Vincent Roger

Data and Machine Learning Scientist

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Skills

Data Science

- Supervised, non-supervised and semi-supervised learning:
  - Deep Neural Network for images and audios
  - Few-shot techniques, such as Siameses Neural Network or Prototypical
  - Sequence learning (used on audios): RNN, GRU, HMM
  - Representation learning using Generative models such as GAN, VAE or DPGMM
- Signal processing on images and sounds
- Analyze data and do data visualization (with bokeh)

Management

- Organized (take notes and classify)
- Collaborative work (supervise meetings)
- Respect of due times (to publish)
- Risk Management (measure choices)
- Leadership

Linguistics

- French ●●●●●
- English ●●●●○

Work Experience

PhD, in progress, **IRIT** **Toulouse**, 2018–now
Creating an Automatic System of Intelligibility Measurement (SAMI) to help following-up patients with oral cancer. Project linked to C2SI (Carcinologic Speech Severity Index Project). It involves usage of clinical data and use of recent machine learning algorithms. My supervisors are Julien PINQUIER and Jérôme Farinas from the SAMOVA team. I obtained a grant to supervise an engineer to realize an application to apply my research in Toulouse Hospital. More details about my thesis are available on my blog.

Study Engineer, two years, **LIS** **Toulon**, 2016–2018
It consisted in learning models adapted to bioacoustic signals. Learned models adapted to classification of 1500 birds. Use of deep neural network and probabilistic model to learn embeddings of cetacean sounds (high dimensionality data).

Study Engineer, teen months, **LIS - TVT Innovation** **Toulon**, 2015-2016
Model environmental bioacoustics using generative models. I wrote a report on narwhals.

Study Engineer, five months, **IRIT** **Toulouse**, 2015
Compilation of Temporal Constraint Satisfaction Problem (TCSP) - application in temporal planning. Theoretical analyses and experiments on different representations of temporal languages. Internship done in ADRIA team. Paper published at ICTAI.

Junior Software Engineer, four months, **LAAS** **Toulouse**, 2014
Redesign of tools for managing humanoid movements, articulations, bodies and position of a robot in space. Results: modernized tools for task management. Internship done in GEPETTO team.

Junior Software Engineer, two months, **IRIT** **Toulouse**, 2013
Production of software for automatic transcription (in real time) of audio-video content (multiple flux). Results: The tool was used for demonstrations of the SAMOVA techniques. Internship done in SAMOVA team.

Junior Software Engineer, two months and a half, **CEICOM** **Toulouse**, 2011
Porting an inter-machine communication tool between applications from Windows to Linux systems. Results: porting done with strategic impact. It was an industrial internship.

Teaching

Substitute Teacher, Paul Sabatier University **Toulouse**, 2019-2021

- **Model and computer science** (14h of project class): I follow Master students in a machine learning project on voice recognition.
- **Introduction to TensorFlow** (6h of tutorial class): I taught to Master students basic usage of TensorFlow.
- **Probability and statistics** (16h of tutorial class): I taught to Master students basic usage of scipy and numpy statistical functions.
- **Introduction to Python** (116h of tutorial class): I taught to Bachelor students from Computer Science and Economic fields and also to biologist Master.
- **Introduction to Network** (10h of tutorial class): I taught to Bachelor students about basic network knowledge.

Substitute Teacher, University of Toulon **Toulon**, 2017-2018

- **Machine Learning basis** (8h of practical class): I taught to Master students in Software Development. I created the courses on simple tasks (MNIST and bird sounds) using TensorFlow framework and simple neural network approaches.
- **Basic Algorithmic** (8h of tutorial class): I taught to Bachelor students in Engineering Sciences. Proof of algorithms and sorting algorithms.
- **Graph Theory** (12h of tutorial class and 57h of practical class): I taught to Bachelor students in Engineering Sciences. I participated in the redaction of the tutorial and practical classes, it consisted in colored graph and finding the best path between edges.

Education

PhD, Computer Science, **Paul Sabatier University** **Toulouse**, in progress

I improved my communication during presentation and on the radio.

Master Degree, Artificial Intelligence, **Paul Sabatier University** **Toulouse**, 2013–2015

Statistical models, Signal Processing, Pattern Recognition, Robot control, and Management.

Bachelor Degree, Fundamental Computer Science, **Paul Sabatier University** **Toulouse**, 2013

Development tools, low-level programming, Statistics, Probabilistic and Calculus.

Academic and Technological Diploma, Computer Science, **IUT Paul Sabatier** **Toulouse**, 2011

Technical Computer Science skills and ways to design applications for the industry.

Hobbies

Sport: Bodybuilding using elastics (3 times a week) and running (2 times a week, I finished the marathon of Toulouse).

Manga: I mostly read Japanese Shōnen (such as Jujutsu Kaisen and One Piece).

Music: Australian hip-hop and rap. Mainly artists from Golden Era Records (such as Hilltop Hoods).

Digital Drawing: Currently learning digital drawing (using graphic tablet) and animation to do vulgarization contents.