

Youcef Kacer

Curriculum Vitae

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Machine Learning & Computer Vision Engineer

Experience

Aug 2012 **Machine Learning & Computer Vision Engineer**, *Smiths Detection, Vitry-sur-Seine, France.*

to current Development of machine learning prototypes to classify, detect and localize threats in X-ray images.

- Feature extraction using high-level descriptors (DoG, HoG, BoW, Wavelets).
- Develop feature engineering (PCA, NMF, KMeans, EM)
- Feature classification using non linear classifiers (SVM, KNN) and ensemble methods (Gradient Boosting, Random Forest).
- Implementation of deep learning methods to classify images (CNN) and localize threats or objects for recognition purpose (RCNN).
- High experience tuning classifiers hyperparameters.
- Mixing visual and semantic (Wordnet) information into Content-Based Image Retrieval system for cargo inspection purpose.
- Assisting software team for release implementations.
- Python (Scikit-Learn), Matlab (MatConvNet), C++ (STL, OpenCV, LibSVM), NVIDIA GPU.

Aug 2011 **Machine Learning & Computer Vision Engineer**, *Thales C&S, Velizy, France.*

to Jul 2012 Development of machine learning functions on color images to analyse (colour, shape, license plate) and control vehicles at frontiers.

- Localize vehicle using high level image processing (Hough transform).
- Develop SIFT feature extractor for shape recognition.
- Colour vehicle classification using a derivation of PLSA datamining algorithm (Probabilistic Latent Semantic Analysis) and color hierarchical clustering (Mean-Shift algorithm).
- C++ (STL, Boost, OpenCV), Matlab

Jun 2009 **Signal Processing Engineer**, *Thales Air Systems, Limours, France.*

to Nov 2010 Development of a Matlab prototype function on ground pulse radar, to detect exact positions and speeds targets (solving well-known distance and speed ambiguities)

- Clustering elementary detections using Hierarchical Ascendant Clustering with Ward distance.
- Prune false alarm by statistics test (goodness-of-fit) on cluster compactness.
- Using synthesized data for developement and fine-tuning parameters on ground-truth recordings to meet performance requirements (distance and angular target discrimination)
- Assisting software team for release implementation and validation team for real time analysis.

Mar 2008 **Engineer Intern**, *Dassault-Aviation, Saint-Cloud, France*.
to Oct 2008 Prototype a Matlab antenna mesh and simulate it to meet performance requirements (central frequency and bandwidth, spatial directivity).

July 2007 **Waiter**, *Le Pain Quotidien, London, UK*.
to Sept 2007 Work as a waiter during job summer.

Education

- 2016–2017 **Data Scientist & Big Data Certificate**, *Telecom ParisTech*, France.
25-days professional courses to challenge extraction information from large scalable data. Follow [link](#) for more details.
- Vapnik-Chervonenkis theory for statistic learning (bias-variance trade-off)
 - Supervised/Unsupervised Learning
 - Markov Chains and Bayesian Networks
 - NoSQL database
 - Storage and Computation (Map/Reduce, PageRank) of distributed data
 - Data visualization
 - 4-months project to predict human density using high-resolution satellite images. Follow [link](#) for more details.
- 2016 **MySQL Online Certificate**, *openclassrooms.com*, France.
Online professional certification to create, store, manage and query relational database with MySQL
- Indexation, Keys, Joins, Aggregation and grouping, Transactions, Procedures, Error handling, Triggers. Follow [link](#) for more details
- 2005–2008 **Msc in Mathematics & Computer Science**, *Telecom Bretagne*, France.
One of the leading Engineering School in France.
- Deterministic signals and frequency analysis.
 - Random signals and statistics.
 - Image processing for computer vision.
- 2002–2005 **Scientific Preparatory Classes PCSI/PC***, *Lycée Fénélon*, France.
Scientific preparation to the french Grandes Ecoles with competitive entrance examinations
- 1999–2002 **Scientific Baccalauréat with honors (French high-school degree)**, *Lycée Hélène Boucher*, France.

Technical skills

Scientific Programming

Matlab	***
JavaScript	*
Lua	*
Python	***
Java	*
C/C++	***

Machine Learning Frameworks

Open Computer Vision	***
LibSVM	***
Scikit-Learn	***
XgBoost	*
MatConvnet	***
Keras	**
Torch	*

Distributed Data Frameworks

Hadoop (HDFS, MapReduce)	**
Apache Spark	**

Database Management

MySQL	*
MongoDB	**
HBase	**

Scripting & Tools

bash (awk, sed, ...)	***
Git	***
Jekyll	*
Markdown	**
L ^A T _E X	***

Languages

French	mother tongue
English	fluent
Spanish	professional
Arabic	spoken

Interests

Traveling, daily fitness, cooking, French literature