



Sylvain Puyravaud

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Work experience

Dassault Systèmes

november 2016 — march 2018

Data science R&D technology engineer

I worked in the Corporate Research department at Dassault Systèmes as a research engineer. My focus were Recommender Systems and forecasting models: The goal of my mission is to demonstrate state of the art machine learning algorithms for potential integration to 3DS.

Accomplishments:

- Implemented a graph-based recommendation algorithm using tf-idf and bagging in the context of sparse datasets. This algorithm gave the best results in the Dassault Systèmes 2016 Data Challenge.
- built a recommender system that integrates features of users and items to improve drastically the precision metric. This was done through state-of-the-art deep learning algorithms.
- Integrated a state-of-the-art human interpretability model so that end users can better understand the meaning of the recommendations.
- helped in designing a tool (web server) promoting the technology.
- integrated dynamic and interactive visualizations using D3.js to the web server promoting the technology.
- This technology was specifically applied in the context of product recommendation for clients in order to focus sales team efforts.
- Proposed an architecture to make real-time recommendations on the 3dexperience platform.

key skills: Neural networks, GRU, LSTM, machine learning, Caffe, Theano, Matlab, Matconvnet, Cuda, UNIX, Flask, D3.js, TSNE, denoising autoencoders, LIME, probabilistic models, graphs, bayesian statistics, HTML, CSS, Javascript, Spark, PIG, collaborative filtering, GPU, multiprocessing, Sql, AWS, Camtasia, virtual machines, kafka, kibana, AWS...

OpenClassrooms

March 2017 — current position

Mentor- Data science

Mentoring 11 students in 3 different programs for them to acquire the skills of data scientists, data analysts and data architects.

Dassault Systèmes

mai 2016 — october 2016

Data scientist intern, customer success

Dassault Systèmes is a European multinational software company that develops 3D design, 3D digital mock-up, and product lifecycle managementsolutions. I worked as a intern in the R&D knowledge team analysing the search logs of clients in order to give feedback to the support teams on where there is a need for knowledge creation. I applied graph clustering algorithms and text processing techniques and visualization. keywords: nlp, large scale spectral clustering, word embeddings, ngrams, BM25, collaborative filtering... I also worked with other teams on automatic knowledge base question answering, and image recognition for text content recommendation. I participated in the preparation of a demo on machine learning for the Dassault Systèmes Excom on how machine learning can be applied in the context of client support.

Data scientist

PREXEM is a start-up specialized in crowdfunding of commercial companies. It was launched 2 weeks before I entered the company. My task was to upgrade the credit scoring tools that was being used. Thanks to the courses I followed in ENSAE Paris Tech, I was able to propose a model and compare its performance thanks to the ROC curve. After finishing the work I was supposed to do, I tried to improve predictions thanks to neural networks and polynomial approximation. I was faced with the problem of feature selection and computation processing time.

Education

Masters in Machine Learning (MVA)

september 2015 — september 2016

Ecole Normale Supérieure

It is a unique Master in France where students learn state of the art algorithms in machine learning and computer vision. I followed a course from Mallat, the pioneer of wavelets (which is very useful in dimensionality reduction). Key courses: Deep learning in Ecole Centrale Paris given by Kokkinos, graphical model (one of the teachers has worked with Dr Ghahramani from Cambridge), reinforcement learning, image recognition (with the department of neurosciences of ENS Ulm), graphs(spectral clustering,...), human machine interface, text processing with Vazirgianis in Ecole polytechnique, audio signal processing. During this master I had the opportunity to apply the algorithms in different projects(one of them being face recognition in videos using graphs). For more information go to: <http://www.math.ens-cachan.fr/version-francaise/formations/master-mva/contenus-/master-mva-cours-2015-2016-161721.kjsp?RH=1242415112528>

Masters in Statistics

Sept 2013 — Sept 2016

ENSAE Paris Tech

ENSAE Paris Tech is the branch of Ecole Polytechnique known for statistics. It is one of France's top schools of economic and statistics and is directly attached to France's National Institute of Economic and Statistical Information (INSEE) and the French Ministry of Economy and Finance. In this school, I was able to learn statistics, economics and have a overview of the financial industry. Thanks to lot of TD sessions I was able to apply the knowledge learnt during the classes. I am following a course I like a lot on distributed learning. In this school, we learn also to communicate effectively so that students succeed in the workplace.

MP

Sept 2011 — July 2013

Henri 4

I studied in a "classe préparatoire" of this school. It is one of the most prestigious schools in France and prepares students for entrance to the elite grandes écoles such as Ecole Polytechnique, HEC,... During this 2 intense years I gained a solid base in mathematics and physics.

Qualifications

Python, R, Matlab, SAS, Excel, Java, C++(I programmed a game in this language), time series, neural Networks, econometrics, statistics, graphical models, deep learning, reinforcement learning, spectral clustering (Spectral Thompson Sampling), PCA, k-means, random forest, image recognition(SIFT,...), game theory, distributed learning (Microsoft Azure, PIG, Spark,...), particle filtering, scoring, macroeconomics, microeconomics, surveying, dynamic optimization, risk theory, duration models, latex, virtual machine, visual studio, github, jupyter, natural language processing, kernels, compressed sensing, human machine interface, html, javascript, web scraping, data vizualisation, D3.js, theano, spark, graphs theory, JQuery, Theano, lasagne, Caffe, Matconvnet, T-SNE, UNIX, LSTM, autoencoders, multiprocessing, kafka, kibana, aws,

Languages

English, French, Spanish, Tamil, Chinese

Interests

Recorder at a professional level, piano (before I entered Lycée Henri 4), climbing, public speaking (I am part of Toastmasters International and more precisely Toastmasters 75), being part of an association (in ENSAE I was part of ENSAE Solidaire which goal was to promote solidarity amongst the current students and those who have graduated) and theater (I did a performance when i was in Lycée Henri 4, it took place in rue Mouffetard and was a success).