

Vincent Roger - PhD

Data and Machine Learning Scientist

@ Vincent.Roger.Pro@proton.me

✉ 1 Rue Saint-Dominique; 31000 Toulouse

🌐 vincent-roger.fr

☎ +336 33 25 61 97

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📧 Vincent-Roger



Skills

Data science techniques

- Supervised, non-supervised and semi-supervised learning with hyper-parameters search.
- Experiments management with resource usage.
- Deep Neural Networks on big data and limited data (few-shot) with efficient computing.
- Representation learning using generative models such as GAN, VAE or DPGMM.
- Signal processing (on audio and images).
- Big data analysis and visualization.
- Prototype and microservice creation.



Data science tools

- Python, Numpy, Scipy, Pandas
- PyTorch, Scikit-learn, Lightning, Optuna, MLflow
- Docker, Falcon
- Slurm
- Streamlit, Plotly, Matplotlib



Management

- Organized.
- Collaborative work.
- Respect of due times.
- Risk Management.
- Leadership.

Linguistics

- French



- English



Work Experience

Data and Machine Learning Scientist, Ongoing, Kiviak Instruments

📍 **Toulouse** 2023–now

Create models (embedded as microservice) to automatically tag music samples. Develop prototypes of new functionalities. Work on signal processing functionalities. And more on the horizon.

PhD, three years and three months, IRIT

📍 **Toulouse** 2018–2022

People with ENT cancers have speech difficulties after surgery or radiation therapy. It is important for the practitioner to have a measure that reflects the severity of speech. I propose two approaches to create an automatic measure, although with little data (about 1h of audio recordings for 128 speakers). The first one is based on "few shot" methods, while the second one is based on entropic measurement of speech features (learned with a self-supervised model on an annexed corpus). Our results on the latter have allowed us to consider a medical application. Thus, I obtained a grant to supervise an engineer to realize an application delivered to the Toulouse University Hospital.

Study Engineer, two years, LIS

📍 **Toulon** 2016–2018

Following my previous contract, I created a deep self-supervised model representation of underwater acoustic environments to help categorize the different behaviors of cetaceans within range of buoys. I then created a deep model for the classification of 1500 bird species. For these two problems, I had large volumes of data.

Study Engineer, teen months, LIS - TVT Innovation

📍 **Toulon** 2015-2016

Following the installation of buoys in the sea equipped with microphones, we have large quantities of data. My work consisted in modeling the bioacoustic environment using generative models. Thanks to this, I was able to produce a report of narwhal activities in relation to lunar activity.

Study Engineer, five months, IRIT

📍 **Toulouse** 2015

Temporal planning by compiling satisfaction of temporal constraints. Theoretical and experimental analysis of temporal problem representation languages. Publication of an article.

Junior Software Engineer, four months, **LAAS**

📍 **Toulouse** 2014

Modernization of the humanoid robot motion management system from GEPETTO team (representation of joints, bodies and position) by accelerating the system initialization and improving the programming interface.

Junior Software Engineer, two months, **IRIT**

📍 **Toulouse** 2013

Developed a software for automatic subtitling of audio-video streams (stream manipulation with real-time transcription). The software has become a demonstration tool of the SAMOVA research team.

Junior Software Engineer, two months and a half, **CEICOM**

📍 **Toulouse** 2011

Porting a communication application from Windows to Linux. Result: C++ rewriting of Windows routines for Linux; successful porting with a strategic impact.

Education

PhD, Computer Science, **Paul Sabatier University**

📍 **Toulouse** 2022

I improved my communication during presentation and on the radio.

Master Degree, Artificial Intelligence, **Paul Sabatier University**

📍 **Toulouse** 2015

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

Bachelor Degree, Computer Science, **Paul Sabatier University**

📍 **Toulouse** 2013

Fundamental in development tools, low-level programming, Statistics, Probabilistic and Calculus.

University degree in technology, Computer Science, **IUT Paul Sabatier**

📍 **Toulouse** 2011

Two-year degree in technical Computer Science skills and ways to design applications for the industry.

Hobbies

Associative: I am an active member of Toulouse dataviz and Toulouse Data Science associations. Details on the associations here: toulouse-dataviz.fr and tlse-data-science.fr

Blogging: I blog about my projects, especially about visualizations I have done and tips about the Linux environment. It's here: vincent-roger.fr/blog

Sports: Weight training (twice a week), swimming (twice a week) and running (once a week). I finished Toulouse's marathon.

Readings: I read about productivity, health, sport and computer science. Also, I read Japanese Shōnens.

