Damien Rouhling

PhD candidate

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Professional situation

September 2016 – Present	**PhD candidate under contract**, *Université Côte d'Azur, Inria*.
September 2012 – August 2016	**Civil servant student**, *ENS de Lyon*.

Education

September 2016 – Present	**Doctoral studies**, *Université Côte d'Azur, Inria*.
September 2015 – June 2016	**Master 2 recherche informatique fondamentale**, *ENS de Lyon*, with highest honours. Master's degree in theoretical computer science.
November 2015	**Diplôme de l'ENS**, *ENS de Lyon*. Diploma apart from the standard Bachelor-Master-Doctorate system, awarded by the ENS to students whose education comprises interdisciplinarity, assumption of responsability and international mobility.
July 2015	**Agrégation de mathématiques**. Civil service competitive exam in mathematics; ranked 98$^{\text{th}}$.
September 2014 – June 2015	**Master 2 pro enseignement spécialité mathématiques**, *ENS de Lyon*. Master's degree in mathematics; it was mainly a training year for the agrégation.
September 2013 – August 2014	**M1 informatique fondamentale**, *ENS de Lyon*. First year of master in theoretical computer science.
September 2012 – July 2013	**Licence informatique fondamentale**, *ENS de Lyon*, with high honours. Bachelor's degree in theoretical computer science.
September 2010 – July 2012	**Classes préparatoires aux grandes écoles**, *Lycée Henri Poincaré*, Nancy. Two years of training to the entrance exams of some schools, among which the ENS, with majors in mathematics and physics (MPSI-MP*).
June 2010	**Baccalauréat S option mathématiques**, *Lycée Henri Poincaré*, Nancy, with highest honours. Diploma at the end of high school, scientific stream with speciality in mathematics.

Teaching

2018 – 2019	**Teaching assistant**, *IUT R&T*, Sophia Antipolis. C programming language, Fourier analysis, approximation of functions and asymptotic developments. Supervisor of the Fourier analysis teaching unit.
2017 – 2018	**Teaching assistant**, *IUT R&T*, Sophia Antipolis. C programming language and Fourier analysis. Supervisor of the Fourier analysis teaching unit.
2016 – 2017	**Teaching assistant**, *IUT R&T*, Sophia Antipolis. C programming language, integral, differential calculus and Fourier analysis.
2012 – 2013	**Tutor for ninth grade pupils**, *Collège Joliot-Curie*, Bron. For the association Trait d'Union of the ENS de Lyon. Refresher courses in methodology with a view to the brevet des collèges (equivalent to the GCSEs) and to the entrance to high school.

Research

Talks

September 2018	**Seminar of the Inria project-team Gallium**, Paris. Asymptotic Reasoning in Coq.
June 2018	**Journées FastRelax**, Sophia Antipolis. Formal Proofs for Control Theory and Robotics: A Case Study.
January 2018	**International conference CPP**, Los Angeles. A Stability Proof for the Inverted Pendulum.
September 2017	**International conference ITP**, Brasilia. A formal proof in Coq of LaSalle's invariance principle.
May 2017	**Journées FastRelax**, Paris. A formal proof in Coq of LaSalle's invariance principle.
March 2017	**Seminar "Computations and Proofs" of the Inria project-team SpecFun**, Palaiseau. Refinement: a reflection on proofs and computations.
January 2017	**National conference JFLA**, Gourette. Refining the `ring` tactic.
November 2014	**Journées LAC**, Chambéry. Constraint systems for proof-search modulo a theory.
November 2013	**PSATTT international workshop**, Palaiseau. Delayed instantiation of existential variables in presence of a theory.

Internships

January 2016 – June 2016	**Research internship**, *Inria*, Sophia Antipolis. Under the supervision of Cyril Cohen. Automatic refinements in Coq.
June 2014 – August 2014	**Research internship**, *Chalmers University of Technology*, Gothenburg, Sweden. Under the supervision of Thierry Coquand. Dependently typed lambda calculus with a lifting operator.
June 2013 – July 2013	**Research internship**, *Laboratoire d'Informatique de l'École polytechnique (LIX laboratory)*, Palaiseau. Under the supervision of Stéphane Graham-Lengrand and Assia Mahboubi. Congruence closure and proof-search modulo a theory.

Foreign languages

English	Certified at level B2.	*CLES2*
German	Certified at level B1.	*Deutsches Sprachdiplom der Kulturministerkonferenz*

Miscellaneous

February 2018 – Present	Vice-President of the chess club of Antibes.
Teaching	Initiator for the French chess federation diploma (DIFFE).
Programming	OCaml, Haskell, C, C++, Python.
Driving license	Permis B (license for cars).
First aid	Attestation de formation aux premiers secours (first aid certificate).
Interests	Reading, music, strategy games.

Publications

[1] Reynald Affeldt, Cyril Cohen, and Damien Rouhling. Formalization Techniques for Asymptotic Reasoning in Classical Analysis. *Journal of Formalized Reasoning*, October 2018.

[2] Damien Rouhling. A Formal Proof in Coq of a Control Function for the Inverted Pendulum. In June Andronick and Amy P. Felty, editors, *Proceedings of the 7th ACM SIGPLAN International Conference on Certified Programs and Proofs, CPP 2018, Los Angeles, CA, USA, January 8-9, 2018*, pages 28–41. ACM, 2018.

[3] Cyril Cohen and Damien Rouhling. A Formal Proof in Coq of LaSalle's Invariance Principle. In Mauricio Ayala-Rincón and César A. Muñoz, editors, *Interactive Theorem Proving - 8th International Conference, ITP 2017, Brasília, Brazil, September 26-29, 2017, Proceedings*, volume 10499 of *Lecture Notes in Computer Science*, pages 148–163. Springer, 2017.

[4] Cyril Cohen and Damien Rouhling. A refinement-based approach to large scale reflection for algebra. In *JFLA 2017 - Vingt-huitième Journées Francophones des Langages Applicatifs*, Gourette, France, January 2017.

[5] Damien Rouhling, Mahfuza Farooque, Stéphane Graham-Lengrand, Assia Mahboubi, and Jean-Marc Notin. Axiomatic Constraint Systems for Proof Search Modulo Theories. In Carsten Lutz and Silvio Ranise, editors, *Frontiers of Combining Systems - 10th International Symposium, FroCoS 2015, Wroclaw, Poland, September 21-24, 2015. Proceedings*, volume 9322 of *Lecture Notes in Computer Science*, pages 220–236. Springer, 2015.