MINISTERIO DE CIENCIA, INNOVACIÓN Y UNIVERSIDADES

CURRICULUM VITAE (maximum 4 pages)

CV date	07/05/2021

Part A. PERSONAL INFORMATION

First and Family name	Albert Rubio Gimeno		
Social Security, Passport, ID number		Age	
Researcher numbers	Researcher ID	G-8473-2015	
	Orcid code	0000-0002-0501-9830	

A.1. Current position

Name of University/Institution	Universidad Complutense de Madrid		
Department	Departmento de Sistemas Informáticos y Computación		
Address and Country	C/ Profesor José García Santesmases, 9, 28040, Madrid, España		
Phone number	91 3947555	E-mail	alberu04@ucm.es
Current position	Catedrático de Universidad	From	16/04/2008
Espec. cód. UNESCO	120317		
Palabras clave	Logic, constraint solving, program analysis, smart contracts, SDN		

A.2. Education

PhD/Degree	University	Year
PhD in Computer Science	Universitat Politècnica de Catalunya	1994
Computer Science Degree	Universitat Politècnica de Catalunya	1990

A.3. Quality Indicators of Scientific Research

Number of "sexenios de investigación": [redacted] Date of last one: 01/01/2015
Number of advised PhDs: 4
Total number of citatons: 802 (Scopus); 2551 (Google)
Average citetions/year over the last 5 years (not including the current one):
41.4 (Scopus); 123 (Google)
Publications in first quarter in the JCR: 4.
H index: 16 (Scopus); 26(Google)
Total number of publication in GGS Class 1: 13; CORE A*: 10; CORE A: 31;

Part B. CV SUMMARY *(max. 3500 characters, including spaces)*

I started my research activity in 1988 as scholar in the computer science department at the UPC. In 1990 I got a teaching assistant position ("Profesor Titular de Escuela Universitaria"; being temporal until 1992) and in 1997 I became Associate Professor in the same department. In 2007 I got my Habilitation and since April 2008 I am Professor in Computer Science until May 2019 at the UPC and since then at UCM.

My research has been devoted to several research areas like program analysis and verification, constraint solving, satisfiability modulo theories (SMT), automated deduction, rewrite systems or higher-order systems, and more recently I have started new research lines on Software Defined Networks (SDN) and smart contracts. I have published papers on all these topics in high impact international journals and conferences. Along my career I have collaborated with many international researchers, including Jean-Pierre Jouannaud (LIX, École Polytechnique), Frédéric Blanqui (INRIA), Alexandra Silva (University College London, UK) and Marc Brockschmidt (Microsoft Research, Cambridge).

I have supervised four PhD thesis: Cristina Borralleras, Miquel Bofill, Mirtha Lina Fernández (co-supervised) and Daniel Larraz. I am coauthor of 56 research papers among which I would like to highlight the chapter in the Handbook of Automated Reasoning entitled "Paramodulation-Based Theorem Proving" coauthored with Robert Nieuwenhuis in 2001 (with more than 400 citations in Google Scholar) and the paper "Polymorphic Higher-Order Recursive Path Orderings" published in the Journal of the ACM coauthored with Jean-Pierre

Jouannaud in 2007. I have also been involved in the design and implementation of software tools based on the developed techniques, like the Barcelogic SMT solver or the CppInv and VeryMax program analyzers.

I have been involved in National and European research projects since I started my research activity. In 2004 I started to lead research projects and I have got funded national projects since then in six consecutive calls in the Spanish "Plan Nacional", with a total funding of 863.237,15 Euros and being global PI of two of the coordinated projects with the UPV. I have also been involved in research contracts with Intel and the "Asociación de Clubes de Baloncesto", being the main researcher in the latter. In 2017 I have been awarded with a "Salvador de Madariaga" Grant to fund a six months stay at UCL.

Since 2009 I am Chair of the Steering Committee of the International Termination Competition, which I created in 2003, I have been invited speaker of RTA in 2008 and LOPSTR in 2013, invited six times to the well-known Dagstuhl Seminars, and member of the Steering Committee of RTA (2007-2010) and Program Committee member of more than 30 international events. I have been member of the technical selection commission for the spanish Juan de la Cierva-Formación and Juan de la Cierva-Incorporación grants 2019.

I have [redacted] positive research evaluations ("sexenios"; last one in 2014) and [redacted] positive teaching evaluations ("quinquenios"; last one in 2015), which is the maximum I can have as I started my academic career in 1990.

