. Result is a matrix of connectivity between these areas.

### **Congress and Symposiums:** ([www.dornas.org/professional](http://www.dornas.org/professional))

European Conference in Visual Perception, Berlin - 2017 (Poster Presentation)  
Organization for Computational Neurosciences, Antwerp - 2017 (Poster Presentation)  
British Neuroscience Association, Birmingham - 2017 (Poster Presentation)  
Oxford Autumn School in Cognitive Neuroscience, Oxford - 2016 (Poster Presentation)  
Bernstein Conference, Berlin - 2016 (Poster Presentation)  
FORUM FENS, Copenhagen - 2016 (Poster Presentation)  
INDIREA BootCamp 6, Dublin - 2016 (Oral Presentation)  
INDIREA BootCamp 5, Barcelona - 2015 (Poster Presentation)  
International Symposium of Neuroscience of UFMG, Brazil - 2011 (Oral Presentation)

### **Awards:**

Marie Curie Fellowship (Early Stage Researcher) - (2013-2017)  
(I was a fellow in INDIREA Marie Curie Training Network, [www.indirea.eu](http://www.indirea.eu))

**Supervision:**

I co-supervised a Master student which is learning to process and analyze EEG data.

**Event Organization:**

For two years I organized the transfer between airport and university/hotel of more than 100 national and international guests in the local symposium of UFMG, Brazil.

International Symposium of Neuroscience of UFMG, Brazil - 2012 (member of organization committee)

International Symposium of Neuroscience of UFMG, Brazil - 2011 (member of organization committee)

**Collaboration:**

I collaborated with my fellow in INDIREA network Dr. Katharina Glomb, which just finished her Ph.D. in Barcelona at the beginning of 2017 under the supervision of Prof. Gustavo Deco. We are expecting to have one or more two publications from her using our dataset from my Ph.D.

**INDIREA Workshops - training during PhD (<http://www.indirea.eu/>):**

In this workshops I was a fellow on Marie Curie Fellowship.

12<sup>th</sup>-13<sup>th</sup> May 2014 - *Attention – from neurons to cognition* - Oxford, UK

10<sup>th</sup>-11<sup>th</sup> June 2014 - *TVA Bootcamp* - Copenhagen, Denmark

23<sup>th</sup>-24<sup>th</sup> September 2014 - *MRI Bootcamp* - Magdeburg, Germany

11-13<sup>th</sup> March 2015 - *EEG and MEG Bootcamp* - Munich, Germany

17-18<sup>th</sup> September 2015 - *Neurocomputational Modelling* - Barcelona, Spain

4-6<sup>th</sup> May 2016 - *Career Development* - Dublin, Ireland

29-30<sup>th</sup> September 2016 - *Oxford Autumn School* - Oxford, UK

**Graduate Schools:**

10<sup>th</sup> – 22<sup>nd</sup> August 2014 - *European Summer School on Visual Neuroscience* - Marburg, Germany

15<sup>th</sup> Jan – 10<sup>th</sup> Feb 2012 - *Latin American School of Computational Neuroscience* - Ribeirão Preto, Brazil

## **Professional Experience**

**Github Repositories [github.com/joaodornas](https://github.com/joaodornas)**

(these are only one part of the code I have made)

**(2018 – to present) Hard Quale (Brazil) Software Engineer**

A project of Machine Learning with Computer Vision for Self Drive Cars. Software developed in Python and C++ using GPU.

Do my self drive car algorithm project I used C++ and GPU technologie both from Nvidia using CUDA and from AMD using OpenCL.

Software development with RESTFul API with Django Web Framework and Flask (MVC) using Python and MySQL.

Software development with RESTFul API with C# ASP .NET MVC (.NET Core and Framework), Entity Framework and MSSQL.

Software development with RESTFul API with NodeJS Javascript with Express and MongoDB.

Docker/Kubernetes.  
Unitary Tests and Integration Tests.  
Software development with micro-services.  
A project in C# using .NET and Visual Studio.

**(2018 –2022) XP educação – Professor (Brazil)**

Professor of Artificial Intelligence. Lectures about Keras, Tensorflow, Apache Spark, Caffe, Theano and OpenCV.

**(2014 – 2017) PhD in Computational Neuroscience (Germany) Software Engineer**

Scientific data analysis from brain activity using Matlab, Python, C++ and Machine Learning methods.

1 scientific paper published using Machine Learning applied to brain activity.  
Led 1 research project for a Master thesis.

**(2011 – 2013) Master of Science in Computational Neuroscience (Brazil) Software Engineer**

Scientific data analysis from neuron activity using Matlab, Python, C++ and Information Theory methods.

**(2010). Wider Software (Brazil) Entrepreneur**

(Start-up company in the mobile software industry, specialized in iPhone platform.)

A software developed for iPhone using Object-C.  
Development of a new application for iPhone called Wider Clock. It is a pointer clock with 5 different themes. It has alarm and time zones. As a free App on Apple Store it reached more than 30 thousand downloads from more than 20 different countries.

**(2008 - 2009). CSU CardSystem S/A (Brazil) Project Manager**

(Company is responsible for administering credit cards holding 52% of Brazil's market share. More than 10.000 employees in 7 sites in Brazil.)

- a. Responsible for monitoring the job systems engineers level I.  
Guidance of how these engineers should solve users problems.
- b. Responsible for the selection of new systems engineers level I, reading resume and interviewing people. Responsible for choosing the new engineer for the opens positions.
- c. Coordination of delivering infrastructure and support services to attend demands of other departments.

**(2007-2008). Digicomp Eng./Ferrous Resources (Brazil) Technical Supervisor**

(Outsourced from Digicomp to work at Ferrous Resources do Brasil. Ferrous is a multinational English mining company exploring many mines on the state

of Minas Gerais, in Brazil, and other places like Greenland. One billion dollars investments in the whole state. More than 500 employees in Brazil in 10 sites.)

- a. Responsible for monitoring the job of 5 system engineers level I. Guidance of how these engineers should solve users problems.
- b. Responsible for managing contact with suppliers and control of SLAs.

**(2006). UFMG (Brazil) student**

Last year in College.

**(2004–2005). TechBiz Informática Ltda. (Brazil) Network Engineer**

(Microsoft partner company with the certification Microsoft Gold Certified Partner. Offers support and projects services in IT, with major clients among the biggest companies in Brazil, like Usiminas, Belgo, Correios, MBR, Telemar, TIM.)

MCSE responsible to support the clients that have service contract with the company, supporting the Microsoft server software. I offered support to Exchange Server 2003, ISA Server, Systems Management Server 2.0 and 2003, Analysis Server and the operating systems Windows 2000 and 2003 Server. The clients have an IT environment with between 1000 and 10000 workstations.

**(2001-2003). UNICAMP (Brazil) student**

First years in College.

**(2000). CTI Informática Ltda. (Brazil) Network Engineer**

(Company that offered network solutions to clients based on Microsoft solutions and/or Linux)

**(1999). STI Informática Ltda. (Brazil) Network Engineer**

(Microsoft partner company, offers services in IT, having as its main client Petrobras, one of the biggest oil and petroleum companies in the world.)

- i. I planned, installed and configured the server software Microsoft SMS 2.0 (Systems Management Server) in 450 workstation and 20 servers in the network of Petrobras in Betim, Minas Gerais, Brazil. (position: systems engineer, stakeholders: 3, time: 3 months)

**(1996–1998). NetLand. (Brazil) IT Technician**

Fixing computers problems.

**(1995). MV Info shopping. (Brazil) IT Technician**

Fixing computers problems.