# Corentin Barloy

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**Research themes:** circuit complexity, automata theory, semigroup theory, formal logic.

## Employment History

2024 – · · · **Postdoctoral researcher.** "Formal logic and verification" team, Ruhr-universität Bochum, Germany. With Thomas Zeume.

## Education

### Cursus

2021 – 2024 **Université de Lille**. PhD Thesis: "On the complexity of regular languages". Defended on the 5 July 2024.

2017 – 2021 **École Normale Supérieure de Paris** .
- Double bachelor Computer science/Mathematics with honors.
- MPRI computer science's master MPRI, ranked 3rd with honors.

2015 – 2017 **Saint-Louis**, Paris. Preparatory classes: MPSI/MP*.

### Internships

2020 – 2021 **Inria Lille , Links team**. 1 year under Charles Paperman's supervision on "linear complexity of boolean circuits".

2019 – 2020 **University of Warsaw**. 6 months under Lorenzo Clemente's supervision on "Linear recurrence sequences with the convolution product".

2018 – 2019 **University of Oxford**. 6 months under Michaël Cadilhac and Shaull Almagor's supervision on "Around determinization in weighted automata".

2017 – 2018 **LaBRI, Bordeaux**. 2 months under Nathanael Fijalkow, Filip Mazowiecki and Nathan Lhote's supervision on "Algebra and Logic in Automata Theory". (with a dissertation)

## Research

### Peer-reviewed articles

1 **A robust class of linear recurrence sequences**
C. Barloy, N. Fijalkow, N. Lhote and F. Mazowiecki, CSL, 2020.
Journal version in WATA 2022.

2 **Bidimensional linear recursive sequences and universality of unambiguous register automata**
C. Barloy and L. Clemente, STACS, 2021.

3 **Stackless processing of streamed trees**
C. Barloy, F. Murlak and C. Paperman, PODS, 2021.

4 **The regular languages of first-order logic with one alternation**
C. Barloy, M. Cadilhac, C. Paperman and T. Zeume, LICS, 2022.

5 **Dynamic Membership for Regular Tree Languages**
A. Amarilli, C. Barloy, L. Jachiet and C. Paperman, MFCS, 2025.

## Research (continued)

### Participation to congress and conferences

2022 **LICS**, Haifa.

**Highlights of logic, games and automata**, Paris.

2021 **PODS**, online.

**STACS**, online.

2020 **Highlights of logic, games and automata**, online.

**CSL**, Barcelone.

2019 **Highlights of logic, games and automata**, Varsovie.

### Participation to other events

2025 **AIMOTH**, Bamberg, Germany. Workshop.

2024 **EPIT**, Aussois, France. Spring school.

**Seminar** of the Plume team, Lyon, France. Presentation of 4.

2023 **EPIT**, île d'Oléron, France. Spring school.

**DAAL** days, Paris, France. Presentation of unpublished work.

**Seminar** of the MOVE team, Marseille, France. Presentation of 4.

2022 **Autobóz**, Sobótka, Poland. Research camp.

**DAAL** days, Lille, France. Presentation of 4.

**Seminar** of the LX team, Bordeaux, France. Presentation of 4.

### Seminar animation

2022-2024 **Speed-DATING**. Creation of a student seminar for the DATING research group (in Lille). The goal was to present PhD works to other members of non-specialist teams.

### Academic services

Reviewing services for JMLR25, CONCUR25, ICALP25, MFCS25, STACS25, SODA25, JALC24, CONCUR23, MFCS23, SOFCEM23, ICALP23, DLT23, FSTTCS22, MFCS22, FOSSACS22, LICS22, CSR21 and TOCS21.

## Teaching

2024 – 2025
- Lecture/exercises Computational complexity theory (RUB)
- Lecture/exercises Highlights of theoretical computer science (RUB)
- Seminar Gems of logic (RUB)

2023 – 2024
- TD UNIX (Univ. Lille)
- Lecture/TD/TP Relational Data Bases (Univ. Lille)
- Computer science examinations in preparatory classes (Faidherbe)

2022 – 2023
- TD/TP Algorithms and Programming 1 (Univ. Lille)
- Computer science examinations in preparatory classes (Faidherbe)

2021 – 2022
- TD/TP Algorithms and Programming 1 (Univ. Lille)
- TD/TP Data Bases 1 (Univ. Lille)