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I. MAIN INFORMATION

I.1.- Current Activity

Position: Senior Researcher

Organization: Computer Science Department, Barcelona Supercomputing Center (Spain)

Main responsibilities: Integrated into the OmpSs R&D team. Driving topics related with communications, accelerators, and resilience.

Dates: Since Sep. 2015

I.2.- Former Activity

Position: Postdoctoral Appointee

Organization: Mathematics and Computer Science Division, Argonne National Laboratory (IL, USA)

Main responsibilities: Driving the **heterogeneous memory** systems area of the Programming Models and Runtime Systems research group, led by Dr. Pavan Balaji. Focused on data movement, partitioning, and distribution among different types of memories, including accelerators (GPUs, Intel Xeon Phi), NVRAM, on-chip 3D-stacked memory, and scratchpad memory. Technical lead of the accelerator virtualization project (VOCL). Involved in low-level HPC networking R&D. Integrated into the **MPICH** R&D team.

Dates: From Feb. 2013 to July 2015

Position: Research Fellow and Research Assistant

Main responsibilities: Original Developer, Architect, and Development Supervisor of **rCUDA**

Organization: Department of Computer Science and Engineering, Jaume I University (Castellón, Spain)
Department of Computer Engineering, Technical University of Valencia (Valencia, Spain)

Dates: From Feb. 2009 to Feb. 2013

I.3.- Main Education

Title of degree: PhD in Advanced Computing Systems

PhD title: Virtualization of Accelerators in High Performance Clusters

Advisors: Rafael Mayo, Jaume I University (Spain)
Federico Silla, Technical University of Valencia (Spain)

University: Jaume I University (Castellón, Spain)

Grade: *Cum Laude*

PhD defense: Jan. 2013

Awards: **Extraordinary Doctoral Award**

Title of degree: Advanced Studies Diploma (Post Graduate Diploma, MS equivalent)

Area: Advanced Computer Systems

University: Jaume I University (Castellón, Spain)

Grade: A (9/10)

Date: Feb. 2010

Title of degree: Computer Engineering (5 years, BS + MS equivalent) – Specialization: Industrial Computers

University: Jaume I University (Castellón, Spain)

Grade: A- (8.14/10 – 2.39/4)

Date: Jul. 2006

I.4.- Main Skills

Design and development of high-end runtime systems – High performance and cluster computing, accelerators
System architectures, heterogeneous memory systems – Low and high level programming (C, C++, Python, ...)
Low-level HPC network programming and analysis – Team cooperation and coordination

I.5.- Awards

1. Extraordinary Doctoral Award. Jaume I University (Spain). Sep. 2015.
2. Scale Challenge Finalist. *The 15th IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing (CCGrid)*, Shenzhen, Guangdong, China, May 2015.
3. Best Paper. *The Fourth International Conference on Smart Grids, Green Communications and IT Energy-aware Technologies (ENERGY)*, Chamonix, France, Apr. 2014.
4. Best Technical Paper. *IEEE Cluster*, Indianapolis, IN, USA, Sep. 2013.

II. PROFESSIONAL ACTIVITY

Sep. 2015 – Current. Senior Researcher. Computer Science Department, Barcelona Supercomputing Center (Spain).

Feb. 2013 – July 2015. Postdoctoral Appointee. Mathematics and Computer Science Division, Argonne National Laboratory (Argonne, IL, USA).

Feb. 2009 – Sep. 2011, and Mar. 2012 – Feb. 2013. Research Assistant and Research Fellow. Department of Computer Engineering, Technical University of Valencia (Spain); and Department of Computer Science and Engineering, Jaume I University (Castellón, Spain).

Sep. 2011 – Dec. 2011. Graduate Intern. Swiss National Supercomputing Center, ETH Zürich (Lugano, Switzerland).

Dec. 2006 – June 2007, Feb. 2008 – July 2008, and Nov. 2008 – Dec. 2008. Collaborator, Junior Research Assistant, and Collaborator Fellow. Astronomical Observatory, University of Valencia (Spain).

July 2007 – Sep. 2007. Research Fellow. Department of Computer Science and Engineering, Jaume I University (Castellón, Spain).

July 2005 – May 2006. Undergraduate Intern. Innova Advanced Consulting (Castellón, Spain).

