

Hi, I am a machine learning PhD with a focus on recommender systems and strong programming skills. I currently live in France but I'm very flexible and mobile.

EXPERIENCE

- Machine Learning PhD** 2014–2017 I studied analogical classifiers—somehow related to k -NN learners—from a theoretical point of view in terms of convergence, error rate and inference principle. I also applied analogical learning to recommender systems, which led me to develop [Surprise](#): a popular Python package for recommendation (see below for details and publications). *University of Toulouse III, France.*
- ML Research Intern** 2014, 6 months I designed and developed a classifier for monophonic musical instrument sounds, mostly using linear models. *University of Bristol, UK.*
- C development Intern** 2013, 6 months I developed a prototype for an embedded automotive application on a Freescale PowerPC chip. *Laboratory for Analysis and Architectures of Systems (LAAS), France.*

TECHNICAL SKILLS

- **Software engineer background:** highly proficient in Python and C
- Well-versed in machine learning and recommender systems
- Familiar with Python scientific tools: Scikit-learn, TensorFlow, numpy, matplotlib, Cython...
- **Solid theoretical background:** statistics, linear algebra, optimization

Open-source projects

Recommender Systems: I developed and now maintain [Surprise](#), a popular Python library to build and analyze recommender systems (**1k+ stars on GitHub**). This project gave me the opportunity to combine my theoretical understanding of machine learning and my programming abilities into a **complete, useful and easy-to-use software**.

OS development: with three other students, we designed and developed in C++ the [graphical user interface](#) for a students' OS. We developed the whole stack, from graphics drivers (VGA and VESA) to widget toolkits and end-user applications: terminal emulator, file explorer, image viewer and paint-like program.

Others: I also contribute to other OSS during my free time (see my [GitHub profile](#) for details).

TALKS BLOGGING TEACHING

- I enjoy **communicating about my work** and usually receive positive feedback about it, e.g.:
- [this blog post](#) on matrix factorization for recommendation ([Reddit discussion](#))
 - [this talk](#) at PyData Paris'17 about recommender systems in Python
- I gave lessons to university students:
- **undergraduate:** concurrency and threads in C, programming basics (OCaml, Python, Ada), general AI
 - **postgraduate:** reinforcement learning, graph theory, linear programming

ABOUT ME

During my free time, you may find me rock climbing or hiking, lost somewhere in the mountains... I always enjoy any kind of outdoor activity, which is quite fortunate given one of my other passions: food!

EDUCATION

- Machine Learning PhD** 2014–2017 Supervised by [Henri Prade](#), [Gilles Richard](#), and Mathieu Serrurier at the Research Institute in Computer Science of Toulouse ([IRIT](#)), University of Toulouse III - France
- Master's Degree** 2014 Artificial Intelligence at University of Toulouse III, valedictorian (over ten students)
- Master's Degree** 2013 Computer Science Engineering at Institut National des Sciences Appliquées of Toulouse, specialized in critical embedded systems and software development
- Exchange Program** 2012 I studied one semester at the Faculty of Engineering of the University of Buenos Aires (Argentina)

PUBLICATIONS

- [1] N. Hug, *Contributions to the use of analogical proportions for machine learning: Theoretical properties and application to recommendation*. PhD Thesis, TBP.
- [2] M. Couceiro & N. Hug & H. Prade & G. Richard, *Analogy-preserving functions: A way to extend Boolean samples*. IJCAI 2017: 1575-1581. [link](#).
- [3] N. Hug & H. Prade & G. Richard & M. Serrurier, *Analogical classifiers: A theoretical perspective*. ECAI 2016: 689-697. [link](#).
- [4] N. Hug & H. Prade & G. Richard & M. Serrurier, *Analogy in recommendation. Numerical vs. ordinal: A discussion*. FUZZ-IEEE 2016: 2220-2226. [link](#).
- [5] N. Hug & H. Prade & G. Richard & M. Serrurier, *Experimenting analogical reasoning in recommendation*. ISMIS 2015: 69-78 [link](#).