

# Maxime Baelde

*Ph. D, Data Scientist*

☎ (+33) 6 12 10 67 38

✉ maxime.baelde@ik.me

🔗 LinkedIn profile

👤 Github repo



## Work experiences

- July 2019 – **Machine Learning Engineer, Data Scientist**, WAVELY, Villeneuve d'Ascq.  
Today Develop algorithms related to probabilities, statistics, machine learning and artificial intelligence, for applications to predictive maintenance and sound monitoring. Develop Python packages for signal processing and machine learning on embedded devices.
- October 2019 **Lecturer in Statistics**, ENIGMA, Lille.  
– Today Involved in lectures of Statistics with R and Python at Enigma (Master in Computer Science)
- November 2017 – **Part-time lecturer in Signal Processing**, ECOLE CENTRALE DE LILLE, Villeneuve d'Ascq.  
Today Involved in lectures of Signal Processing at Ecole Centrale de Lille (Bachelor and Master equivalent lectures)
- April 2015 – **R&D Engineer, Data Scientist**, A-VOLUTE, Villeneuve d'Ascq.  
July 2019 Develop algorithms related to probabilities, statistics, machine learning and artificial intelligence, for applications to digital audio technologies.
- January 2016 **Ph. D Student**, A-VOLUTE – INRIA, Villeneuve d'Ascq.  
– January 2019 Thesis subject: Real-time identification, localization and separation of audio sources in multichannel audio streams. Supervisor: Christophe Biernacki, Professor (Université de Lille, INRIA, CNRS)
- September 2018 – **Part-time lecturer in Statistics**, ISA, Lille.  
2018 – Involved in lectures of Statistics with R at ISA (Bachelor equivalent lectures)
- October 2018
- May 2014 – **Internship – Research assistant**, UNIVERSITÉ LIBRE DE BRUXELLES, Brussels.  
August 2014 Development of an experimental method for assessing the musical qualities of violin strings. Supervisor: Jean-Pierre Herman

## Scientific communications

- 2021 **Patent.**  
**Maxime Baelde** et al. "Système de reconnaissance et d'identification de sources sonores en temps réel" WIPO Patent WO2021209726A1.
- 2020 **Patent.**  
**Maxime Baelde** et al. "Apparatus and method for audio analysis" WIPO Patent WO2020178256A1.
- 2019 **Ph.D thesis.**  
**Maxime Baelde.** "Modèles génératifs pour la classification et la séparation de sources sonores en temps-réel". Ph.D thesis, Université de Lille, 2019

- 2019 **Journal article: Pattern Recognition.**  
**Maxime Baelde**, Christophe Biernacki and Raphaël Greff. “Real-Time monophonic and polyphonic audio classification from power spectra”. In : Pattern Recognition 92 (august 2019), p. 82-92. [paper]
- 2019 **Pre-print: GretsI 2019.**  
 Nathan Souviraà-Labastie, **Maxime Baelde**, Thomas Malet and Raphaël Greff. Impact des conditions d’attaques sur les contre-mesures pour la reconnaissance du locuteur. pre-print GretsI. [paper]
- 2019 **Pre-print paper: Interspeech 2019.**  
**Maxime Baelde**, Nathan Souviraà-Labastie and Raphaël Greff. Influence of the attack conditions on countermeasures for Automatic Speaker Verification. pre-print Interspeech. [paper]
- 2017 **Conference paper: ICASSP 2017.**  
**Maxime Baelde**, Christophe Biernacki and Raphaël Greff. A mixture model-based real-time audio sources classification method. 2017 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), 5-9 Mar 2017, pp. 2427-2431, New Orleans, USA. [paper], [poster]
- 2017 **Conference paper: JDS 2017.**  
**Maxime Baelde**, Christophe Biernacki, Raphaël Greff. Classification de signaux audio en temps-réel par un modèle de mélanges d’histogrammes. 49èmes Journées de Statistiques, June 2017, Avignon, France. [paper]
- 2015 **Master Thesis.**  
**Maxime Baelde**. Modelization of HRTF filters and optimization for 3D audio effect. Master thesis, 2015, Université de Lille. [paper]
- 2014 **Abstract: JASA 2014.**  
**Maxime Baelde**, Jessica De Saedeleer et Jean-Pierre Hermand. “Experiment to evaluate musical qualities of violin strings”. In : The Journal of the Acoustical Society of America 136.4 (2014), p. 2284-2285. [abstract]

---

## Education

- 2016–2019 **Ph.D thesis**, *Université de Lille*, Villeneuve d’Ascq, Modèles génératifs pour la classification et la séparation de sources sonores en temps-réel.
- 2012–2015 **Engineering Degree**, *École Centrale de Lille*, Villeneuve d’Ascq, *Decision making and Data analysis*.
- 2014–2015 **Master Research in Applied Mathematics**, *Université de Lille*, Villeneuve d’Ascq.
- 2010–2012 **Preparatory classes: two-year undergraduate intensive course in mathematics and physics**, *Lycée Henri Wallon*, Valenciennes.
- 2007–2010 **A-Level, engineering sciences and physics speciality**, *Lycée Pierre Forest*, Maubeuge.

---

## Computer skills

- Software programming GIT, PYTHON (NUMPY, PANDAS, ...), R, MACHINE LEARNING (SCIKIT-LEARN, PYTORCH), SQL, DOCKER, GRAFANA
- Operating system Windows, Linux

## Language

French **Mother Tongue**  
English **Technical and professional**

## Hobbies

- Videogames: RPG, Tactical
- Reading: thriller, science-fiction
- Bakery
- Gardening and food autonomy
- Music: play the piano (since 7 years)  
and the guitar (since 16 years)