201 N. Goodwin Ave.
Urbana, IL 61801

# Antonio Franques

franque2@illinois.edu
+1 (217) 766-0317
afranques.com

## Education

2015–Present 
**University of Illinois at Urbana-Champaign**
Ph.D. Computer Science
Advisor: Professor Josep Torrellas
Area: Computer Architecture, Parallel Computing, Systems

2011–2015 
**Polytechnic University of Valencia (UPV)**, Spain
B.S. Telecommunications Engineering, GPA: 8.9/10, Ranked 2nd in graduating class
Thesis: Numerical Methods for Nonlinear Modeling (Grade: 10/10)
Advisors: Professors Juan Ramón Torregrosa and Alicia Cordero
Overseas studies: Norwegian University of Science and Technology (NTNU), Fall 2014

## Publications

May 2018 — X. Timoneda, S. Abadal, A. Cabellos-Aparicio, D. Manessis, J. Zhou, **A. Franques**, J. Torrellas, E. Alarcon, *"Millimeter-Wave Propagation within a Computer Chip Package"*, ISCAS '18.

Nov. 2017 — V. Fernando, **A. Franques**, S. Abadal, S. Misailovic, J. Torrellas, *"Adapting Programs for Wireless On-Chip Communication"*, sbumitted to ISCA '18.

May 2016 — A. Cordero, **A. Franques** and J.R. Torregrosa, *"Chaos and Convergence of a family generalizing Homeier's method with damping parameters"*, Nonlinear Dynamics, doi: 10.1007/s11071-016-2807-0.

June 2015 — A. Cordero, **A. Franques** and J.R. Torregrosa, *"Multidimensional Homeier's generalized class and its application to planar 1D Bratu problem"*, SeMA Journal, doi: 10.1007/s40324-015-0037.

May 2015 — A. Cordero, **A. Franques** and J.R. Torregrosa, *"Numerical solution of turbulence problems by solving Burgers' equation"*, Algorithms 8 (2015) 224-233, doi: 10.3390/a8020224.

Sept. 2014 — A. Cordero, L. Feng, **A. Franques** and J.R. Torregrosa, *"Stability of a Fourth-Order Family of Iterative Methods for Solving Nonlinear Problems"*, Proceedings of the Ninth International Conference on Engineering Computational Technology, Naples, Italy, doi:10.4203/ccp.105.33.

## Research Experience

2015–Present — **Graduate Research Assistant**, i-acoma group, University of Illinois Urbana-Champaign
Area: Computer Architecture
Topic: Application of extremely high frequency wireless on-chip communications in massive multi-core architectures
Advisor: Professor Josep Torrellas

2013–2015 — **Undergraduate Research Assistant**, Polytechnic University of Valencia
Area: Computational Mathematics
Topic: Design of high-order iterative methods for obtaining the roots of a nonlinear system of equations
Advisors: Professors Juan Ramón Torregrosa and Alicia Cordero

## Research Interests

Computer architecture, network on chip, extremely high frequency wireless communications, multi-core and parallel architectures, programmability of parallel systems, computational mathematics

## Awards, Honors and Scholarships

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| 2017 | **ISCA Travel Grant** |
| 2015 | **Award for the Second-Best Academic Record**, Class of 2015<br>Polytechnic University of Valencia |
| 2015 | **Undergraduate Thesis Distinction**<br>Polytechnic University of Valencia |
| Fall 2014 | **Erasmus Programme Grant**<br>European Commission. |
| 2013–2014 | **Undergraduate Research Fellowship**<br>Spanish Ministry of Education. |
| 2011–2015 | **4-Year Undergraduate Full Tuition Scholarship**<br>Spanish Ministry of Education. |

## Skills

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| Languages | C/C++, Python, Java, Matlab, Shell/Bash scripting, Verilog, PHP, Javascript, MySQL |
| Frameworks | Flex, GNU Bison |
| Sim. Tools | Multi2Sim, MCPAT |
| Dev. Tools | Git, Vim |
| OS | Linux, Windows |

## Relevant Course Work

* indicates top of my class in the course

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| Graduate | Parallel Computer Architecture*, Computer System Organization, Operating System Design, Design and Implementation of Scripting Languages, Designing and Building Applications for Extreme Scale Systems, Wireless Networks and Mobile Systems. |
| Undergraduate | Microprocessors Based Systems*, Circuit Theory, Electronic Circuits and Devices*, Design of Telematic Services*, Information Management*, Communication Theory*, Probability and Random Signals*, Radiation and Wave Propagation, Optical and Digital Communications. |

## Selected Course Projects

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| Graduate | **CMat: The language and its interpreter**<br>It implements an interpreter in Python for CMat; a blended subset of Matlab, C and Cool. |
| | **Improving and characterizing low-layers for Wireless-Network-on-Chip**<br>A novel MAC (medium access control) protocol that adapts to the traffic characteristics of the network in real time. Also, a design and evaluation of a new mathematical model for the transmission channel in use for this architecture. |
| | **AIA: A wireless-enabled chip multiprocessor**<br>An architecture with hybrid Network-on-Chip (wired+wireless). Targeting the reduction of latency for memory accesses that require several coherence messages. |
| Undergraduate | **Development of a VGA driver for an FPGA**<br>Written in Verilog an implemented in an Altera DE2 Board (which included an Altera 90nm Cyclone II FPGA). The design software used was Altera Quartus II. |
| | **Mastermind in 68000 assembly language with EASy68K**<br>Implementation of the classic Mastermind game in 68000 Assembly (the assembly language for the Motorola 68K-series microprocessors), to be later simulated with EASy68K. |

## Selected Personal Projects

(A more thorough list can be found on my personal website: afranques.com/projects)

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| 2016–Present | **Quovis**. Android App for saving, organizing, and retrieving users' favorite locations. |
| Spring 2015 | **Lazarius**. Android App for helping reduced-vision people move around cities in real time. Won second prize and Telefonica Award in the 2015 Spanish edition of Hack For Good. |
| Spring 2014 | **2 Park**. Android App for managing parking spaces on the street in real time. Won Telefonica Award in the 2014 Spanish edition of Hack For Good. |

## Industry Experience

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| Summer 2010 | **City Council of Montblanc**, Spain<br>Systems and Network Administrator Intern<br>Maintenance of Cisco devices, database management (SQL), and front-end web development (PHP, Javascript, CSS). |

## Teaching Experience

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| Fall 2016 | **CS/ECE 439: Wireless Networks**, UIUC<br>Teaching Assistant<br>Occasional lecturer. Provided support and advice to 40+ students throughout development process of class projects. |

## Service

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| 2013 | **Incoming Exchange Students' Mentor**<br>Polytechnic University of Valencia |

## Languages

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| English | Fluent |
| Spanish | Native |
| Catalan | Native |