

Álvaro García Pérez

Researcher

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alvaro.garcia.perez@imdea.org

Interests	Distributed ledgers, software verification and formal methods.	
Education	Universidad Politécnica de Madrid, Spain	
	Doctor en Software y Sistemas	Sep. 2014
	Thesis title: <i>Operational Aspects of Full Reduction in Lambda Calculi</i>	
	Advisors: Prof. Juan José Moreno Navarro and Dr. Pablo Nogueira	
	Máster de Investigación en Tecnologías para el Desarrollo de Sistemas Software Complejos	
	Thesis title: <i>Exploring the β-hypercube.</i>	Sep. 2009
	Advisor: Dr. Pablo Nogueira	
	Ingeniero Informático	Dec. 2007
	Universidad de Salamanca, Spain	
	Ingeniero Técnico en Informática de Sistemas	Jul. 2003
Positions	IMDEA Software Institute, Madrid, Spain	
	Postdoctoral researcher	Jan. 2017—Dec. 2019
	ICE-TCS, School of Computer Science, Reykjavik University, Iceland	
	Postdoctoral researcher	Sep. 2014—Dec. 2016
	IMDEA Software Institute, Madrid, Spain	
	Predoctoral researcher	Jul. 2008—Aug. 2014
	Rectorado de la Universidad Politécnica de Madrid, Spain	
	Computing technician	Apr. 2006—Jun. 2008
	ESNE (Escuela Universitaria de Diseño, Innovación y Tecnología), Madrid, Spain	
	Programming instructor	Feb. 2006—Jun. 2006
Teaching	ICE-TCS, School of Computer Science, Reykjavik University, Iceland	
	T-519-STOR/T-719-STO4: Theory of Computation (8 ETCS)	Aug.—Dec. 2016
	T-519-STOR: Theory of Computation (8 ETCS)	Aug.—Dec. 2015
	ESNE (Escuela Universitaria de Diseño, Innovación y Tecnología), Madrid, Spain	
	INF-1203: Programación II (6 ECTS)	Feb.—Jun. 2006
	AC-0201: Introducción al Desarrollo de Software II (6 ECTS)	Feb.—Jun. 2006
Fellowships	Computer Science Department, Aarhus University, Denmark	
	Visiting PhD student supervised by Olivier Danvy	Jan.—Apr. 2011
	Oxford University Computing Laboratory, UK	
	Visiting PhD student supervised by Jeremy Gibbons	May.—Nov. 2009

Schools	Proof and Computation. Fischbachau, Germany	Oct. 2016
	Oregon Programming Languages Summer School. Eugene, Oregon, US	Aug. 2013
	Logic and Interaction: Proofs and Programs. Marseille, France	Feb. 2012
	Spring School on Generic and Indexed Programming. Oxford, UK	Mar. 2010
Awards	Opera-Web (Diseño de un portal web sobre la obra de Richard Wagner) Universidad Pompeu Fabra—Gran Teatre del Liceu, Barcelona, Spain	Jul. 2003
Service	Program committees: PEPM 2019, ICDCS 2019, EXPRESS/SOS 2017	
	Organising committees: NWPT 2015, MPC 2012	

Refereed journal publications

Luca Aceto, Ignacio Fábregas, **Álvaro García-Pérez**, Anna Ingólfssdóttir, and Yolanda Ortega-Mallén. Rule formats for nominal process calculi. *Logical Methods in Computer Science*, 15(4):2:1–2:46, 2019.

Álvaro García-Pérez and Pablo Nogueira. The full-reducing Krivine abstract machine KN simulates pure normal-order reduction in lockstep: A proof via corresponding calculus. *Journal of Functional Programming*, 29(E7):1–38, 2019.

Luca Aceto, Ignacio Fábregas, **Álvaro García-Pérez**, and Anna Ingólfssdóttir. A unified rule format for bounded nondeterminism in SOS with terms as labels. *Journal of Logical and Algebraic Methods in Programming*, 92:64–86, 2017.

Álvaro García-Pérez and Pablo Nogueira. No solvable lambda-value term left behind. *Logical Methods in Computer Science*, 12(2:12):1–43, 2016.

Álvaro García-Pérez and Pablo Nogueira. On the syntactic and functional correspondence between hybrid (or layered) normalisers and abstract machines. *Science of Computer Programming*, 95:176–199, 2014.

Refereed conference publications

Conferences: **Álvaro García-Pérez** and Maria A. Schett. Deconstructing Stellar consensus. In *23rd International Conference on Principles of Distributed Systems (OPODIS 2019)*, volume 153 of *LIPIcs*, pages 4:1–4:16. Schloss Dagstuhl, 2019.

Álvaro García-Pérez and Alexey Gotsman. Federated Byzantine quorum systems. In *22nd International Conference on Principles of Distributed Systems (OPODIS 2018)*, volume 125 of *LIPIcs*, pages 17:1–17:16. Schloss Dagstuhl, 2018.

Álvaro García-Pérez, Alexey Gotsman, Yuri Meshman, and Ilya Sergey. Paxos consensus, deconstructed and abstracted. In *Proceedings of the European Symposium on Programming (ESOP 2018)*, volume 10801 of *LNCS*, pages 912–939. Springer, 2018.

Luca Aceto, Ignacio Fábregas, **Álvaro García-Pérez**, Anna Ingólfssdóttir, and Yolanda Ortega-Mallén. Rule formats for nominal process calculi. In *28th International Conference on Concurrency Theory (CONCUR 2017)*, volume 85 of *LIPIcs*, pages 10:1–10:16. Schloss Dagstuhl, 2017.

