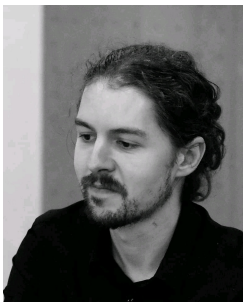
Victor Lanvin



Ph.D. in Computer Science

✉ victor.lanvin2@gmail.com
☎ 06 45 35 39 23

Career and studies

2017–2021 **Ph.D. Student**, *in Computer Science at IRIF, Université de Paris.*
On "A Semantic Foundation for Gradual Set-theoretic Types" under the supervision of Giuseppe Castagna.

2017–2022 **Teaching Assistant**, *in Computer Science at Université de Paris.*
Lectures, tutorial classes and practical work for various bachelor-level courses (330 hours taught over five years).

2013–2017 **Graduate Studies**, *at ENS Paris-Saclay.*
Four-year research-oriented program that includes one year of bachelor and two years of master in computer science, as well as a fourth extra year, which I used to obtain a bachelor in physics.

2016–2017 **L3 (Bachelor's degree)**, *of Physics at ENS Paris-Saclay.*
Third year of bachelor in physics, jointly delivered by UPMC and ENS Paris-Saclay.

2014–2016 **Master's Degree in Computer Science**, *MPRI at ENS Paris-Saclay and Université de Paris.*
The MPRI (Master Parisien de Recherche en Informatique) is a highly selective, research-oriented master program in computer science which aims at training future scientists through intensive exposure to contemporary research in computer science.

Ph.D. Thesis

Abstract This thesis aims at defining a framework to unify two typing disciplines: gradual typing and set-theoretic types.

Set-theoretic types Set-theoretic types are extremely powerful types which feature union and intersection types. A set-theoretic type system can precisely type advanced features such as overloading, conditional branching, and occurrence typing.

Gradual typing Gradual typing aims at reconciling dynamic typing and static typing in a same language, by providing a dynamic type annotation to the programmer.

Results Our approach led to a new understanding of gradual types, and experts in the field have said it will surely pave the way to new, more powerful gradual type systems.

Interests

Programming I am an avid programmer, particularly in OCaml. I am especially fond of abstraction and modularisation, and I like to design large programs and libraries.

Type systems I strongly believe in the power of static type systems, but I also recognize the usefulness of dynamically-typed languages, hence my interest in gradual typing to reconcile the two.

Systems I also own and administrate a Debian server providing several dockerized services.

Communication I love communicating about my work and my hobbies, and especially like the popularisation aspect. I like teaching and making blog posts about programming.

Awards

2018 **Google PhD Fellowship**, *in Programming Technology and Software Engineering*.
The Google PhD Fellowship Program is a highly selective program that was created to recognize outstanding graduate students doing exceptional and innovative research in areas relevant to computer science and related fields.

2017 **First Place Winner**, *at the ACM Student Research Competition Grand Finals*.
The SRC Grand Finals are the culmination of a year-long competition that involves several hundreds of computer science students presenting research projects in the top ACM conferences.

2017 **First Place Winner**, *at the ACM Student Research Competition at POPL '17*.
The ACM Student Research Competition offers a unique forum for undergraduate and graduate students to present their original research before a panel of judges and attendees at well-known ACM-sponsored and co-sponsored conferences.

Skills

Languages French (native), English.

Programming OCaml, C, C++, Java, HTML, CSS, JavaScript, Scala, Python, Fortran.

Technologies Unix systems & Windows, Git, Latex, Microsoft Office.

Other Interests and Hobbies

Music Music has always been an important part of my life. I mainly play the piano, but I have also taken harp and guitar lessons. I also dabble in computer aided music.

SCD A lot of my time is spent on activities related to Scottish Country Dancing, whether it be dancing, playing for events, or teaching.

Bouldering I am fond of bouldering and have been practicing on-and-off for five years now.

Electronics I also particularly enjoy designing and assembling electronic devices (mostly audio-related), an activity where I find a lot of similarities with programming..

Miscellaneous Experience

2019-2020 **Student Volunteer Co-Chair**, *at ICFP*.
I managed a team of around 60 student volunteers for the ACM conference ICFP (International Conference on Functional Programming) in 2019 and 2020. This work included recruiting students, getting involved in the organizing committee of the conference, and managing the team during the week of the conference.

