



Lelio Brun

POSTDOCTORAL RESEARCH SCIENTIST IN COMPUTER SCIENCE

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Education

PhD in Computer Science

Paris, France

ÉCOLE NORMALE SUPÉRIEURE - PSL RESEARCH UNIVERSITY

2020

Mechanized Semantics and Verified Compilation for a Dataflow Synchronous Language with Reset

Honors: GDR GPL *accessit* prize

MSc in Computer Science (MPRI)

Paris, France

UNIVERSITÉ PARIS CITÉ

2016

Honors: *summa cum laude*

MSc in Aerospace Engineering

Poitiers, France

ISAE-ENSMA

2013

exchange at ÉTS, Montréal, Canada

Experience

Postdoctoral research scientist

Tokyo, Japan

NII - ZT-IoT PROJECT

Oct. 2022 - Present

Formal security analysis for IoT systems using the Tamarin Prover.

Postdoctoral research scientist

Toulouse, France

ISAE-SUPAERO - IPSC TEAM (DISC)

Jan. 2021 - Aug. 2022

Adding translation validation features to the LustreC Lustre to C compiler through the Frama-C platform.

Postdoctoral research engineer

Paris, France

ÉCOLE NORMALE SUPÉRIEURE / INRIA - PARKAS TEAM

Jan. 2020 - Dec. 2020

Adding enumerations and case analysis support to the Vélus Lustre to Assembly compiler verified with the Coq Proof Assistant.

Software engineer

Le Plessis Robinson, France

ASTEK

May. 2014 - Aug. 2014

Bug tracking and corrections in a large C++ codebase.

Skills

Programming	OCaml, Haskell, Rust, C, C++, Java, Python, HTML / CSS, Javascript, SQL, \LaTeX , Git
Formal Methods	Coq Proof Assistant, Frama-C Software Analyzers, Tamarin Prover
Languages	French (native), English (fluent), Japanese (beginner), Spanish (beginner)

Publications

Automated Security Analysis for Real-World IoT Devices

LÉLIO BRUN, ICHIRO HASUO, YASUSHI ONO, AND TARO SEKIYAMA

HASP'23

Equation-Directed Axiomatization of Lustre Semantics to Enable Optimized Code Validation

LÉLIO BRUN, CHRISTOPHE GARION, PIERRE-LOÏC GAROCHE, AND XAVIER THIRIOUX

EMSOFT'23

Faites-Vous Confiance à Votre Thermostat ?

LÉLIO BRUN

Interstices

Mechanized Semantics and Verified Compilation for a Dataflow Synchronous Language with Reset

TIMOTHY BOURKE, LÉLIO BRUN, AND MARC POUZET

POPL'20

Towards a Verified Lustre Compiler with Modular Reset

TIMOTHY BOURKE, LÉLIO BRUN, AND MARC POUZET

SCOPES'18

A Formally Verified Compiler for Lustre

TIMOTHY BOURKE, LÉLIO BRUN, PIERRE-ÉVARISTE DAGAND, XAVIER LEROY, MARC POUZET, AND LIONEL RIEG

PLDI'17

Teaching assistant

2021/22	Computer science , 1st year graduate	<i>ISAE-SUPAERO</i>
	Languages translation , 1st year graduate	<i>ENSEEIH</i>
	Functional programming , 1st year graduate	<i>ENSEEIH</i>
2020/21–21/22	Transition systems - TLA+ , 1st year graduate	<i>ENSEEIH</i>
2020/21	Automata and lexical analysis , 2nd year undergraduate	<i>Université Paris Cité</i>
	Databases , 3rd year undergraduate and 1st graduate	<i>Université Paris Cité</i>
	Computer science concepts 2 , 1st year undergraduate	<i>Université Paris Cité</i>
	Programming basics 2 , 1st year undergraduate	<i>Université Paris Cité</i>
2017/18	Computability, decidability , 2nd year undergraduate	<i>Sorbonne Université</i>
2016/17–18/19	Programming languages and compilation , 3rd year undergraduate	<i>École normale supérieure</i>

Academic service

2024	Artifact reviewer	<i>ATVA</i>
	Artifact reviewer	<i>CAV</i>
2023	Reviewer and artifact reviewer	<i>OOPSLA</i>
	Program Committee member	<i>JFLA</i>
2020	Reviewer	<i>EMSOFT</i>
2019	WiP Committee	<i>EMSOFT</i>
	Artifact reviewer	<i>ECRTS</i>
2018	Reviewer	<i>EMSOFT</i>
2017	Student volunteer	<i>POPL</i>
	Student volunteer	<i>PLDI</i>