
Stefania Gabriela Dumbrava

Bât. IRISA, Campus Beaulieu
263 Avenue Général Leclerc
35000 Rennes, France
+33783316485 stefania.dumbrava@gmail.com

Nationality: Romanian
Date of Birth: 08/11/1988

Education

10/2012 – 12/2016 **Université Paris-Sud, Paris, France**

PhD. Degree in Computer Science. Thesis topic: "A Coq Formalization of Relational and Deductive Databases - and Mechanization of Datalog".

Supervisors: Prof. Dr. Veronique Benzaken, Dr. Evelyne Contejean.

Committee Members:

Prof. Dr. Sandrine Blazy (Université de Rennes)
Dr. Sarah Cohen-Boulakia (Université Paris-Sud)
Prof. Dr. Mohand-Said Hacid (Université Claude Bernard Lyon 1)
Dr. Michael Rusinowitch (INRIA - Lorraine).

09/2010 – 06/2012 **Jacobs University Bremen, Bremen, Germany**

Completed a MSc. Degree in Computer Science. Master Thesis: "A Type Theory with Reflection".
Supervisors: Prof. Dr. Michael Kohlhase, Dr. Florian Rabe. Grade: 1.33/1.0.

09/2007 – 06/2010 **Jacobs University Bremen, Bremen, Germany**

Completed a BSc. Degree in Mathematics. Degree result equivalent to First Class Honors.
Bachelor Thesis: "Structured Specifications with Hiding in the Edinburgh Logical Framework LF".
Supervisors: Prof. Dr. Michael Kohlhase, Dr. Florian Rabe. Grade: 1.0/1.0.

09/2003 – 06/2007 **"Emil Racovita" National College, Iasi, Romania**

Emphasized on Mathematics and English. Graduated with honors, top 1% of class, GPA: 9.81/10.
Baccalaureate Exam focusing on Mathematics, Physics and Computer Science. Grade: 9.91/10.

Practical Experience

09/2018 – 11/2018 **ENS Rennes, IRISA Laboratory, Rennes, France**

Postdoctoral Researcher in the Celtique team, working on the certification of static analyzers with Prof. Dr. David Pichardie.

01/2017 – 07/2018 **Université Claude Bernard Lyon 1, LIRIS Laboratory, Villeurbanne, France**

Postdoctoral Researcher in the Database team, working on the certification of graph databases and the approximate evaluation of graph queries with Prof. Dr. Angela Bonifati.

05/2016 – 06/2018 **Faculté des Sciences, Université Claude Bernard Lyon 1, France**

Teaching Assistant for the master level lab sessions and course (in French): "Bases de données déductives" (Deductive Databases)- 1st year;
Teaching Assistant for the undergraduate level lab sessions and courses (in French):
"Programmation Fonctionnelle pour le Web" (Functional Web Programming)- 2nd year;
"Algorithmique Numérique" (Numerical Analysis)- 3rd year

06/2015 – 05/2016 **Faculté de Sciences, Université Paris-Sud, France**

Teaching Assistant for the following undergraduate level lab sessions and courses (in French):
"Programmation fonctionnelle avancée" (Advanced Functional Programming)- 3rd year;
"Introduction à la programmation fonctionnelle" (Introduction to Functional Programming)- 2nd year;
"Mathématiques pour l'informatique I/II" (Mathematics for Computer Science) - 2nd year.

01/2013 – 05/2015 **IUT d'Orsay, Université Paris-Sud, France**

Teaching Assistant for the following undergraduate level lab sessions and courses (in French):
"Programmation et administration des bases de données" (Database Programming and Administration)- 1st year; "Bases de données avancées" (Advanced Databases)- 1st year.

06/2010 – 08/2010 **Inria Sophia Antipolis - Mediterranee, Sophia Antipolis, France**

Internship with the Marelle group, "Mathematical Components" project. Extending and developing the linear algebra formalization library for the Coq system, such that the modelled objects could be used directly for computing, in particular using persistent arrays. Supervisor: Dr. Laurent Thierly.

