

Alejandro Villegas
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Professional Experience

09/2013 – present	University of Málaga	PhD Student	Research field: Transactional Memory in Heterogeneous Architectures. Advisors: Prof. Oscar Plata and Prof. Rafael Asenjo
10/2012 – 04/2013 (6 months)	University of Luxembourg	Research Assistant	Research Field: Design Languages. Development of a language and textual editor.
02/2012 – 07/2012 (5 months)	GEB – University of Málaga	Research Assistant	Research Field: Chroma processing technologies.
10/2011 – 02/2012 (4 months)	Habitec – www.cthabitec.com	Software Engineer (Internship)	Photo album for monitoring building processes using Android phones.
03/2011 – 06/2011 (3 months)	Tedial – www.tedial.com	Research Internship	State of the art on video quality improvement. Software Testing.
09/2008 – 03/2009 (6 months)	Electronics Dept. – University of Málaga	Software Engineer	Computer vision software for industrial production lines.
10/2007 – 09/2008 (1 year)	GEB – University of Málaga	Research Assistant	Assist PhD. students. Research and development on Artificial Life.

Education

2013	University of Málaga	Computer Science Engineer	Project: tCAA – A design language for dependable systems with time constraints.
2011	University of Málaga	Master in Audiovisual Information Systems	Project: Solar radiation map on well oriented panels using GPGPU.
2009 - 2010	University of Luxembourg	Erasmus Student – MICS Program	One academic year as exchange student through the Erasmus program.
2010	University of Málaga	Bachelor in Computer Science	Project: Evaluation of artificial chemistries.

Collaborations

09/2015 – 12/2015	Northeastern University, Computer Architecture Lab – NUCAR
09/2014 – 12/2014 (6 months)	Prof. David Kaeli
09/2011 – 03/2012 (6 months)	University of Luxembourg, Laboratory of Advanced Software Systems – LASSY Dr. Alfredo Capozucca

Publications

- Alejandro Villegas, Rafael Asenjo, Angeles Navarro, Oscar Plata, David Kaeli
Lightweight Hardware Transactional Memory for GPU Scratchpad Memory,
IEEE Transactions on Computers. no. 99, Nov. 2017. Málaga, Spain, September 2017
<http://ieeexplore.ieee.org/document/8119530/>
Indexed: JCER Q1, Impact Factor: 2.916
- Alejandro Villegas, Ernesto Rittwagen, Angeles Navarro, Rafael Asenjo, Oscar Plata
Planificación thread-to-cluster de aplicaciones que utilizan memoria transaccional sobre un procesador heterogéneo,
XXVIII Edición de las Jornadas de Paralelismo, JP'17 Málaga, Spain, September 2017
- Alejandro Villegas, Angeles Navarro, Rafael Asenjo, Oscar Plata
Towards a Software Transactional Memory for heterogeneous CPU-GPU processors,
3rd IEEE International Workshop on Reengineering for Parallelism in Heterogeneous Parallel Platforms (Repara 2017, part of ParCo2017) Bologna, Italy, September 2017
- Alejandro Villegas, Angeles Navarro, Rafael Asenjo, Oscar Plata, Rafael Ubal, David Kaeli
Hardware support for scratchpad memory transactions on GPU architectures,
23rd International European Conference on Parallel and Distributed Computing, EuroPar'17 Santiago de Compostela, Spain, September 2017
Indexed: CORE A (2018)
- Yifan Sun, Xiang Gong, Amir Kavyan Ziabari, Leiming Yu, Xiangyu Li, Saoni Mukherjee, Carter McCardwell, Alejandro Villegas, David Kaeli
Hetero-Mark, A Benchmark Suite for CPU-GPU Collaborative Computing,
IEEE International Symposium on Workload Characterization (IISWC), 2016. Providence, Rhode Island, USA, September 2016
- E. Villegas, A. Villegas, A. Navarro, R. Asenjo and O. Plata
Evaluación del Consumo Energético de la Memoria Transaccional Software en Procesadores Heterogéneos,
XXVII Jornadas de Paralelismo (part of Jornadas Sarteco). Salamanca, Spain, September 2016
- E. Villegas, A. Villegas, A. Navarro, R. Asenjo, Y. Ukidave and O. Plata
Energy Efficiency of Software Transactional Memory in a Heterogeneous Architecture,
8th Workshop on the Theory of Transactional Memory (WTTM 2016 co-located with PODC 2016). Chicago (IL), USA, July 2016
- A. Villegas, R. Asenjo, A. Navarro and O. Plata
Improvements in Hardware Transactional Memory for GPU Architectures,
19th Workshop on Compilers for Parallel Computing, (CPC'16). Valladolid, Spain, July 2016
- A. Villegas, A. Navarro, R. Asenjo and O. Plata
Memoria Transaccional Hardware en Memoria Local de GPU,
XXVI Edición de las Jornadas de Paralelismo, JP 2015. Córdoba, Spain, 23-25 September, 2015
- A. Villegas, A. Navarro, R. Asenjo, O. Plata, R. Ubal and D. Kaeli
Hardware support for Local Memory Transactions on GPU Architectures,
10th ACM SIGPLAN Workshop on Transactional Computing (TRANSACT 2015, part of FCRC 2015). Portland, Oregon, USA. June 15-16, 2015
- A. Villegas
Towards a Hardware Transactional Memory for GPU Local Memory,
XXIII Jornadas de Concurrencia y Sistemas Distribuidos 10, 11, 12 June, 2015, Málaga
- S. Tabik, A. Villegas, EL. Zapata, L.F. Romero
Optimal Tilt and Orientation Maps: A Multi-Algorithms Approach for Heterogenous Multicore-GPU Systems *Journal of Supercomputing*, 2013
- S. Tabik, A. Villegas, EL. Zapata, L.F. Romero
A Fast GIS-tool to Compute the Maximum Solar Energy on Very Large Terrains
Procedia Computer Science, Volume 9, 2012, Pages 364-372.

Teaching

- 2017/2018 Grado en Podología: Tecnologías de la información y la comunicación aplicadas a la podología (University of Málaga)
Grado en Ingeniería Electrónica, Robótica y Mecatrónica: Fundamentos de Computadores (University of Málaga)
- 2016/2017 Grado en Podología: Tecnologías de la información y la comunicación aplicadas a la podología (University of Málaga)
Grado en Ingeniería en Tecnologías Industriales: Fundamentos de Computadores (University of Málaga)
Curso de adaptación al Grado de Ingeniería de Computadores: Arquitectura de computadores (University of Málaga)
- 2015/2016 Grado en Podología: Tecnologías de la información y la comunicación aplicadas a la podología (University of Málaga)
Curso de adaptación al Grado de Ingeniería de Computadores: Arquitectura de computadores (University of Málaga)

Mentoring

- 2016/2017 Bachelor thesis (in preparation, co-advised with Prof. Oscar Plata): Concurrent execution of Transactional Memory applications on heterogeneous processors.
Student: Ernesto Rittwagen
- 2015/2016 Bachelor thesis (co-advised with Prof. Rafael Asenjo): Energy consumption analysis of Software Transactional Memory on low power processors.
Student: Emilio Villegas