Feb. 2004 – July 2004. Collaboration Fellow. Department of Basic and Clinic Psychology and Psychobiology, Jaume I University (Castellón, Spain).

III. ACADEMIC ACTIVITY

III.1 Given Seminars / Tutorials

1. P. Balaji, R. Thakur, K. Raffanetti, A. J. Peña, and M. Si. “Introduction to MPI”. Argonne National Laboratory, Argonne, IL, USA, June 2015.
2. P. Balaji, R. Thakur, K. Raffanetti, A. J. Peña, and M. Si. “Advanced parallel programming with MPI-3”. Argonne National Laboratory, Argonne, IL, USA, June 2015.
3. A. J. Peña. “Astroadapt: free software for persons suffering mobile disability”. Astronomical Observatory, University of Valencia, Valencia, Spain, Feb. 2009.
4. A. J. Peña. “Web-based remote telescope control”. Astronomical Observatory, University of Valencia, Valencia, Spain, Mar. 2009.

III.2 Supervised Final Year Projects

1. Luis Toledo. “Design of a website for a cultural association”. Technical University of Valencia (Spain). Sep. 2012.
2. Tomás Navarro. “Implementation of rCUDA over VELO”. Technical University of Valencia (Spain). Sep. 2012.

III.3 Mentorships

1. Min Si. Graduate Intern from The University of Tokyo (Japan). Argonne National Laboratory (USA). May 2014 - Current.
2. Ashwin Aji. Graduate Student from Virginia Tech University (USA). Mar. 2014 – Current.
3. Sayan Ghosh. Graduate Intern from The University of Houston (USA). Argonne National Laboratory (USA). May 2014 – Current.
4. Adrián Castelló. Graduate Student from Jaume I University (Spain). Oct. 2014 – June 2015.
5. Xiuxia Zhang. Graduate Intern from Institute of Computing Technology, Chinese Academy of Sciences (China). Argonne National Laboratory (USA). Jun. 2013 – May 2014.
6. Min Si. Graduate Intern from The University of Tokyo (Japan). Argonne National Laboratory (USA). Apr. 2013 – Sep. 2013.
7. Adrián Castelló. Research Scholar. Jaume I University (Spain). May. 2011 – Feb. 2013.
8. Carlos Reaño. Research Assistant. Technical University of Valencia (Spain). Feb. 2011 – Feb. 2013.

III.4 Training

1. Teacher Training Course (CAP). Statistics and Computer Science. Jaume I University. Mar. 2008.

IV. RESEARCH ACTIVITY

IV.1 Participation in Research Projects

Title: OmpSs: OpenMP Super Scalar.

Main responsibilities: R&D in topics related with communications, accelerators, and resilience.

Dates: Since Sep. 2015.

Organization: Computer Science Department, Barcelona Supercomputing Center.

Position: Senior Researcher.

Responsible: Prof. Xavier Martorell.

Title: DMEM: Data Movement for Heterogeneous Memory.

Main responsibilities: To develop models for unified data movement among heterogeneous memory spaces.

Dates: Feb. 2013 to July 2015.

Organization: Mathematics and Computer Science Division, Argonne National Laboratory.

Position: Postdoctoral Appointee.

Responsible: Dr. Pavan Balaji.

Title: MPICH

Main responsibilities: General research and development tasks within the MPICH Team.

Dates: Feb. 2013 to July 2015.

Organization: Mathematics and Computer Science Division, Argonne National Laboratory.

Position: Postdoctoral Appointee.

Responsible: Dr. Pavan Balaji.

CURRICULUM VITAE

Title: VOCL: Virtual OpenCL.

Main responsibilities: R&D on incorporating fault tolerance capabilities into the VOCL framework.

Dates: Feb. 2013 to July 2015.

Organization: Mathematics and Computer Science Division, Argonne National Laboratory.

Position: Postdoctoral Appointee.

Responsible: Dr. Pavan Balaji.

Title: EXA2GREEN: Energy-Aware Sustainable Computing on Future Technology – Paving the Road to Exascale Computing.

Main responsibilities: Study the application and impact of the use of virtualized remote accelerators for the attainment of energy savings in computation based on GPU accelerators.

Dates: From Jan. 2013 to Feb. 2013.

