

# 1 Curriculum Vitae

## Mioara Maria Joldes

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## Work

2013– CNRS Researcher (CR1, Section 06) at LAAS-CNRS, Toulouse, France.

2011– 2013 Postdoctorant, Computer-aided proofs in analysis (CAPA) Team, Mathematics Department, Uppsala University, Sweden.

## Education

2008–2011 **PhD in Computer Science** at École Normale Supérieure de Lyon  
Thesis subject: *Rigorous polynomial approximations and applications*, defended Sept. 26, 2011  
Phd advisors: Nicolas Brisebarre and Jean-Michel Muller

2007–2008 **Master Diploma in Computer Science** at École Normale Supérieure de Lyon  
Master report subject: *Computation of various infinite norms, in one or several variables, for the development of mathematical libraries*. Supervisors: Nicolas Brisebarre and Jean-Michel Muller.

2003–2008 **Engineer Diploma** obtained in June 2008 from Technical University of Cluj-Napoca, Computer Science Department, grade 10/10.

## Fellowships

2007–2008 **International master scholarship at ENS Lyon**, which allowed me to obtain a double diploma in 2008.

## Supervision

*PhD students:*

2013–2015 Co-Supervisor of R. Serra, *In-orbit Servicing: Collision Risk Assessment and Optimal Maneuvers for Collision Avoidance and Rendezvous*.

2014–2017 Co-Supervisor of V. Popescu, *Fast and Certified Multiple Precision Arithmetic Libraries*.

2015– Co-Supervision of P.R. Arantes Gilz, *Certified Algorithms in Optimal Control*.

2016– Co-Supervision of F. Bréhard, *Tools for Certified Numeric Computations*.

*Licence and Master students:*

2014 Supervisor of V. Popescu (Master 2, now my PhD Student).

2014 Co-Supervisor of O. Marty, (Licence 3, now PhD Student at ENS Cachan).

2015 Co-Supervisor of N. Deak, (Licence 3, now Master Student at ENS Lyon).

2015 Co-Supervisor of B. Fulop, (Licence 3, now Master Student at ENS Lyon).

2016 Co-Supervisor of F. Bréhard, (Master 2, now my PhD Student).

## Teaching

2014–2015 Linear Control Systems (Licence 2 Students, ENSICA Toulouse),

2014–2015 C Programming (Master 1 Students, Université Paul Sabatier, Toulouse).

2008–2011 Teacher Assistant at ENS Lyon for Computer Architecture, Arithmetic Algorithms, Compiling Techniques, Algorithms, Programming.

## Vulgarisation

2010, 2013 Broad audience talks at Young Mathematicians Forum, intended for promoting, encouraging, emphasizing the participation of women in Mathematics.

## Invited stays

- **May 2017:** University of Strathclyde, Department of Mechanical & Aerospace Engineering, Glasgow, UK.
- **May 2015, October 2014 and May 2013:** AriC Team, LIP, Lyon, France.
- **March 2011 and December 2014:** CAPA Group, Uppsala University, Sweden.
- **April 2012:** National Institute of Aerospace, Hampton, Virginia, USA.
- **October 4-8, 2010:** Algorithms Project, INRIA, Rocquencourt, France.
- **June 2009:** Intel, Portland, USA.

## PhD Defense Juries

Member of Jury for Valentina Popescu thesis, entitled *Towards fast and certified multiple-precision libraries*, July 6, 2017, Lyon, ENS Lyon, LIP.

Member of Jury for Romain Serra thesis, entitled *Opérations de proximité en orbite : évaluation du risque de collision et calcul de manœuvres optimales pour l'évitement et le rendez-vous (In-orbit Servicing: Collision Risk Assessment and Optimal Maneuvers for Collision Avoidance and Rendezvous)*, December 12, 2015, Toulouse, INSA, LAAS-CNRS.

Reviewer (Principal Opponent) of Ferenc M. Bartha thesis, entitled *Computer-aided proofs and algorithms in analysis*, for the PhD-degree of the University of Bergen, Mathematics Department, Norway, June 14, 2013.

## Invited Plenary Speaker

FOCM2017 (semi-plenary speaker): Workshop on Computational Dynamics, Foundations of Computational Mathematics, Barcelona, Spain.

SCAN2016: 17th International Symposium on Scientific Computing, Computer Arithmetics and Verified Numerics, Uppsala, Sweden.

## Conference Organization

2016–2017 Publicity and Media Chair of IFAC –International Federation of Automatic Control– 2017 World Congress, Toulouse 2017.

2016 Computer Arithmetic Session of RAIM 2016 : 8ème Rencontres Arithmétique de l'Informatique Mathématique, 28-30 juin 2016-Banyuls-sur-mer (France)

2015 Symbolic-Numeric Session of SEAMAC Days: 2 days of seminars, talks and animation with MAC Team and invited speakers.

## Program Committee, Reviewing

I am/was member of the program committee of the following international conferences: SYNASC2016, ISSAC2017. I am reviewer for international journals: Numerical Algorithms Journal, Mathematics in Computer Science Journal, IEEE Transactions in Computers, VLSI Journal; and international conferences ASAP(2013–2016), Arith(2012-2016), CIFA(2012), ISAAC(2012–2016), SYNASC(2016). (I.e., approximately 50 reviews).

## Management

I am strongly involved in the management of the ANR project FastRelax (10/2014–09/2019). I am the head of a Research Collaboration Project with CNES (French Space Agency), *Global Collision Probability Assessment and Station Keeping of Satellites* (09/2016–04/2017).

## Major Collaborations

**Aerospace Partners: CNES (French Space Agency) and Airbus Defence and Space (formerly known as Astrium)** Since September 2014, I am/was part of research collaborations concerning Collision Risk Assessment and In-Orbit Servicing.

**CAPA Team, Uppsala, Sweden** Since 2011 I collaborate with Computer Aided Proofs in Analysis (CAPA) team, Mathematics Department, Uppsala, Sweden. I work with Prof. Warwick Tucker for solving problems in Discrete Dynamical Systems with the help of high performance computing. For that, we do mutual visits and research seminars.

**AriC Team, LIP, Lyon** I collaborate with AriC Team in various projects (thesis of V. Popescu, ANR FastRelax; thesis of F. Bréhard) related to Computer Arithmetic and Computer Algebra (N. Brisebarre, J.-M. Muller, V. Popescu, B. Salvy). We hope that this collaboration will result in a broader visibility, understanding and application of arithmetic and computer algebra techniques for the automatic control community.

**Pequan Team, LIP6, Paris** I collaborated with my co-authors M. Mezzarobba and Ch. Lauter in the field of validated methods using truncated power or Chebyshev series.