Noel Arteche

noel.arteche@cs.lth.se
narteche.github.io

Summary

I am a second-year **PhD student** in theoretical computer science at **Lund University** and the **University of Copenhagen**, under the supervision of **Susanna F. de Rezende** and **Jakob Nordström**. Before that, I graduated from the Master of Logic at the University of Amsterdam and obtained a BSc in Computer Science from the University of the Basque Country.

Research Interests

- computational complexity theory
- logic & proof complexity
- theoretical computer science
- philosophy of mathematics & mathematical practice

Education

Lund University — Lund, Sweden
PhD in Theoretical Computer Science — 2022 –

- Supervised by Susanna F. de Rezende and Jakob Nordström, as part of the Mathematical Insights into Algorithms for Optimization (MIAO) research group.
- Funded by the Wallenberg AI, Autonomous Systems and Software (WASP) program.
- Expected graduation date: 2027.

University of Amsterdam — Amsterdam, The Netherlands
MSc in Logic (120 ECTS) — 2020 – 2022

- Two-year master's program at the Institute for Logic, Language and Computation (ILLC). Courses in logic, theoretical computer science, mathematics and philosophy.
- Graduated *cum laude*, partially funded by the E. W. Beth Scholarship.
- **Thesis**: *Parameterized Compilability*
  Supervisors: Ronald de Haan (ILLC, University of Amsterdam) and Hubie Chen (King's College London).

University of the Basque Country — San Sebastián, Spain
BSc in Computer Science (240 ECTS) — 2016 – 2020

- Graduated first of my year, GPA: 9.43 (out of 10)
- Erasmus+ exchange at the KU Leuven (Belgium), during the academic year 2019-20.
- **Thesis**: *A Formal Language and Tool for QBF Family Definitions*
  Supervisors: Marc Denecker (KU Leuven), Matthias van der Hallen (KU Leuven), Montserrat Hermo (University of the Basque Country). Results presented at the QBF Workshop of the SAT 2020 conference (see [4]).

Research Visits

Institute of Mathematics, Czech Academy of Sciences — Prague, Czech Republic
Visiting Graduate Student hosted by Erfan Khaniki. — February 2024

University of Oxford — Oxford, UK
Visiting Graduate Student hosted by Ján Pich. — July 2023

Simons Institute for the Theory of Computing, UC Berkeley — Berkeley, USA
Visiting Graduate Student for the semester-long *Meta-Complexity* program. — January 2023 – May 2023

Summer Schools

EPIT Summer School 2023: Le Kaléidoscope de la Complexité — Île d'Oléron, France
French National Centre for Scientific Research (CNRS) — June 2023

Hilbert-Bernays Summer School on Logic and Computation — Göttingen, Germany
University of Göttingen — October 2020

Research Papers

[1] **N. Arteche**, G. Carenini, and M. Gray, "Quantum Automating $\mathbf{TC}^0$-Frege is LWE-Hard", To appear in the 39th Computational Complexity Conference (CCC 2024).

[2] **N. Arteche**, E. Khaniki, J. Pich, and R. Santhanam, "From Proof Complexity to Circuit Complexity via Interactive Protocols", To appear in the 51st EATCS International Colloquium on Automata, Languages and Programming (ICALP 2024).

[3] **N. Arteche** and M. Hermo, "Prime Implicant Enumeration via QBF Solvers", in *QBF Workshop at the 24th International Conference on Theory and Applications of Satisfiability Testing*, 2021.

[4] **N. Arteche** and M. van der Hallen, "A Formal Language for QBF Family Definitions", in *QBF Workshop at the 23rd International Conference on Theory and Applications of Satisfiability Testing*, 2020.

Teaching Experience

- **Guest lecturer** at the University of Amsterdam — January 2024
  Meta-Complexity (6 ECTS · MSc course) – Main teacher: Ronald de Haan
- **Teaching Assistant** at Lund University — Spring 2023, 2024
  Advanced Algorithms (7.5 ECTS · MSc course) – Lecturer: Susanna F. de Rezende
- **Teaching Assistant** at Lund University — Fall 2022, 2023
  Constraint Programming (7.5 ECTS · MSc course) – Lecturer: Per Andersson
- **Teaching Assistant** at the University of Amsterdam — Spring 2022
  Computational Complexity (6 ECTS · MSc course) – Lecturers: Ronald de Haan and Jan Maly

Scholarships and Awards

- **Best Presentation Award at PROLE'23 (XXII Jornadas de Programación y Lenguajes 2023)** — September 2023
  For the talk *An Open Problem on the Complexity of Realizability for Safety LTL.*
- **Evert Willem Beth Scholarship** — 2021 – 2022
  Granted the E. W. Beth scholarship for my master's in logic at the University of Amsterdam.
- **Extraordinary BSc Degree Award** — 2020
  Best Computer Science student at the University of the Basque Country.
- **Kutxa Fundazioa Award** — 2020
  Best Computer Science Student.

Languages

Spanish (native speaker), **Basque** (native speaker), **English** (fluent, C2 level), **French** (fluent, C2 level).