Part C. RELEVANT MERITS

C.1. Selected Publications (since 2015)

Journal Papers

Elvira Albert, Jesús Correas, Pablo Gordillo, Guillermo Román-Díez, Albert Rubio.
Don't run on fumes - Parametric gas bounds for smart contracts. Journal of Systems and Software, Vol. 176, June 2021, 110923. JCR Q1.

Elvira Albert, Miguel Gómez-Zamallo, Miguel Isabel, Albert Rubio, Matteo Sammartino, Alexandra Silva. Actor-Based Model Checking for Software-Defined Networks. Journal of Logical and Algebraic Methods in Programming, Vol. 118, January 2021, 100617. JCR Q2.

Cristina Borralleras, Daniel Larraz, Enric Rodríguez-Carbonell, Albert Oliveras, Albert Rubio. Incomplete SMT Techniques for Solving Non-Linear Formulas over the Integers. ACM Transactions on Computational Logic 20(4), pp. 25:1-25:36, 2019. JCR Q2.

Elvira Albert, Miquel Bofill, Cristina Borralleras, Enrique Martin-Martin, Albert Rubio. Resource Analysis driven by (Conditional) Termination Proofs. ACM Transactions on Programming Languages and Systems, 19(5-6), pp. 722-739, 2019. JCR Q1.

Jean-Pierre Jouannaud, Albert Rubio. Normal higher-order termination. ACM transactions on computational logic. 2015. Volume: 16. Number: 2. pp: 13:1 ~ 13:38. JCR Q1. DOI:10.1145/2699913.

Frédéric Blanqui, Jean-Pierre Jouannaud, Albert Rubio. The computability path ordering. Logical Methods in Computer Science. 2015. Volume: 11. Number: 4. JCR Q2. DOI:10.2168/ LMCS-11(4:3)2015

Coference papers

Elvira Albert, Samir Genaim, Enrique Martin-Martin, Alicia Merayo and Albert Rubio. Lower-Bound Synthesis using Loop Specialization and Max-SMT. Proceedings 33rd International Conference on Computer-Aided Verification (CAV). Los Angeles, CA, USA. July 2021 Springer LNCS. CORE A*. Class 1 GRIIN.

Elvira Albert, Shelly Grossman, Noam Rinetzky, Clara Rodríguez, Albert Rubio, Mooly Sagiv. Taming Callbacks for Smart Contract Modularity. Proceedings ACM Programming Languages, Vol. 4, No. OOPSLA, Article 209, November 2020. CORE A*. Class 1 GRIIN.

Elvira Albert, Pablo Gordillo, Albert Rubio, Maria A. Schett. Synthesis of Super-Optimized Smart Contracts using Max-SMT. Proceedings 32nd International Conference on Computer-Aided Verification (CAV). Los Angeles, CA, USA. July 2020. Springer LNCS 12224, pp 177-200. CORE A*. Class 1 GRIIN.

Elvira Albert, Jesús Correas, Pablo Gordillo, Guillermo Román-Díez, Albert Rubio:
GASOL: Gas Analysis and Optimization for Ethereum Smart Contracts. Proceedings 26th International Conference on Tools and Algorithms for the Construction and Analysis of Systems (TACAS), Part II. Dublin, Ireland. *April 2020. Springer Lecture Notes in Computer Science* 12079 , pp. 118-125. CORE A. Class 1 GRIIN.

Jürgen Giesl, Albert Rubio, Christian Sternagel, Johannes Waldmann, Akihisa Yamada. The Termination and Complexity Competition. Proceedings 25th International Conference on Tools and Algorithms for the Construction and Analysis of Systems (TACAS), Part III: TOOLympics. Prague, Czech Republic. Abril 2019. Springer Lecture Notes in Computer Science 11429, pp. 156-166. CORE A. Class 1 GRIIN.

Elvira Albert, Pablo Gordillo, Benjamin Livshits, Albert Rubio, Ilya Sergey. EthIR: A Framework for High-Level Analysis of Ethereum Bytecode. Proceedings 16th International Symposium on Automated Technology for Verification and Analysis (ATVA). Los Angeles, CA, USA, October, 2018. Springer Lecture Notes in Computer Science 11138, CORE A.

Elvira Albert, Miguel Gómez-Zamalloa, Miguel Isabel, Albert Rubio. Constrained Dynamic Partial Order Reduction. Proceedings 30th International Conference on Computer Aided Verification (CAV). Part II, Oxford, UK, July 2018. Springer Lecture Notes in Computer Science 10982, pp. 392-410. CORE A*. Class 1 GRIIN.