Organization: Department of Computer Science and Engineering, Jaume I University (Castellón, Spain).

Position: Researcher.

Responsible: Prof. Enrique S. Quintana-Ortí.

Title: Real Data Center Cloud Services and Environment.

Main responsibilities: Study of the adequateness and benefits of the application of the remote accelerator virtualization technique in cloud environments.

Dates: From Nov. 2012 to Dec. 2012.

Organization: Department of Computer Science and Engineering, Jaume I University (Castellón, Spain).

Position: Researcher.

Responsible: Dr. Rafael Mayo.

Title: Heterogeneous Computing Environments for High Performance Dense Linear Algebra on Dedicated Double Precision Hardware Accelerators.

Main responsibilities: Study the application of the rCUDA software to the project.

Dates: Oct. 2012.

Organization: Department of Computer Science and Engineering, Jaume I University (Castellón, Spain).

Position: Research Fellow.

Responsible: Prof. Enrique S. Quintana-Ortí.

Title: Server Architectures, Applications and Services.

Main responsibilities: Coordinate and supervise rCUDA development.

Dates: From Mar. 2012 to July 2012.

Organization: Department of Computer Engineering (DISCA), Technical University of Valencia (Spain).

Position: Research Assistant.

Responsible: Prof. José F. Duato.

Title: High Performance and High Productivity Computing (HP2C).

Main responsibilities: Characterization of interaccelerator communication over HPC interconnects.

Dates: From Sep. 2011 to Dec. 2011.

Organization: Swiss National Supercomputing Centre, ETH Zürich.

Position: Intern.

Supervisor: Dr. Sadaf Alam.

Title: Extension of the Hypertransport Network Technology for the Enhancement of the Scalability of Internet Servers (PROMETEO/2008/060).

Main responsibilities: Study of the viability of remotely-accelerated architectures as a means of reducing the number of accelerators in a cluster and achieving GPU/node decoupling. Responsible for development of the rCUDA project. Original developer and architect. Development Supervisor from 2011 to 2013.

Dates: From Feb. 2009 to Sep. 2011.

Organization: Department of Computer Engineering (DISCA), Technical University of Valencia (Spain).

Position: Research Assistant.

Responsible: Prof. José F. Duato.

Title: Astronomical activities with mobility-disabled persons.

Main responsibilities: Co-design and development of software for people with mobile disability.

Dates: Nov. 2008 – Dec. 2008.

Organization: Astronomical Observatory, University of Valencia (Spain).

Position: Junior Research Assistant.

Responsible: Dr. Amelia Ortiz.

CURRICULUM VITAE

Title: Remote utilization of robotic telescopes and astronomical cameras on the Aras de los Olmos Observatory for astronomy and astrophysics teaching.

Main responsibilities: Design and development of a remote control telescope interface via Web (teaching-oriented). Automatization of all-sky image capturing process on wide-field cameras, and its subsequent automatic detection processing to find out possible meteors.

Dates: Feb. 2008 – July 2008.

Organization: Astronomical Observatory, University of Valencia (Spain).

Position: Collaboration Fellowship.

Responsible: Prof. Vicent J. Martínez.

Title: Integration of information technologies, localization and information for the improvement of the negotiation processes and operations in the road freight transport sector.

Main responsibilities: Design and development of communication software between onboard device and remote server. Built-in GPS data interpretation. Embedded operating system configuration.

Target company: Castellón Business Association of Freight Transport (ACTM).

Dates: July 2007 – Oct. 2007.

Organization: Department of Computer Science and Engineering, Jaume I University (Castellón, Spain).

Position: Research Fellowship.

Responsible: Dr. Germán Fabregat.

Title: Wide-field cameras system for optical transitory phenomena, bolides and meteors observation and study.

Main responsibilities: Design and development of an automatic meteor detection algorithm on sequential all-sky images.

Dates: Nov. 2006 – July 2007.

Organization: Astronomical Observatory, University of Valencia (Spain).

Position: Collaborator.

Responsible: Prof. Juan Fabregat.

Title: Development of an electronic protection relay.

Main responsibilities: Development of system software and user application for the device, based on a DSP.

Target company: Electrical Technology Institute (ITE).

Dates: July 2006 – Nov. 2006.

