Resume

Summary of my professional career

Summary

- Strong project management skills as demonstrated by 3 successful projects in industrial sectors, biomedical, information and spatial, leading to 6 publications in advanced scientific journals (IEEE Xplore Digital Library)

- High-level technical skills in applied mathematics, machine learning, statistics, to unlock information in the structured/unstructured data (signal and image) and deliver valuable insights to provide strong imaging system knowledge, and passion about the development of algorithms in machine learning,

- Excellent oral and written communication skills resulting in 7 first-author papers and 3 talks

Fields of expertise

- Images and Signals Processing
- Artificial Intelligence & Machine Learning
- Neural Networks / Deep learning
- Research and Development (R&D)
- Project Management
- Statistics and Bayesian Inference
- Imaging system knowledge

Work Experience

R&D Engineer in Image Processing

Signal and Systems Laboratory (L2S), Centrale Supélec & Spatial Astrophysics Institute (IAS), CNRS, France.

10 / 2015 - 11 / 2018

Description of the Project: Hyperspectral object reconstruction from multi-spectral data observed by an infrared imager, aboard NASA's next JWST space telescope. Launch of the telescope in 2021.

Accomplishments
Strong project management skills as evidenced by the L2S - IAS collaboration on the hyperspectral data reconstruction for the next space mission JWST (NASA/ESA/CSA), leading to the innovation of 2 new algorithms from scratch for the processing of infrared images using applied mathematics and machine learning in Python

Excellent leadership skills and experience mentoring as demonstrated by teaching "signal processing" to +60 engineering students at Ecole Polytech Paris-Sud resulting in a 100% success rate

Gained advanced communication skills through participation at 2 conferences, 1 workshop, and 1 seminar, resulting in 3 talks in front of +100 experts, publication of 4 papers as a first author and 1 poster presentation

High-level technical skills, including project roadmap definition, literature review, system modeling, implemented of various optimization algorithms

Publication in peer review international conferences
GRETSI 2017
EUSIPCO 2017
EUSIPCO 2018

Public Talks
GDR-ISIS, Paris, France.
EUSIPCO 2018, Rome, Italy.
EUSIPCO 2017, Kos, Grece.

Technical environment
Linux Ubuntu 64-bit
Python: Numpy, Scikit-learn, Matplotlib, Pandas

Teaching Assistant in Signal Processing

Ecole Polytech Paris-Sud, University of Paris-Sud, France.

2016-2018

Description of the project: I was in charge of teaching two classes of total number of +60 under graduate students at the engineering school *Polytech Paris-Sud.*

Accomplishments
Teaching of Signal Processing
Supervision of two groups of +60 engineering students
Animation of tutorials
Student assessment and exam preparation
Teaching contents: Fourier Transform, Linear filtering, Sampling, Applied mathematics, Deterministic random signal processing, basis in statistics, . . .
Teaching students to perform signal processing in *MATLAB*

Image Processing Engineer - Computer Vision

Synchromedia Laboratory, Montreal, Quebec, Canada

02/2015-08/2015

Description of the project: coming soon. . .

Accomplishments
Demonstrated flexibility skills through the development of image processing algorithms for the preservation of historical documents, resulting in a new method for processing document images using a linear mixing model in Matlab

Improved project and time management skills by defining the problem and the project roadmap, Implementing image processing algorithms in Matlab

Developed communication skills through writing and presenting the project report in English

Technical environment
Linux Ubuntu 64-bit
MATLAB

Signal and Image Processing Engineer

The Mathematical Institue of Bordeaux, France.

02/2014 - 07/2014

Description of the project: . . .

Accomplishments
Gained high-level technical skills through the implementation from scratch of signal and image restoration methods using advanced applied mathematics, and the implementation of optimization algorithms in Matlab

Successful time management skills as demonstrated by solving, in a short time, three targeted problems (deconvolution, denoising, inpainting), leading to an efficient algorithm for multiple applications

Technical environment
Linux Ubuntu 64-bit
MATLAB

Machine Learning Engineer - R&D

Biomedical laboratory, USTHB. Algeria.

02/2012 - 02/2013

Description of the project: As part of the internship at the end of engineering studies, I held the position of machine learning engineer for the EEG biomedical signal epilepsy detection project. The goal is to anticipate the treatment of the pathology, and protect the individual suffering from the pathology in case of epileptic seizure.

Accomplishments
Developed project management skills through the development of a decision support tool for epilepsy detection from an EEG signals database using machine learning, resulting in the proposition of a new pipeline for the classification of biomedical signals in Matlab

Improved writing and communication skills through writing papers, leading to 2 publications in international conferences

Ability to successfully handle a research project in machine learning through the definition of the roadmap project, the study of state-of-the-art works, data analysis, applied mathematics, signal processing

Technical environment
MATLAB

Publication in peer review international conferences
CISTEM'2018
WoSSPA'2013

Education

University of Paris-Saclay

Doctor of Philosophy (PhD), Signal and Image Processing.
2015 - 2018

Publications in peew review national/international conference
28th and 28th EUSIPCO (European Signal and Image Processing Conference).
27th and 28th EUSIPCO (European Signal and Image Processing Conference).
25th Colloque GRETSI (Groupe d'Etudes du Traitement du Signal et des Images).
Co-author of an article published in Astronomy & Astrophysics Journal.

University of Bordeaux

Master's degree, Signal and Image Processing.
2013 - 2015

Master 2: 2014-2015 (Ranked : 2/21)
Master 1: 2013-2014

Ecole Nationale Polytechnique

Engineer degree, Electrical engineering.
2007 - 2012

2007-2009: Fundamental Engineering
2009-2012: Electrical and Electronics Engineering

Publication in peer review international conference * WOSSPA 2013 (Workshop on Systems, Signal Processing, and their Applications)

Techniques, Software & Instrumentation

Programming Languages: Python, Matlab, Latex, Markdown, RST

Libraries: OpenCV, Numpy, Matplotlib, scrikit-learn, PyTorch, TensorFlow, Keras

IDE: VS Code, JupyterLab, Spyder

Tools: Linux OS, Gitlab, Docker, bash, Slack

Affiliations &/ Hobbies

Running, Badminton, Reading, Writing