2016- **Co-developer of OGaml**, *a multimedia library for OCaml*, https://ogaml.github.io/.
OGaml is a large multimedia library for OCaml based on type-safe bindings of OpenGL. Its aim is to ensure that no behaviour is left undefined.

2020- **Member of the organizing committee**, *at RSCDS Paris Branch*.
The RSCDS Paris Branch is an association for Scottish Country Dancing in Paris, France. The work of the organizing committee includes organizing international as well as local events.

2020- **Teacher of dancing classes**, *at RSCDS Paris Branch*.

Publications

Castagna, G., Duboc, G., Lanvin, V., and Siek, J. A space-efficient call-by-value virtual machine for gradual set-theoretic types. In *31st Symposium on Implementation and Application of Functional Languages (IFL 2019)* (2019). To appear.

Castagna, G., and Lanvin, V. Gradual typing with union and intersection types. *Proceedings of the ACM on Programming Languages 1*, ICFP (2017), 41.

Castagna, G., Lanvin, V., Petrucciani, T., and Siek, J. Polymorphic gradual typing: A set-theoretic perspective. In *24th International Conference on Types for Proofs and Programs (TYPES 2018)* (2018).

Castagna, G., Lanvin, V., Petrucciani, T., and Siek, J. Gradual typing: a new perspective. *Proceedings of the ACM on Programming Languages 3*, POPL (2019).

Castagna, G., Laurent, M., Lanvin, V., and Nguyen, K. Revisiting occurrence typing. Unpublished manuscript (2021).

Internships

2017 **Undergraduate Internship in Physics**, *at IMCCE, Paris Observatory, France*,
Supervisor: Nicolas Rambaux.
Subject: Study of Binary Systems of Trans-Neptunian Objects

2016 **M2 Internship**, *at IRIF, Paris Diderot University, France*,
Supervisor: Giuseppe Castagna.
Subject: Gradual Typing for Set-Theoretic Types

2015 **M1 Internship**, *at the RWTH team MOVES in Aachen, Germany*,
Supervisors: Joost-Pieter Katoen, Christina Jansen and Christoph Matheja.
Subject: Verification of Pointer Programs: A Tool Comparison

2014 **Undergraduate Internship**, *at the LIFL team Biocomputing in Lille, France*,
Supervisors: Joachim Niehren and Cristian Versari.
Subject: Prediction methods for metabolic networks, for predicting gene knockouts, based on abstract interpretation.

2013 **TIPE (Prep class project for competitive exams)**.
Subject: Neural networks for pattern recognition

Full Teaching Experience

2021–2022 **Lectures, tutorial classes, and practical work**, *for the course "Introduction à la Programmation en Java" (IP1) in the 1st year of bachelor.*

2021–2022 **Practical work (TP)**, *for the course "Conduite de Projet" in the 2nd year of bachelor.*
Lectures given by Mohammed Foughali.

2020–2021 **Lectures, tutorial classes, and practical work**, *for the course "Introduction à la Programmation en Java" (IP1) in the 1st year of bachelor.*

2020–2021 **Practical work (TP)**, *for the course "Programmation Orientée Objet et Interfaces Graphiques" (POOIG3) in the 2nd year of bachelor.*
Lectures given by Cristina Sirangelo.

2019–2020 **Tutorial classes (TD)**, *for the course "Concepts Informatiques" (CI2) in the 1st year of bachelor.*
Lectures given by Matthieu Picantin.

2019–2020 **Practical work (TP)**, *for the course "Introduction à la Programmation en Java" (IP1) in the 1st year of bachelor.*

2018–2019 **Tutorial classes (TD)**, *for the course "Éléments d'Algorithmique" (EA3) in the 2nd year of bachelor.*
Lectures given by Anne Micheli.

2018–2019 **Practical work (TP)**, *for the course "Programmation Fonctionnelle" (PF5) in the 3rd year of bachelor.*
Lectures given by Michele Pagani.

2017–2018 **Practical work (TP)**, *for the course "Introduction à la Programmation en Python" (IP1) in the 1st year of bachelor.*
Lectures given by Arnaud Sangnier.

2017–2018 **Practical work (TP)**, *for the course "Analyse de Données Structurées" (ADS4) in the 2nd year of bachelor.*
Lectures given by Ralf Treinen.