Organization: Department of Industrial Systems Engineering and Design, Jaume I University (Spain).

Position: Research Fellowship.

Responsible: Dr. Enrique F. Belenguer.

IV.2 Publications

* Main author **highlighted**, as in many of the papers authors are ordered alphabetically and optionally by institution.

IV.2.1 Citation Indices (Google Scholar)

- Citations: 318
- h-index: 9
- i10-index: 7

IV.2.2 International Journals

1. **C. Reaño**, F. Silla, A. Castelló, A. J. Peña, R. Mayo, E. S. Quintana-Ortí, and J. Duato, “Improving the user experience of the rCUDA remote GPU virtualization framework”, *Concurrency and Computation: Practice and Experience*, Wiley, vol. 27, no. 14, pp. 3746-3770, Sep. 2015.
2. **A. J. Peña**, C. Reaño, F. Silla, R. Mayo, E. S. Quintana-Ortí, and J. Duato, “A complete and efficient CUDA-sharing solution for HPC clusters”, *Parallel Computing*, Elsevier, vol. 40, no. 10, pp. 574-588, Dec. 2014.

IV.2.3 International Conferences and Workshops

1. **A. J. Peña**, W. Bland, and P. Balaji. “VOCL-FT: Introducing techniques for efficient soft error coprocessor recovery”, in *The International Conference for High Performance Computing, Networking, Storage and Analysis (SC15)*, Austin, TX, USA, Nov. 2015. **Accepted.**

2. **A. Aji**, A. J. Peña, P. Balaji, and W. Feng. “Automatic command queue scheduling for task-parallel workloads in OpenCL”, in *IEEE Cluster*, Chicago, IL, USA, Sep. 2015.
3. **A. Castelló**, A. J. Peña, R. Mayo, P. Balaji, and E. S. Quintana-Ortí. “Exploring the suitability of remote GPGPU virtualization for the OpenACC programming model using rCUDA”, in *IEEE Cluster*, Chicago, IL, USA, Sep. 2015.
4. **M. Si**, A. J. Peña, J. Hammond, P. Balaji, M. Takagi, and Y. Ishikawa. “Casper: an asynchronous progress model for MPI RMA on many-core architectures”, in *29th IEEE International Parallel & Distributed Processing Symposium (IPDPS)*, Hyderabad, India, May 2015.
5. **M. Si**, A. J. Peña, J. Hammond, P. Balaji, and Y. Ishikawa. “Scaling NWChem with efficient and portable asynchronous communication in MPI RMA”, in *The 15th IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing (CCGrid)*, Shenzhen, Guangdong, China, May 2015. **Scale Challenge Finalist**.
6. **A. J. Peña** and P. Balaji. “Toward the efficient use of multiple explicitly managed memory subsystems”, in *IEEE Cluster*, Madrid, Spain, Sep. 2014.
7. **A. J. Peña** and P. Balaji. “A framework for tracking memory accesses in scientific applications”, in *43rd International Conference on Parallel Processing Workshops (ICPP-W)*, Minneapolis, MN, USA, Sep. 2014.
8. **M. Si**, A. J. Peña, P. Balaji, M. Takagi, and Y. Ishikawa. “MT-MPI: Multithreaded MPI for many-core environments”, in *ACM International Conference on Supercomputing (ICS)*, Munich, Germany, June 2014.
9. **A. Castelló**, J. Duato, R. Mayo, A. J. Peña, E. S. Quintana-Ortí, V. Roca, and F. Silla. “On the use of remote GPUs and low-power processors for the acceleration of scientific applications”, in *The Fourth International Conference on Smart Grids, Green Communications and IT Energy-aware Technologies (ENERGY)*, Chamonix, France, Apr. 2014. **Best Paper**.
10. **C. Reaño**, F. Silla, R. Mayo, E. S. Quintana-Ortí, J. Duato, and A. J. Peña. “Influence of InfiniBand FDR on the performance of remote GPU virtualization”, in *IEEE Cluster*, Indianapolis, IN, USA, Sep. 2013. **Best Technical Paper**.
11. **A. J. Peña**, R. G. Correa Carvalho, J. S. Dinan, P. Balaji, R. Thakur, and W. D. Gropp. “Analysis of topology-dependent MPI performance on Gemini networks”, in *The Euro MPI Users’ Group Conference (EuroMPI)*. Madrid, Spain, Sep. 2013.
12. **A. J. Peña** and S. Alam. “Evaluation of inter- and intra-node data transfer efficiencies between GPU devices and their impact on scalable applications”, in *The 13th IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing (CCGrid)*, Delft, The Netherlands, May 2013.
13. **C. Reaño**, A. J. Peña, F. Silla, J. Duato, R. Mayo, and E. S. Quintana-Ortí. “CU2rCU: towards the complete rCUDA remote GPU virtualization and sharing solution”, in *Proceedings of the International Conference on High Performance Computing (HiPC)*, Pune, India, Dec. 2012.
14. **S. Alam**, J. Poznanovic, U. Varetto, N. Bianchi, A. J. Peña, and N. Suvanphim. “Early experiences with the Cray XK6 hybrid CPU and GPU MPP platform”, in *Cray User Group Conference (CUG)*, Stuttgart, Germany, Apr. 2012.
15. J. Duato, J. C. Fernández, R. Mayo, **A. J. Peña**, E. S. Quintana, and F. Silla. “Enabling CUDA acceleration within virtual machines using rCUDA”, in *High Performance Computing Conference (HiPC)*, Bangalore, India, Dec. 2011.
16. J. Duato, R. Mayo, **A. J. Peña**, E. S. Quintana-Ortí, and F. Silla. “Performance of CUDA virtualized remote GPUs in high performance clusters”, in *International Conference on Parallel Processing (ICPP)*, pp. 365-374, Taipei, Taiwan, Sep. 2011.
17. J. Duato, **A. J. Peña**, F. Silla, R. Mayo, and E. S. Quintana-Ortí, “rCUDA: reducing the number of GPU-based accelerators in high performance clusters”, in *Proceedings of the International Conference on High Performance Computing and Simulation (HPCS)*, Caen, France, June 2010.
18. J. Duato, F. D. Igual, R. Mayo, **A. J. Peña**, E. S. Quintana-Ortí, and F. Silla, “An efficient implementation of GPU virtualization in high performance clusters”, in *Euro-Par 2009, Parallel Processing – Workshops*, 6043, pp. 385-394, Lecture Notes in Computer Science, Springer, 2010.