09/2009 – 06/2010 **Faculty of Mathematics, Jacobs University Bremen, Germany**

Student Assistant. Provided tutorial sessions for Mathematics courses at the Math Support Center. Topics Covered: Calculus I and II, Linear Algebra, Statistics and Probabilities, Numerical Methods. Supervisor: Prof. Dr. Gotz Pfander.

06/2009 – 08/2010 **Max Planck Institute for Computer Science, Saarbruecken, Germany**

Internship at the Automation of Logic Group. Increased the usability of the Waldmeister theorem prover for equational logic, by extending the input-output syntax of the system. Supervisor: Prof. Dr. Christoph Weidenbach, Dr. Thomas Hillenbrand.

- 02/2009 – 06/2009 Faculty of Mathematics, Jacobs University Bremen, Germany**
Teaching Assistant. Providing tutorial sessions and grading homeworks for the course General Mathematics and Computational Science II. Topics covered: Group theory, Topics in geometry, Variational Calculus, Numerics: Stable evaluation of elementary functions and constants; discrete Fourier transform and fast Fourier transform. Supervisor: Dr. Vladen Timorin.
- 09/2008 – 12/2008 Faculty of Mathematics, Jacobs University Bremen, Germany**
Student Assistant. Graded assignments and exams for the course General Mathematics and Computational Science I. Topics covered: Set theory, Fundamental number theory, Discrete mathematics and Difference equations. Supervisor: Dr. Stephan Baier.
- 06/2008 – 02/2009 German Institute For Artificial Intelligence Lab (DFKI), Bremen, Germany**
Internship and continuation as research assistant in the area of Formal Verification and Automated Theorem Proving. Designing and implementing a Haskell parser for semantically annotated C code, assuring completeness of formal verification in Isabelle. Also, created a Python tool employing multi-source data collection and analysis. Supervisor: Prof. Dr. Christoph Luth.

Research and Project Experience

- 06/2010 – 06/2017 "DataCert", Université Paris-Sud, Paris, France**
Doctoral Researcher in the "Verified Algorithms, Languages and System" group.
Coq deep specification of data-centric relational and deductive languages.
Supervisors: Prof. Dr. Veronique Benzaken, Dr. Evelyne Contejean.
- 01/2010 – 06/2010 "Observable Operator Networks", Jacobs University Bremen, Germany**
Research assistant in the Machine Learning group. Modeling highly complex systems of interacting random data sources with observable operator models, an extension of Hidden Markov Models.
Supervisor: Prof. Dr. Herbert Jaeger.
- 02/2009 – 12/2009 "Universal Algebra Formalization Project", Jacobs University Bremen, Germany**
Research project as part of an independent study course on "Universal Algebra". Formalizing algebraic structures and identifying theory morphisms using the modular system Twelf. Supervisor: Dr. Florian Rabe.
- 10/2008 – 12/2009 "Bourbaki Project", Jacobs University Bremen, Germany**
Research project in formalizing mathematical content from the Bourbaki's "Algebra" through semantically enriched LaTeX; organizing the data into theories and identifying morphisms between them, using a Module System for Mathematical Theories. Supervisor: Prof. Dr. Michael Kohlhase.
- 02/2008 – 09/2008 "Computer Science Precourse" (Panta Rhei Project), Jacobs University Bremen, Germany**
Research assistant. Semantic Web Development of a collaborative and interactive annotation and assessment environment. Authored, compiled, digitalized and interlinked a collection of preparatory theory, problems and quizzes for the General Computer Science course at Jacobs University.
Supervisor: Dr. Christine Muller.

