

ALEXANDRE ABRAHAM

R&D Engineer

Engineering



R&D Engineer @ Inria

December 2015 - Current - Neurospin, Saclay

Main developer of Nilearn, a Python package for neuro-imaging using scikit-learn.

Open-source software + Python + Scikit-learn

Advisor: Gaël VAROQUAUX



R&D Engineer @ INSERM

April 2012 - 8 months - Neurospin, Saclay

Creation of Nilearn, a Python package for neuroimaging using scikit-learn.

Agile dev. + Open-source software + Python + Scikit-learn

Advisor: Gaël VAROQUAUX



IT Consultant @ Harmonie tech.

January 2011 - 15 months - Paris

Development and maintenance of the mobile application server @ Crédit Agricole Technologies

Agile dev. + Java + Apache + Tomcat + Maven + Hibernate

Advisor: Benjamin RATTI



R&D Engineer @ LIP6

March 2009 - 6 months internship - Paris

Multi-agent system based human behaviour simulator for electricity consumption prediction @ EDF Technologies.

Multi-agent systems + Java + Swing + Prefuse + JGraphX

Advisor: Nicolas SABOURET



C++ Engineer @ Aldebaran Robotics

September 2007 - 6 months internship - Paris

Development of an emotion module. Development of the core embedded software on the Nao robot.

Agile development + XMLRPC + SOAP + Python + C++

Advisor: Jérôme MONCEAUX



Computer Science Engineer @ EPITA

September 2004 - 5 years - Le Kremlin-Bicêtre

Multi Agent System Simulation Platform: ant colony. Specialization in research and artificial intelligence. Development of projects using neural networks, genetic algorithm, text mining, meta-heuristic..

Objective Caml, Delphi, Shell, C, C++

Research



PhD in computer science @ Inria

December 2012 - 3 years - Neurospin, Saclay

Learning functional brain atlases modeling inter-subject variability from resting-state functional MRI. Extension of a multi-subject dictionary learning approach with structured regularization (TV + L1). Optimization of the algorithm to run on big datasets. Post-hoc statistical analysis of diagnosis pipelines to find the optimal one. Application on diagnosis of autism spectrum disorders (1112 individuals).

Python + Scikit-learn + statistical learning + cluster computing

Advisors: Gaël VAROQUAUX, Dimitris SAMARAS



AI researcher @ THALES

April 2010 - 6 months internship - Elancourt

Extension of ALMA, a Prolog based multi agent system programming language to handle goals. Fleet of drones are able to organize themselves to process multiple targets.

Multi-agent systems + Prolog

Advisor: Patrick TAILLIBERT



AI and Decision Master @ UPMC

September 2009 - 1 year - Paris

Statistical learning, Decision, Intelligent Agents, Fuzzy Logic, Multi Agent Systems.

Java + Python + Octave



Researcher student @ LRDE

December 2007 - 3 years - Le Kremlin-Bicêtre

Olena Project - generic and efficient programming in C++ applied to image processing. Study of Concept C++, implementation of a topological watershed algorithm, extension of morphological operators to color spaces.

C++, Concept C++, Metaprogramming

Advisor: Thierry GÉRAUD

Internships



Study of the EMBARC dataset

March 2014 - 3 months - Stony Brook University

In collaboration with Stony Brook Hospital's psychiatrists, I performed prediction using my method on a depression dataset.



Study of the ABIDE dataset

September 2014 - 3 months - Child Mind Institute, NY

I worked in collaboration with Michael MILHAM, Cameron CRADDOCK and Adriana DI MARTINO, on the interpretation of autism biomarkers extracted from the ABIDE dataset.

Teaching

Secondary education @ OiiO

September 2009 - 1 year - Paris

Teacher for mathematics, architecture and algorithms.


Occasional teacher @ EPITA

2006 - 4 years - Le Kremlin-Bicêtre

Teacher for 1st year students in programming, mathematics and algorithms.

Languages

 **French**
Mother tongue

 **English**
Fluent, TOIEC 985

Development

 C++  Python

 Java

Supervised Learning

Linear models
Decision trees
Neural networks

Unsupervised Learning

Feature selection, extraction
Matrix factorization methods
Clustering

Multi-Agent Systems

Reinforcement learning
BDI architecture

Computer vision

Mathematical morphology
Denoising techniques

Software engineering

Meta-programming
Object-oriented
Genericity and efficiency
Optimization

Software development

Versioning
Agile methodology
Continuous integration
Test-driven

Personal interests

 Board games

 Consumer protection

 Cooking


 Education


 Litterature

 Community involmnet



Personal qualities


 Enthusiast


 Challenge taker

 Team unifier

 Committed


Contact

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Bibliography

Neuroimage 2016 - Inter-site autism biomarkers from resting-state fMRI - *submitted*

STMI 2014 - Region segmentation for sparse decompositions: better brain parcellations from rest fMRI

OHBM 2014 - Resting-State Networks and Functional Parcellation - *Oral session*

Frontiers in neuroinformatics 2014 - Machine learning for neuroimaging with scikit-learn

MICCAI 2013 - Extracting brain regions from rest fMRI with total-variation constrained dictionary learning - *young scientist award*

Research reports 2008: Morphology on color images, **Topological Watershed**