Elvira Albert, Miguel Gómez-Zamalloa, Albert Rubio, Mateo Sammartino, Alexandra Silva. SDN-Actors: Modeling and Verification of SDN Programs. Proceedings 22nd International Symposium on Formal Methods (FM). Oxford, UK, July 2018. Springer Lecture Notes in Computer Science 10951, pp. 550-567. CORE A. Class 2 GRIIN.

Cristina Borralleras, Marc Brockschmidt, Daniel Larraz, Albert Oliveras, Enric Rodríguez-Carbonell, Albert Rubio. Proving Termination through Conditional Termination. Proceedings 23nd International Conference on Tools and Algorithms for the Construction and Analysis of Systems (TACAS), Part I. Uppsala, Sweden. Abril 2017. Springer Lecture Notes in Computer Science 10205, pp. 99-117. CORE A. Class 1 GRIIN.

C.2. Research projects and grants as PI

Project: Desarrollo e implantación de circom 2.0. UCM, Uniclau, S.L.U. and 0kims Association. March 2021- August 2021. Grant: 60.000€.

Project: Estudio sobre el lenguaje Circom. UCM, Uniclau, S.L.U. and 0kims Association. October 2019- December 2020. Grant: 65.000€.

Project: Formal Reasoning for Enabling and Emerging Technologies (FREETech). RTI2018-094403-B-C33. MICINN / FEDER. UPC, UPV, UCM. Co-Principal Investigators UPC: Albert Rubio and Javier Larrosa. January 2019 - December 2021. Grant (UPC): 181.500,00€.

Project: AC3: Análisis Composicional de sistemas Concurrentes mediante razonamiento Condicional. Programa Salvador de Madariaga 2017. Grant: 17.430 €. Research stay at UCL. August 2017 – January 2018.

Project: Logic-Based Smart Solutions (LoBaSS). TIN2015-69175-C4-3-R. MINECO (TIN) / FEDER. UPC, UPV, UCM. Principal Investigator UPC: Albert Rubio (until May 2019) and Javier Larrosa (since May 2019). January 2016 - December 2019. Grant (UPC): 87.483,00€.

Project: A Declarative Approach to Model, Analyse and Solve problems (DAMAS). TIN2013-45732-C4-3-P. MINECO/FEDER (TIN). UPC, UPV, UCLM, IIIA. Principal Investigator UPC: Albert Rubio. January 2014 – December 2015. Grant (UPC): 35.592,15 €.

Project: Sweetlogics-UPC. TIN2010-21062-C02-01. MICINN (TIN). UPC, UPV. Principal Investigator: Albert Rubio. (coordinator). January 2011 – June 2015. Grant (UPC): 110.352,00 €.

Project: LOGICTOOLS-2. (Technologics). TIN 2007-68093-C02-01. CICYT (TIN). UPC, UPV. Principal Investigator: Albert Rubio. (coordinator). October 2007 – September 2010. Grant (UPC): 261360.00 €.

Project: LOGICTOOLS. TIN2004-03382. CICYT (TIN). UPC. Principal Investigator: Albert Rubio. Desember 2004 – December 2007. Grant: 187450.00 €.

C.3. PhD Advisor

Title: Ordering-based method for proving termination automatically
Author: Cristina Borralleras
Place: Computer Science Department. Univ. Politécnica de Cataluña
Date: May 2003

Title: Equational Reasoning with Non-Monotonic Orderings
Author: Miquel Bofill
Place: Computer Science Department. Univ. Politécnica de Cataluña
Date: June 2004

Title: Non-Monotonic orderings for proving termination of term rewrite systems
Author: Mirtha Lina Fernández
Place: Computer Science Department. Univ. Politécnica de Cataluña
Date: May 2007
Co-supervised with Guillem Godoy

Title: Automatic Program Analysis using Max-SMT
Author: Daniel Larraz
Place: Computer Science Department. Univ. Politécnica de Cataluña
Date: Julio de 2015
Awards: Mención de doctorado internacional. Premio extraordinario de doctorado UPC 2017.

C.6. Research responsabilities (since 2015)

Miembro de las comisiones técnicas de evaluación de las convocatorias de “Ayudas Juan de la Cierva-Formación y Juan de la Cierva-Incorporación 2019”.

Chair of the Steering Committee of the International Termination Competition since 2009.

Program Comittee Member: MFCS 2020, FSCD 2017, LICS 2015, LOPSTR 2015.