

# Curriculum vitae

## PERSONAL INFORMATION



## Antoine Wehenkel

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📅 Date of birth 28 Sep 1995 | 🇧🇪 Nationality Belgian

## PERSONAL STATEMENT

**"We know the past but cannot control it. We control the future but cannot know it."**  
*Claude Shannon*

I am currently a Phd student in machine learning at ULiège (Belgium) under the supervision of Professor Gilles Louppe. In 2018, I was graduated a Msc in computer engineering from ULiège. I spent my last year of study at Ecole Polytechnique Fédérale de Lausanne (EPFL) as an exchange student. There, I realized my **master's thesis** about line parameters estimation of electrical distribution network in the laboratory of Professor Jean-Yves Le Boudec. My main research interests revolve around **Statistics, Machine Learning** and **Information Theory**.

## EDUCATION AND TRAINING

Aug 2018–Present

### Phd in data science

ULiège, Liège (Belgique)

Deep Learning for Intractable Inverse Problems in Science

The primary goal of this research project is to develop deep learning algorithms for solving intractable inverse problems, as ordinarily found in a broad class of scientific disciplines.

In several research fields, computational models enable the simulation of complex data generation processes. These processes are generally stochastic and correspond to likelihood functions whose exact computation and optimization is typically intractable. Although data generation is a simple procedure, to find the model parameters and causal factors responsible for a set of experimental observations reveals to be a challenging task.

The first part of my research project will be about developing tractable deep learning-based inference approaches to solve such inverse problems.

The second part of my project will be dedicated to the study and development of generative models that can offer an actionable and scientifically useful notion of interpretation, with domain knowledge taken into account. Generative models enable to formulate a theory providing synthetic data matching the observations. These models are traditionally computer simulators encoding causal relations based on scientific knowledge. In this context, I will aim at developing interpretable generative models, by building upon recent progress in deep neural networks and deep probabilistic programming.

Finally I will study how the proposed inference methods and generative models could be unified in a single unified modelling framework.

Sep 2016–Jun 2018

### Master in engineering, Intelligent systems

ULiège, Liège (Belgium)

*Summa Cum Laude*

Sep 2017–Jun 2018

### Exchange student in the master of data science

EPFL, Lausanne (Switzerland)

*Average score: 5.8/6*

Sep 2013–Jun 2016 **Bachelor in engineering (major in computer science, minor in electrical engineering)**  
 ULiège, Liège (Belgium)  
*Magna Cum Laude*

## WORK EXPERIENCE

Sep 2017–Dec 2017 **Student Instructor for the course of Electronic 2**

Prof. Kayal - EPFL, Lausanne (Switzerland)

Coaching of students during the practical sessions.

Jul 2017–Sep 2017 **Student Worker**

Laboratory of Immunology, ULiège (Belgium)

Development of an RFID based tracking system for fish. It required to chose the right hardware components, to program micro controller (Arduino), to create a web server (Django and PostgreSQL) and a monitoring system (Python).

Jul 2016–Apr 2017 **Student Researcher**

Smart Grids Laboratory, ULiège (Belgium)

The purpose of my work was to develop optimisation algorithms applied to electric vehicle fleet integration in the electrical network.

Sep 2016–Jun 2017 **Student instructor**

ULiège (Belgium)

Students instructors for the following courses:

- Data Structures and Algorithms (Prof. Geurts)
- Analysis and Design of Electrical Measuring Systems (Prof. Vanderbemden)
- Computer Organization (Prof. Boigelot)

## PERSONAL SKILLS

Foreign language(s)

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	B2	B2	B2	B2	B2
French	C2	C2	C2	C2	C2

Levels: A1 and A2: Basic user - B1 and B2: Independent user - C1 and C2: Proficient user  
 Common European Framework of Reference for Languages

Communication skills

Good communication skills gained during my experience as a student instructor. Over the 3 last years I also took part in many group projects and developed my ability to communicate with my colleagues.

Digital skills

- Excellent programming skills in C, C++, Python, Matlab, Java and Scheme.
- Good knowledge in convex optimization, operating systems, computer networking, machine learning and statistics.

## ADDITIONAL INFORMATION

Honours and awards

- Best Master's thesis award from AIM (2018)

- Best Master's thesis award from AILg (2018)
- Physics award for outstanding student (2013)
- Physics award at belgian olympiades (2012 and 2013)

#### Academic grades

- Second Master in Computer Engineering: **Summa Cum Laude** (2017-2018)
- First Master in Computer Engineering: **Summa Cum Laude** (2016-2017)
- Third Bachelor in Engineering Sciences: **Summa Cum Laude** (2015-2016)
- Second Bachelor in Engineering Sciences : **Cum Laude** (2014-2015)
- First Bachelor in Engineering Sciences : **Magna Cum Laude** (2013-2014)

#### Publications

- Parameter Estimation of Three Phase Untransposed Short Transmission Lines from Synchrophasor Measurements, A. Wehenkel, A. Mukhopadhyay, J.-Y. Leboudec, M. Paolone - IEEE Transactions on Instrumentation and Measurement
- Recurrent machines for likelihood-free inference, A. Wehenkel, A. Pesah, G. Louppe - MetaLearn Workshop @ Neurips 2018
- An App-based Algorithmic Approach for Harvesting Local and Renewable Energy Using Electric Vehicles, A. Dubois, A. Wehenkel, R. Fonteneau, F. Olivier, D. Ernst - ICAART 2017