

Nicolas Jeannerod

Curriculum Vitæ



Career

- 2017–2021 **Ph.D. in Computer Science** at **IRIF (Université de Paris, France)** with **Ralf Treinen** and **Yann Régis-Gianas** on the “Verification of Shell Scripts Performing File Hierarchy Transformations”.
(3½ years)
- 2013–2017 **ENS Graduate Degree** at the **École normale supérieure (Paris, France)**. This is a research-oriented four-year program including the third year of bachelor, the two years of master and an extra year – in my case, a one year-long internship. The degree requires the validation of extra courses in addition to the bachelor and master.
(4 years)
- 2014–2016 **Master’s Degree in Computer Science** at the **Université de Paris (France)**. The “Master Parisien de Recherche en Informatique” is a research-oriented master program in computer science whose purpose is to train future scientists through intensive exposure to contemporary research.
(2 years)

Ph.D. Thesis

- Goal Applying formal techniques to Shell scripts in order to find bugs in Debian packages.
- Logics Researching on the decidability of feature tree logics, with efficiency considerations and implementation of satisfiability solvers.
- Implem. Writing tools to parse, transform and analyse Shell scripts and Debian packages. This comprises reading standard, modeling various real-world objects and implementing. The tools had to be able to scale to thousands of packages.
- Bugs Reported 152 bugs, 109 of which have been fixed.

Interests

- Abstract I like specifications, abstraction and modularisation. I firmly believe in strongly typed functional programming, compilers, formal methods and program verification.
- Concrete I enjoy working on low-level objects – network, systems or code optimisation, for instance. I am not afraid to dig into standards and RFCs.
- Packaging I try to write good code, well designed and documented, used in practice.
- System On my free time, I administrate a Debian server providing websites, email, cloud, etc.
- Talks I love teaching and giving talks and I am said to be good at it.

Languages

- | | | | |
|------|---|---------|-----------------------------------|
| Main | OCaml, POSIX Shell | Natural | Fluent in French and English |
| Good | PHP/SQL/HTML/CSS, T _E X/LaT _E X | OK | C, Java, Python, JavaScript, Lisp |

Outside of Work

- Music I spend a lot of time playing music (piano & clarinet mostly, but I love trying all kind of instruments), writing music and typesetting music (with LilyPond).
- SCD I also spend an awful lot of time doing Scottish Country Dancing. This includes dancing it, teaching it, playing music for it and organising local and international events.

Personal Data

- Name** Often referred to as “Niols”
- Age** 27 years old
- Cell Phone** +33 6 01 64 48 38
- E-mail** nicolas@jeannerod.fr (or niols@niols.fr)
- Website** <http://nicolas.jeannerod.fr> (or <http://niols.fr>)
- GitHub** <http://github.com/Niols>
Organisation of the CoLiS ANR project: <http://github.com/colis-anr>
Organisation “Les Boloss-es”: <http://github.com/LesBoloss-es>

Full Professional Experience

- 2021 **Member of the organising committee** of **CONFLANG**, a workshop colocated with SPLASH in October 2021.
- 2017–2021 **Ph.D. in Computer Science** at **IRIF (Université de Paris, France)** with **Ralf Treinen** and **Yann Régis-Gianas** on the “Verification of Shell Scripts Performing File Hierarchy Transformations”.
(3½ years)
- 2016–2020 **Teaching** at **UFR Informatique (Université de Paris, France)** including both practical and written exercises sessions for a total of 240h over 4 years. In addition to these hours in front of the students, the work included preparing materials and grading exams and projects.
(4 years)
- 2017 **Google Summer of Code** with **Aymeric Fromherz** and **Nikos Gorogiannis**: “Verification and Testing of Heap-based Programs with Symbolic PathFinder”.
(3 months)
- 2016–2017 **Research Internship** at **IRIF (Université de Paris, France)** with **Ralf Treinen** and **Mihaela Sighireanu**: “Correctness of Linux Scripts”.
(1 year)
- 2016 **Research Internship** at **IRIF (Université de Paris, France)** with **Ralf Treinen** and **Mihaela Sighireanu**: “Towards Verification of Shell Scripts”.
(6 months)
- 2015 **Research Internship** in the **Complogic** team (**McGill University, Montréal, Canada**) with **Brigitte Pientka** in order to help with the development of the proof assistant Beluga.
(5 months)
- 2014 **Research Internship** at the **Institut de Mathématiques de Marseille (France)** with **Lionel Vaulx Auclair** and **Emmanuel Beffara**: “On a logical counterpart of local non-determinism in classical realisability”.
(3 months)

Full Education

- 2013–2017 **ENS Graduate Degree** at the **École normale supérieure (Paris, France)**. This is a research-oriented four-year program including the third year of bachelor, the two years of master and an extra year – in my case, a one year-long internship. The degree requires the validation of extra courses in addition to the bachelor and master.
(4 years)
- 2014–2016 **Master’s Degree in Computer Science** at the **Université de Paris (France)**. The “Master Parisien de Recherche en Informatique” is a research-oriented master program in computer science whose purpose is to train future scientists through intensive exposure to contemporary research.
(2 years)
- 2013–2014 **Bachelor’s Degree in Computer Science** at the **École normale supérieure (Paris, France)**. The two years of preparatory classes, completed by first year of the **École normale supérieure**, include a full bachelor.
(1 year)
- 2011–2013 **Preparatory Classes MPSI/MP*** at the **Lycée du Parc (Lyon, France)**. Preparatory Classes are an intensive two-year preparation for competitive entrance into top engineering and research schools.
(2 years)

