

Mathieu Goutay

PHD STUDENT - NOKIA BELL LABS, PARIS SACLAY

210 Boulevard Raspail, 75014 Paris, France

+33 6 75 63 86 00 | mathieu.goutay@nokia.com | [mgoutay.github.io](https://github.com/mgoutay) | [mathieugoutay](https://www.linkedin.com/in/mathieugoutay)

Summary

Ph.D Student in machine learning applied to communication systems at Nokia Bell Labs, Paris Saclay, France. Recently graduated from INSA Lyon, France, with a MSc. in engineering. Technology enthusiast who discovered telecommunications in its childhood and machine learning at university. Particularly interested in the physical layer, deep learning, reinforcement learning, and learning new skills when the need arises.

Education

Nokia Bell Labs

Paris Saclay, France

PH.D THESIS IN MACHINE LEARNING APPLIED TO COMMUNICATION SYSTEMS

2019 - Now

- Preparation of a Ph.D thesis co-supervised by Dr. Jakob Hoydis and Dr. Jean-Marie Gorce, from Nokia Bell Labs, Paris Saclay, and Inria, Lyon.
- Application of diverse Machine Learning techniques to the problem of Digital Predistortion.
- Enhancement of multi-user MIMO receivers using convolutional neural networks and hypernetworks.
- End-to-End training of communication systems treated as autoencoders.

INSA Lyon

Villeurbanne, France

MSc. IN ENGINEERING (TELECOMMUNICATIONS) : OBTAINED WITH JURY'S CONGRATULATIONS

2013 - 2018

- Learning about communication systems, networks, mobile and distributed computing.
- Main courses: signal processing, information theory, computer science, data science, algebra, calculus, and probabilities.
- Specialization in future wireless networks and machine learning.
- Preparatory School in English section : 95% of classes in English.

New Jersey Institute of Technologies

Newark, NJ, USA

ECHANGE STUDENT : GPA 4.0/4.0

Sept. 2016 - Dec. 2016

- Learning about Processors, Networks, Technical Writing, Security.

Paul Sabatier High School

Carcassonne, France

HIGH-SCHOOL DEGREE IN MATHEMATIC : OBTAINED WITH JURY'S CONGRATULATIONS

2010 - 2013

Work Experience

Nokia Bell Labs

Paris Saclay, France

AI RESEARCH INTERN

Feb. 2018 - Aug. 2018

- Use of various Machine Learning techniques to enable the end-to-end learning of a communication system without a channel model.
- Theoretical analysis of the proposed solution supported by numerical evaluations realised with Tensorflow.
- Familiarization with Supervised Learning, Deep Reinforcement Learning, and Convolutional Neural Networks.

Alstom - Innovation Department

Villeurbanne, France

RESEARCH INTERN

Mar. 2017 - Jun. 2017

- Using Bluetooth Low Energy and other new technologies in order to help people with reduced mobility to take common transports.
- Realisation of a working prototype able to localize disabled passengers and produce corresponding actions.

Academic Experience

Research Project n°2

Sept. 2017 - Jan. 2018

- Extra project for students interested in research. Writing of a survey about Massive MIMO and defining a problematic on this topic.
- Writing and publishing an article, published at ICT 2018, St.Malo.

Innovation Project

Sept. 2017 - Jan. 2018

- Large-scale room monitoring to reduce global energy consumption and help people change their habits.
- Elected as the best project out of 16 competitors.

Research Project n°1

Mar. 2016 - Jun. 2016

- Addressing the reception synchronization problems of a MSK-PHY modulation. MATLAB, GNU Radio.

Foreign Languages

English : Business fluent, 990/990 TOEIC (2018)

Spanish : A few notions

Honors & Awards

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| 2019 | First Place in the Machine Learning Challenge , 6th IRACON Training School on Machine & Deep Learning Techniques for (Beyond) 5G Wireless Communication Systems | CTTC, Barcelona |
| 2018 | Best Student , Nokia France Student Awards | Paris Saclay, France |

Publications

Machine Learning for MU-MIMO Receive Processing in OFDM Systems

MATHIEU GOUTAY, FAYÇAL AIT AOUDIA, JAKOB HOYDIS, AND JEAN-MARIE GORCE

2020

- Submitted to IEEE Journal on Selected Areas in Communications (JSAC) - Machine Learning in Communications and Networks
- Available at <https://arxiv.org/abs/2012.08177>

Deep HyperNetwork-Based MIMO Detection

MATHIEU GOUTAY, FAYÇAL AIT AOUDIA, AND JAKOB HOYDIS

2020

- 2020 IEEE 21st International Workshop on Signal Processing Advances in Wireless Communications (SPAWC), Atlanta, Georgia, USA
- Available at <https://arxiv.org/abs/2002.02750>

Deep Reinforcement Learning Autoencoder with Noisy Feedback

MATHIEU GOUTAY, FAYÇAL AIT AOUDIA, JAKOB HOYDIS

2019

- Workshop on Machine Learning for Communications WMLC 2019, WiOpt 2019, Avignon, France.
- Available at <https://arxiv.org/abs/1810.05419>

Massive Machine Type Communications Uplink Traffic: Impact of Beamforming at the Base Station

M. GOUTAY, L. S. CARDOSO AND C. GOURSAUD

2018

- 2018 25th International Conference on Telecommunications (ICT), St. Malo, 2018, pp. 493-497.
- Available at <https://hal.inria.fr/hal-01875596>

Referees

Dr. Jakob Hoydis

jakob.hoydis@nokia-bell-labs.com

Dr. Jean-Marie Gorce

jean-marie.gorce@insa-lyon.fr