Alexandre Goy

Current position	Postdoctoral researcher, ENS Lyon, France
Postal address	LIP
	46, allée d'Italie
	69364 Lyon, France
Interests	Category theory, automata, coalgebra, logic, probability theory
Email	alexandre.goy@pm.me
LinkedIn	alexandre-goy-30046ba7
OrcId	0000-0002-0706-1186
Google Scholar	Alexandre Goy
ResearchGate	Alexandre_Goy2
dblp	Alexandre Goy 0002

Experience

Postdoctoral researcher
ENS Lyon, France, 2021 - present
Member of the PLUME team at LIP. Research with Matteo Mio on the theory of Riesz spaces towards formal verification and certification of probabilistic software.

Education

PhD in Computer Science
Paris-Saclay University, France, 2018 - 2021
Thesis title: *On the Compositionality of Monads via Weak Distributive Laws*, under the supervision of Marc Aiguier (MICS, Paris-Saclay University) and Daniela Petrişan (IRIF, Paris-Diderot University). Defended on 19 October 2021.

MSc in Engineering
CentraleSupélec, France, 2018
Thesis title: *Morpho-Logic and the Theorem of Łoś*, under the supervision of Marc Aiguier (MICS, Paris-Saclay University). Major in mathematics, 1st out of 95.

MSc in Mathematical Logic and Foundations of Computer Science
Paris-Diderot University, France, 2017
Thesis title: *Trace Semantics via Determinization for Probabilistic Transition Systems*, under the supervision of Jurriaan Rot (ICIS, Radboud University Nijmegen).

BSc in Mathematics
Paris-Saclay University, France, 2015

Publications

(1) Alexandre Goy. *Weakening and Iterating Laws using String Diagrams.* To appear in MFPS 2022.

(2) Alexandre Goy. *On the Compositionality of Monads via Weak Distributive Laws*, PhD thesis.

(3) Alexandre Goy, Daniela Petrişan, Marc Aiguier. *Powerset-like Monads Weakly Distribute over Themselves in Toposes and Compact Hausdorff Spaces.* ICALP 2021: 132:1-132:14.

(4) Alexandre Goy, Daniela Petrişan. *Combining Probabilistic and Non-Deterministic Choice via Weak Distributive Laws.* LICS 2020: 454-464.

(5) Alexandre Goy, Marc Aiguier, Isabelle Bloch. *From Structuring Elements to Structuring Neighborhood Systems.* ISMM 2019: 16-28.

(6) Alexandre Goy, Jurriaan Rot. *(In)finite Trace Equivalence of Probabilistic Transition Systems.* CMCS 2018: 100-121.

(7) Alexandre Goy. *Trace Semantics via Determinization for Probabilistic Transition Systems*, MSc thesis. CoRR abs/1802.09084, 2017.

Teaching

Teaching Assistant
CentraleSupélec, France, 2017 - 2021
For BSc/MSc in Engineering students.

- *Support in Programming*, 45h;
- *Support in Mathematics*, 13h;
- *Algorithms*, 39h;
- *Theoretical Computer Science*, 84h;
- *Game Theory*, 12h;
- Volunteer Teaching Assistant for *Support in Mathematics*, 4h per week in 2017-2018.

Talks

- *Weakening and Iterating Laws using String Diagrams*, MFPS, July 2022.
- *Weakening Distributive Laws using String Diagrams*, Samson Abramsky's comonad seminar, June 2022 (online).
- *Composing Monads using String Diagrams*, University of Salzburg, May 2022. Talk given during a 10-day visit to Ana Sokolova in Salzburg.
- *A Journey from Alternation to Non-Determinisim on the Back of Distributive Laws*, PLUME team's seminar, November 2021.
- *Powerset-like Monads Weakly Distribute over Themselves in Toposes and Compact Hausdorff Spaces*, ICALP, July 2021.
- *An Overview of Weak Distributive Laws*, SMP (LICS Workshop), June 2021.
- *Alternating Automata via Weak Distributive Laws*, CMCS, September 2020.

- *Alternating Automata via Weak Distributive Laws*, HIGHLIGHTS, September 2020.
- *Combining Probabilistic and Non-Deterministic Choice via Weak Distributive Laws*, LICS, July 2020.
- *From Structuring Elements to Structuring Neighborhood Systems*, ISMM, July 2019.
- *Dual Logic Concepts based on Mathematical Morphology in Stratified Institutions: Applications to Spatial Reasoning*, UNILOG, June 2018.
- *(In)finite Trace Equivalence of Probabilistic Transition Systems*, CMCS, April 2018.

Participation in events

- *Mathematical Foundations of Programming Semantics*, Ithaca, USA, July 2022 (local event in Paris).
- *Structure Meets Power*, ICALP Workshop, Paris, France, July 2022.
- *Logic of Probabilistic Programming*, February 2022 (online).
- *Structure Meets Power*, LICS Workshop, June 2021 (online).
- *ETAPS 2020/2021*, March 2021 (online).
- *Coalgebraic Methods in Computer Science*, September 2020 (online).
- *Highlights*, September 2020 (online).
- *International Symposium in Mathematical Morphology*, Saarbrücken, Germany, July 2019.
- *Topology, Algebra and Categories in Logic*, Nice, France, June 2019.
- *TACL Summer School*, Porquerolles, France, June 2019.
- *ForMal Summer School*, Cachan, France, June 2019.
- *Universal Logic*, Vichy, France, June 2018.
- *Coalgebraic Methods in Computer Science* (ETAPS Workshop), Thessaloniki, Greece, April 2018.

Organisation of events

- Member of the programme committee for SYCO 8.
- Reviewer for Acta Informatica (1 paper), MFCS 2022 (2 papers), SYCO 8 (3 papers), CMCS 2020 (1 paper), IJCAI 2020 (3 papers), Journal of Applied Non-Classical Logics (1 paper).
- Reviewer for zbmath (1 abstract).
- Support in the organisation of CMCS 2020 (online).

Other

Spoken Languages

French	Mother tongue
English	Fluent
German	Intermediate

Technical Skills

Programming languages	Python, OCaml, Prolog
Theorem prover	Coq
Other	LaTeX

August 12, 2022