Gustavo Sena Mafra

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Experience

July 2016 – September 2015

Scientific initiation

DAS (UFSC) — Florianópolis, Brazil

Research on sparse representation of electroencephalogram (EEG) signals applied to motor imagery brain-computer interface (BCI) systems. Application of statistical models such as Common Spatial Patterns (CSP), Linear Discriminant Analysis (LDA) and Support Vector Machines (SVM). Programming in Python.

September 2015 – March 2015

End of studies internship

Technicolor — Césson-Sevigné, France

Machine learning for acoustic scene recognition. Research focused on deep learning models, audio classification systems and hyperparameter optimization. Algorithms implemented in Python for fast GPGPU computing in a Linux server.

March 2015 – October 2014

Convention of industrial studies

CGG — Massy, France
Supélec — Gif-sur-Yvette, France

Statistical approach to denoising and deghosting of geophysical data. Research focused on blind deconvolution and source separation, tests carried out with Matlab. Work proposed by the company, executed by a team of three students and supervised by professors of the school.

September 2014 – July 2014

Summer internship

Fogale Nanotech — Nîmes, France

Study and implementation of various strategies of data association and multidimensional adaptive filtering applied to real-time tracking of multiple objects of variable number in a capacitive sensor. Proposed solution: Interactive Multiple Model (IMM) Kalman filter.

July 2013 – September 2011

Scientific initiation

LINSE (UFSC) — Florianópolis, Brazil

Research and development with implementation and optimization of speech coding standards and other audio processing algorithms. Matlab simulations, coding in C, C++ and assembly language of a fixed-point digital signal processor (Blackfin) and manipulation of this DSP.

Education

March 2015
October 2014

Master's degree, Signal and image processing

Université Paris-Sud, Supélec, ENS Cachan

Master research (M2R) ATSI (*Automatique et traitement du signal et des images*). Degree accredited jointly by the three institutions.

March 2015
September 2013

Engineer's Degree, Applied mathematics

Supélec (*École supérieure d'életricité*)

Admitted under a double degree agreement between UFSC and Supélec to attend the second and third year of the engineering curriculum. Chosen specialization: MATIS (*Mathématiques appliquées au traitement de l'information et du signal*).

September 2016
August 2010

Engineer's Degree, Control and automation

UFSC (*Universidade Federal de Santa Catarina*)

Total coursework of 5 years with emphasis on control systems, automation, embedded systems and computing. Paused between 2013 and 2015 for integrating Supélec.

Languages

Portuguese	Native
English	Fluent (TOEFL iBT: 103/120)
French	Fluent
Spanish	Basic

Technologies

Scientific computing	Matlab/Simulink, Octave, Python (Numpy, Pandas, Theano, Matplotlib, Scikit-learn, Keras), basic R.
Object-oriented programming	Java, C++, Unified Modeling Language (UML).
Low-level programming and embedded systems	C (MSVC), assembly (Blackfin, MIPS, 8085).
Development (miscellaneuos)	Basic knowledge in functional programming (Scheme Lisp), hardware description (VHDL), markup languages (HTML), SQL (Postgres) and NoSQL (Neo4j) databases. Experience with version control systems (Git, SVN).
Operational systems	Development experience with Windows and Linux (Ubuntu, Fedora), basic command-line interfacing (Bash, Shell scripting).
Document edition and presentation	Microsoft Office (Word, Excel, PowerPoint), LaTeX.

Publications

1. Acoustic scene classification: an evaluation of an extremely compact feature representation.

   Proceedings of the Detection and Classification of Acoustic Scenes and Events 2016 Workshop (DCASE2016).