Álvaro García-Pérez, Pablo Nogueira, and Juan José Moreno-Navarro. Deriving the full-reducing Krivine machine from the small-step operational semantics of normal order. In *Proceedings of the 15th Symposium on Principles and Practice of Declarative Programming (PPDP 2013)*, pages 85–96. ACM, 2013.

- Workshops: **Álvaro García-Pérez**, Pablo Nogueira, and Ilya Sergey. Deriving interpretations of the gradually-typed lambda calculus. In *Proceedings of the ACM SIGPLAN 2014 Workshop on Partial Evaluation and Program Manipulation (PEPM 2014)*, pages 157–168. ACM, 2014.
- Álvaro García-Pérez** and Pablo Nogueira. A syntactic and functional correspondence between reduction semantics and reduction-free full normalisers. In *Proceedings of the ACM SIGPLAN 2013 Workshop on Partial Evaluation and Program Manipulation (PEPM 2013)*, pages 107–116. ACM, 2013.

Book chapters

Luca Aceto, **Álvaro García-Pérez**, and Anna Ingólfssdóttir. Rule formats for bounded nondeterminism in structural operational semantics. In *Semantics, Logics and Calculi—Essays Dedicated to Hanne Riis Nielson and Flemming Nielson on the Occasion of Their 60th Birthdays*, volume 9560 of LNCS, pages 313–343. Springer, 2016.

Non-refereed publications

- Pre-prints: **Álvaro García-Pérez** and Maria A. Schett. Deconstructing Stellar consensus (extended version). CoRR, abs/1911.05145, 2019.
- Álvaro García-Pérez** and Alexey Gotsman. Federated Byzantine quorum systems (extended version). CoRR, abs/1811.03642, 2018.
- Álvaro García-Pérez**, Alexey Gotsman, Yuri Meshman, and Ilya Sergey. Paxos consensus, deconstructed and abstracted (extended version). CoRR, abs/1802.05969, 2018.
- Extended abstracts: **Álvaro García-Pérez**, Alexey Gotsman, Yuri Meshman, and Ilya Sergey. Towards modular verification of consensus protocols. The Aarhus Concurrency Workshop (ACW 2017), May 2017.
- Álvaro García-Pérez** and Pablo Nogueira. No solvable lambda-value term left behind. XVI Jornadas sobre Programación y Lenguajes (PROLE 2016), September 2016.
- Álvaro García-Pérez**. Rule formats for bounded nondeterminism in nominal structural operational semantics. 27th Nordic Workshop on Programming Theory (NWPT 2015), September 2015.
- Álvaro García-Pérez** and Pablo Nogueira. A standard theory for the pure lambda-value calculus. International Workshop on Domain Theory and Applications (Domains XI), September 2014.
- Álvaro García-Pérez**, Pablo Nogueira, and Ilya Sergey. Derivación de intérpretes del cálculo lambda con tipos graduales. V Taller de Programación Funcional (TPF 2013), September 2013.
- Álvaro García-Pérez** and Pablo Nogueira. Enfoque normal y enfoque spine para reducción en el cálculo lambda puro. IV Taller de Programación Funcional (TPF 2012), September 2012.
- Álvaro García-Pérez** and Pablo Nogueira. Estrategias del cálculo lambda e interderivación de artefactos semánticos. III Taller de Programación Funcional (TPF 2011), September 2011.
- Álvaro García-Pérez** Pablo Nogueira and Emilio Jesús Gallego Arias. El cubo beta. II Taller de Programación Funcional (TPF 2010), September 2010.
- Álvaro García-Pérez**, Pablo Nogueira, and Emilio Jesús Gallego Arias. The beta cube. 1st International Workshop on Strategies in Rewriting, Proving, and Programming (IWS 2010), July 2010.
- Álvaro García** and Nelson Medinilla. The ambiguity criterion in software design. 1st International Workshop on Living with Uncertainties (IWL 2007), November 2007.

Other publications

Amaya García Pérez and **Álvaro García Pérez**. La afinación de la flauta tradicional salmantina de tres agujeros. *Revista de Musicología*, 32(2):343–361, 2009.

Amaya García Pérez and **Álvaro García Pérez**. La afinación de la flauta tradicional de tres agujeros. In *VII Congreso de la Sociedad Española de Musicología*, Cáceres, Spain, 2008. Sociedad Española de Musicología.

Invited talks

Federated Byzantine Quorum Systems. BART Blockchain Seminar, Telecom Paristech, Paris, France. February 2019.

Reasoning about structural operational semantics in a calculus of closures. ICE-TCS Seminar, Reykjavik University, Iceland. April 2014.

Deriving interpretations of the gradually typed lambda calculus. Entropy Meeting, Programming Languages Group, Aarhus University, Denmark. July 2013.

A syntactic and functional correspondence between reduction semantics and reduction-free full normalisers. Entropy Meeting, Programming Languages Group, Aarhus University, Denmark. February 2013.

The beta cube. Programming, Logic and Semantics Group, IT University, Copenhagen, Denmark. March 2011.

Languages

Mother tongue: Spanish.

Self-assessment based on Common European Framework of Reference for Languages.

	Understanding				Speaking				Writing	
Languages	Listening		Reading		Spoken interaction		Spoken production			
English	C1	Proficient user	C1	Proficient user	C1	Proficient user	C1	Proficient user	C1	Proficient user
French	B2	Independent user	B2	Independent user	B1	Independent user	B1	Independent user	B1	Independent user

Skills

Programming languages: Proficient in Haskell, ML, C, C++, Java and C#. Familiar with Coq, Agda, Lisp/Scheme, PHP, JSP, SQL and shell scripting.

System administration: Familiar with Apache, Tomcat, Oracle, MySQL and Postgree.