

ALBERT SEGURA SALVADOR

PhD Researcher in Computer Architecture

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EXPERIENCE

PhD researcher at the ARCO group at UPC

Computer Architecture Department, UPC BarcelonaTech

September 2015 – Ongoing Barcelona, ES

Research fellowship on the area of cognitive computing, speech recognition systems and graph processing on GPU architecture platforms.

Fellowship at the Programming Models group at BSC

Barcelona Supercomputing Center (BSC)

September 2014 – September 2015 Barcelona, ES

Fellowship working on extending the Linux Kernel to improve support for the OmpSs programming model and Nanos++ execution runtime at the project DEEP-ER at BSC.

Fellowship at the European project Montblanc at BSC

Barcelona Supercomputing Center (BSC)

January 2014 – September 2014 Barcelona, ES

Fellowship working as a system administrator on ARM prototype research platforms for HPC at the European project Montblanc at BSC.

Fellowship at the robotics department ESAII at UPC

ESAII Department, UPC BarcelonaTech

March 2013 – January 2014 Barcelona, ES

Fellowship at the robotics department of ESAII to develop a hand-held device to control a surgical robot for the Bitrack surgical project.

RESEARCH PROJECTS

CoCoUnit: An Energy-Efficient Processing Unit for Cognitive Computing (ERC-ADG-2018 833057)

September 2019 – Ongoing European Research Council

Architectures for Intelligent Computing Systems, Ubiquitous and Energy-Efficient (TIN2016-75344-R)

January 2017 – Ongoing Spanish Ministry of Economy

Micro-architectures and Compilers for Future Processors III (TIN2013-44375)

January 2014 – December 2016 Spanish Ministry of Economy

PERSONAL INFO

Born 1992, Terrassa, Barcelona.

Spanish Citizenship

Catalan and Spanish native speaker

English proficient speaker

SKILLS

Programming Languages

Experienced with object-oriented programming, low-level assembler and HDL.

C/C++ Python Bash
VHDL & Verilog Asm x86 & armv6

Machine Learning & GPU

Experienced with Machine Learning, parallel programming and GPU architectures.

CUDA GPU Speech Recognition

Cycle-Accurate Simulators

Experience working, extending and developing cycle-accurate simulators.

GPGPUSim DRAMsim2 SCU-sim

Embedded Systems

Experience using electronics development platforms, designing PCB and 3D printing.

Arduino Raspberry Pi 3D printing
Eagle PCB design Electronics

OS Development

Experience designing barebone OS for x86 and ARM architectures, and extending Linux kernel functionalities: core task scheduling.

Linux Kernel Barebone OS

Others

Experienced with statistical tools and scientific publication tools.

Statistical Analysis R LaTeX

EDUCATION

PhD in Computer Architecture

Universitat Politècnica de Catalunya (UPC)

📅 September 2016 – Ongoing

Research focus:

Cognitive Computing, in particular Speech Recognition, as well as Graph Processing on Energy-Efficient GPU Architectures.

Advisors: Antonio Gonzalez, Jose-Maria Arnau.

MSc in Innovation and Research in Informatics for HPC

Universitat Politècnica de Catalunya (UPC)

📅 September 2014 – July 2016

🎓 Grade: 8.31/10 – GPA*: 3.55/4

Master's Thesis:

'Characterization of Speech Recognition Systems on GPU Architectures'

Advisors: Antonio Gonzalez, Jose-Maria Arnau.

BSc in Informatics Engineering, Computer Engineering

Universitat Politècnica de Catalunya (UPC)

📅 September 2010 – July 2014

🎓 Grade: 7.64/10 – GPA*: 3.26/4

Final year project:

'Port of zeOS Operating System to an ARM architecture: Raspberry pi'

Advisor: Juan Jose Costa

*GPA: since the Spanish grading system is not weighted but absolute the GPA conversion does not fully reflect the grade obtained.

PUBLICATIONS

SCU: A GPU Stream Compaction Unit for Graph Processing

👤 A. Segura, J. Arnau, A. Gonzalez

🏛️ ISCA 2019

Low-Power Automatic Speech Recognition Through a Mobile GPU and a Viterbi Accelerator

👤 R. Yazdani, A. Segura, J. Arnau, A. Gonzalez

🏛️ IEEE MICRO

An Ultra Low-Power Hardware Accelerator for Automatic Speech Recognition

👤 R. Yazdani, A. Segura, J. Arnau, A. Gonzalez

🏛️ MICRO 2016

A Linux Kernel Scheduler Extension for Multi-Core Systems

👤 A. Roca, S. Rodriguez, A. Segura, V. Beltran, K. Marquet

🏛️ HiPC 2019

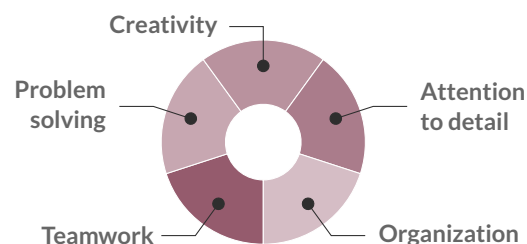
CONFERENCES AND OTHER COURSES

Seminar on Modern Memory Systems by Professor Bruce Jacob

📅 July 2017

📍 Barcelona, UPC

PERSONAL SKILLS



RECOGNITIONS

🏆 **HiPEAC Paper Award – 2019**
For the paper 'SCU: A GPU Stream Compaction Unit for Graph Processing' (ISCA), HiPEAC Network of Excellence.

🏆 **HiPEAC Paper Award – 2016**
For the paper 'An Ultra Low-Power Hardware Accelerator for Automatic Speech Recognition' (MICRO-49), HiPEAC Network of Excellence.

🏛️ **Collaboration grant – 2014**
With the Computer Architecture department of UPC BarcelonaTech, Spanish government MECD AGAUR.

🏆 **Contest Winner – 2014**
Winner of the Fourth Parallel Programming Contest organized by the University of Murcia, 2014 edition.

REFEREES

Prof. Antonio Gonzalez

🏛️ Universitat Politècnica de Catalunya

@ antonio@ac.upc.edu

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📍 Barcelona, ES

Dr. Jose-Maria Arnau

🏛️ Universitat Politècnica de Catalunya

@ jarnau@ac.upc.edu

📞 +34 93 405 40 39

📍 Barcelona, ES

Riding on Moore's Law Workshop - RoMoL 2016

📅 March 2016

📍 Barcelona, BSC

Volunteer at HPCA 2016

📅 March 2016

📍 Barcelona, HPCA

Seminar Issues in Computer Architecture and Microarchitecture for Future Computing Machine by Professor Yale Patt

📅 July 2015

📍 Barcelona, UPC

PUMPS – Programming and Tuning Massively Parallel Systems summer school (BSC NVIDIA GPU Center of Excellence)

📅 July 2013, July 2014

📍 Barcelona, UPC

Taught at PATC Course: Programming ARM based prototypes PATC Training

📅 May 2014

📍 Barcelona, UPC

MWC Intel Galileo Board Hackathon

📅 February 2014

📍 Barcelona, MWC

PRACE Training: Programming Distributed Computing Platforms with COMPSs

📅 February 2014

📍 Barcelona, UPC