Extracurricular Activities

- 01/2017 to date Subreviewer**
SIGMOD, VLDB, and PODS conferences.
- 12/2014 – 12/2015 Work Council Member, Université Paris-Sud, Paris, France**
- 12/2012 – 12/2014 Elected Student Representative, EDIPS, Université Paris-Sud, Paris, France**
- 09/2007 – 09/2008 Equity Research project, Investment Club, Jacobs University Bremen, Germany**
Active member. Participated in weekly training sessions. Acquired working knowledge of equity analysis and portfolio management and regularly contributed with equity research papers.
- 09/2007 – 09/2008 Debating Society, Jacobs University Bremen, Germany**
Active member. Participated in weekly debates. Responsible for software maintenance and data processing at the "Jacobs Open 2008 Debating Tournament".
- 09/2001 – 05/2007 Romanian National Center for Excellence, Iasi, Romania**
Mathematics specialization. Participated in weekly intensive trainings, competed in numerous national contests and annually received the Excellence Diploma for scholastic achievements.

Skills and Achievements

- Languages:** **Romanian:** mother tongue **Spanish:** fluent
French: fluent **English:** fluent
German: working knowledge
- PC Knowledge:** Linux, Windows 98/2000/XP/Vista, MATLAB, Mathematica, mysql, Oracle, PostgreSQL, Microsoft SQL Server
- Programming:** Coq, SSReflect, OCaml, SML, Scala, C/C++, Pascal, Python, Haskell, Prolog, Twelf, HTML
- Further Education:** Cambridge Certificate of Proficiency in English (CPE), Grade A
Diploma Basico de espanol (DELE), Nivel Intermedio
- Workshops /**

- Conferences:** 14-17/07/2018, International Conference on Logic Programming (ICLP), Oxford, England (participant)
26-29/09/2017, International Conference on Interactive Theorem Proving (ITP), Brasilia, Brasil (participant)
5-13/04/2014, European Joint Conferences on Theory and Practice of Software (ETAPS), Grenoble, France (participant)
21-25/01/2013 Programming Languages Mentoring Workshop, colocated with POPL, Rome, Italy (participant)
19-21/08/2010 North Western European Regional Contest, Jacobs University, Bremen, Germany (volunteer organizer)
01-04/07/2010 Stefania Dumbrava, Florian Rabe, "Structuring Theories with Partial Morphisms", International Workshop on Algebraic Development Techniques, Schloss Etelsen, Germany (participant)
20-31/07/2009 European Summer School in Logic, Language and Information, Bordeaux, France (participant and volunteer organizer)
06/2006-08/2006 Leonardo Project Management Training, Ommen, Netherlands (participant)
- Publications:** - "Graph Queries: From Theory to Practice", Sigmod Record 2018, with Angela Bonifati (to appear).
- "Approximate Evaluation of Label-Constrained Reachability Queries", with Angela Bonifati, Amaia Nazabal Ruiz-Diaz, and Romain Vuillemon (under submission).
- "Certified Graph View Maintenance with Regular Datalog", TPLP 2018, with Angela Bonifati and Emilio Jesus Gallego Arias.
- "Certifying Standard and Stratified Datalog Inference Engines in SSReflect", ITP 2017, with Veronique Benzaken and Evelyne Contejean.
- "A Coq Formalization of the Relational Data Model", ESOP 2014, with Veronique Benzaken and Evelyne Contejean.
- "A Case Study in Formalizing Algebraic Structures in a Module System", MLPA 2010, with Fulya Horozal and Kristina Sojakova.
- Awards:** 2012 - 2015 French Ministry for Higher Education and Research PhD Grant
2010 - 2012 Merit based BSc. scholarship, Jacobs University, Bremen, Germany
2007 - 2010 Merit based MSc. scholarship, Jacobs University, Bremen, Germany
2008/2009, 2009/2010 Member of the President's List for academic achievements, Jacobs University, Bremen, Germany
2001-2006 Won several prizes in national competitions and olympiads in Mathematics, Physics and Literature.
- Interests:** mathematical modelling; database theory; automated reasoning; foundations of mathematics: type theory, category theory, logic; semantic web (knowledge representation and logical foundations)