Miscellaneous Experience

- 2019–2021 **Editor** of the [Paris Book of Scottish Country Dances](#), volume 2 as well as its two companion books of tunes. This involves communicating with the different authors, handling copyright considerations, typesetting the book (using LaTeX and LilyPond), printing and publishing it, etc.
- 2019–now **Teacher** of Scottish country dance classes at the [RSCDS Paris Branch](#).
- 2018–2022 **Member of the organising committee** of the [RSCDS Paris Branch](#).
- 2018–now **Organiser and member of a professional band** (~2-3 musicians) playing at various events, mostly weddings. This includes finding the gigs, discussing the organisation with the clients and, of course, playing music.
- 2018–now **Musician** for Scottish country dance classes at the [RSCDS Paris Branch](#).
- 2017–now **Organiser and member of an amateur band** (~10-12 musicians) playing for Scottish country dances.
- Jan. 2017 **Student volunteer** at POPL in Paris, France.
- Aug. 2012 **Sanitation worker** for the city of Mions, France.
- 2009–2011 **Member of the organising committee** of the [Orchestre d'Harmonie de Saint-Priest](#), an amateur wind orchestra, and its associated music school, [Vive le Vent](#).

Selected Publications

- 2021 **"Verification of Shell Scripts Performing File Hierarchy Transformations"**. Nicolas Jeannerod. Ph.D. Thesis
- 2020 **"Analysing installation scenarios of Debian packages"**. Benedikt Becker, Nicolas Jeannerod, [Claude Marché](#), [Yann Régis-Gianas](#), [Mihaela Sighireanu](#) and [Ralf Treinen](#). In [TACAS 2020 26th International Conference on Tools and Algorithms for the Construction and Analysis of Systems](#). Core Ranking 2020: A.
- 2020 **"Morbis: A Static parser for POSIX shell"**. [Yann Régis-Gianas](#), Nicolas Jeannerod and [Ralf Treinen](#). In [Journal of Computer Languages, Volume 57, April 2020](#).
- 2018 **"Morbis: A Static Parser for POSIX Shell"**. [Yann Régis-Gianas](#), Nicolas Jeannerod and [Ralf Treinen](#). In [SLE 2018 - 11th International Conference on Software Language Engineering](#). Core Ranking 2018: B.
- 2018 **"Deciding the First-Order Theory of an Algebra of Feature Trees with Updates"**. Nicolas Jeannerod and [Ralf Treinen](#). In [IJCAR 2018 - 9th International Joint Conference on Automated Reasoning](#). Core Ranking 2018: A*.
- 2017 **"A Formally Verified Interpreter for a Shell-like Programming Language"**. Nicolas Jeannerod, [Claude Marché](#) and [Ralf Treinen](#). In [VSTTE 2017 - 9th Working Conference on Verified Software: Theories, Tools and Experiments](#).
- 2017 **"Le coquillage dans le CoLiS-mateur"**. Nicolas Jeannerod. In [JFLA 2017 - 28e Journées Francophones des Langages Applicatifs](#).

Selected Talks

- Mar. 2021 **"Verification of Shell Scripts Performing File Hierarchy Transformations."** At Ph.D. Thesis Defence.
- Dec. 2020 **"Analysing installation scenarios of Debian Packages."** At [IRIF's Verification Seminar](#).
- Sept. 2019 **"Symbolic Execution of Debian Packages."** At [AVM'19](#).
- Jul. 2019 **"Symbolic Execution of Maintainer Scripts."** With [Ralf Treinen](#). At [DebConf'19](#).
- Jul. 2018 **"Mining Debian Maintainer Scripts."** With [Ralf Treinen](#). At [DebConf'18](#).
- Jul. 2018 **"Deciding the First-Order Theory of an Algebra of Feature Trees with Updates."** At [IJ-CAR'18](#).
- Jun. 2018 **"Deciding the First-Order Theory of an Algebra of Feature Trees with Updates."** At [IRIF's Verification Seminar](#).
- Sept. 2017 **"Formalising an Intermediate Language for POSIX Shell."** With [Yann Régis-Gianas](#). At [Seminar Gallium](#).
- Jul. 2017 **"A Formally Verified Interpreter for a Shell-like Programming Language."** At [VSTTE'17](#).
- Jul. 2017 **"A Formally Verified Interpreter for a Shell-like Programming Language."** At Seminar VALS.
- Jan. 2017 **"Le coquillage dans le CoLiS-mateur."** At [JFLA'17](#).

Teaching

- Feb. 2020 **"Internet et outils"**. Practical exercises at [Université de Paris](#) (France): Introduction to web programming in HTML5/CSS/PHP/MySQL/JS for first year students in computing. (36h)
- Sept. 2019 **"Principe de fonctionnement des machines binaires"**. Written exercises at [Université de Paris](#) (France): Introduction to binary, circuits and processors for first year students in computing. (24h)
- Feb. 2019 **"Concepts informatiques"**. Written exercises at [Université de Paris](#) (France): Introduction to compilation for first year students in computing. (24h)
- Sept. 2018 **"Programmation fonctionnelle"**. Practical exercises at [Université de Paris](#) (France): Introduction to functional programming in OCaml for third year students in computing. (36h)
- Feb. 2018 **"Internet et outils"**. Practical exercises at [Université de Paris](#) (France): Introduction to web programming in HTML5/CSS/PHP/MySQL/JS for first year students in computing. (48h)
- Feb. 2018 **"Concepts informatiques"**. Written exercises at [Université de Paris](#) (France): Introduction to compilation for first year students in computing. (24h)
- Feb. 2017 **"Projet informatique"**. Tutoring at [Université de Paris](#) (France): tutoring of second year students in computing during their programming project. (24h)
- Sept. 2016 **"Introduction à la programmation"**. Practical exercises at [Université de Paris](#) (France): Introduction to programming in Java for first year students in computing. (24h)