

# Aloïs Rosset

*PhD at the Vrije Universiteit Amsterdam in theoretical computer science.  
Areas of particular interest are Category Theory and Logic.*

## CONTACT

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## INTERESTS

- Category Theory
- Monads
- Toposes
- Graph Rewriting
- Logic

## TALKS / SEMINARS

Each first-author paper was presented at the corresponding conference. Here are the additional presentations:

- VU TCS 13 Feb 2020
- NetTCS 29 Nov 2021
- VU TCS 12 May 2023
- NetTCS 26 Oct 2023
- SYCO12 15 April 2024 🏆

## SERVICE

- **Member** of IPA PhD council (Institute for Programming research and Algorithmics) 2023-2024. The institute organises events for PhDs in the Netherlands, including a Spring school and Fall school.
- **Co-organiser** of the Dutch PhD Logic 2024 at VU Amsterdam (Yearly Dutch Seminar)

## LANGUAGES

- **French:** Mother tongue
- **English:** Fluent
  - 5 years PhD, Amsterdam
  - TOEFL: 108 /120 (in 2020)
  - 1 year Erasmus in Bristol
- **German:** Basic understanding
  - B2-level from high-school
  - 6 months in Swiss army
- **Dutch:** B1-level

## REFERENCES

PhD (co)supervisors:

- **Jörg Endrullis** (VU Amsterdam)
- **Helle Hvid Hansen** (University of Groningen)
- **Wan Fokkink** (VU Amsterdam)

## RESEARCH

- [R] Uniform Monad Presentations and Graph Quasitoposes (PhD Thesis, under review)
- [RHE] Characterisation of LT-topologies on simplicial sets, bicoloured graphs, and fuzzy sets (TbiLLC'23 Post-proceedings)
- [RZHE] Correspondence between Composite Theories and Distributive Laws (CMCS'24)
- [R] Partially simple graphs are Quasitoposes (TbiLLC'23)
- [ROE] Fuzzy Presheaves are Quasitoposes (ICGT'23)
- [RHE] Algebraic presentation of Semifree monads (CMCS'22)
- [OER] Graph rewriting and Relabeling with PBPO+ : A unifying theory for Quasitoposes (Journal JLAMP'23)
- [OER] Graph rewriting and Relabeling with PBPO+ (ICGT'21)

**Collaborators** H = Helle Hvid Hansen, E = Jörg Endrullis,  
O = Roy Overbeek, Z = Maaïke Zwart

**Awards** • 🏆 Best presentation SYCO12

## EDUCATION

### PhD

**Th. Comp. Sc.**  
2020 - May 2025

- Vrije Universiteit Amsterdam. Thesis in 2 Parts
  - Part I: Studied monads and distributive laws, and developed further the correspondence with universal algebra
  - Part II: Studied the usage of quasitoposes in graph rewriting, and proved several categories to be quasitoposes, adapting existing proofs (for fuzzy presheaves) or via LT-topologies.

### M.Sc. + B.Sc.

**Mathematics**  
2014 - 2019

- Swiss Institute of Technology (EPFL)  
University of Bristol, 3rd year Erasmus exchange
  - **Master thesis:** “Blakers-Massey Theorem from the perspective of HoTT”
  - **Master project:** “Model Theory & Vaught Theorem”
  - **Bachelor thesis:** “Gödel’s Incompleteness”

## TEACHING

### Co-lecturer

- Logic and Modelling, 2023 (Bachelor CS Year 2)
  - Gave 3 lectures on modal logic. Content adapted from different existing materials
  - Compiled existing exercises and rewrote the solutions into Exercises Sheets.

### Teaching assistant

- Term rewriting systems, 2022-2024
  - Rewrote in LaTeX exercises & solutions from the source material into weekly Exercise Sheets
  - Graded the exams together with the teacher.
- Analytical geometry, 2018-2019

### Design of entrance exam

- Cours Euler (EPFL) : special cursus for children with high mathematical potential, 2019.