19. M. F. Dolz, J. C. Fernández, E. S. Quintana-Ortí, R. Mayo, and A. J. Peña. “Research line on power-aware computing by the High Performance and Architectures Group”, in *COST Action IC0804 on Energy Efficiency in Large Scale Distributed Systems*, pp. 32-36, Toulouse, France, Nov. 2009.

IV.2.4 International Oral Communications and Posters

1. **A. J. Peña** and P. Balaji, “Understanding data access patterns using object-differentiated memory profiling”, in *The 15th IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing (CCGrid)*, Shenzhen, Guangdong, China, May 2015.
2. **K. Raffanetti**, A. J. Peña, and P. Balaji, “Toward implementing robust support for Portals 4 networks in MPICH”, in *The 15th IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing (CCGrid)*, Shenzhen, Guangdong, China, May 2015.
3. A. J. Peña. “The upcoming era of memory heterogeneity in compute nodes”, in *2nd Joint Laboratory for Extreme-Scale Computing Workshop*, Chicago, IL, USA, Nov. 2014.
4. **C. Reaño**, F. Silla, A. J. Peña, G. Shainer, S. Schultz, A. Castelló, E. S. Quintana-Ortí, and J. Duato, “Boosting the performance of remote GPU virtualization using InfiniBand Connect-IB and PCIe 3.0”, in *IEEE Cluster*, Madrid, Spain, Sep. 2014.
5. **A. J. Peña**, “Virtualization of accelerators in high performance clusters”, in *The International Conference for High Performance Computing, Networking, Storage and Analysis (SC)*, Dissertation Research Showcase, Salt Lake City, UT, Nov. 2012.
6. J. Duato, **A. J. Peña**, F. Silla, R. Mayo, and E. S. Quintana-Ortí, “rCUDA InfiniBand performance”, in *International Supercomputing Conference (ISC)*, Hamburg, Germany, June 2011.
7. J. Duato, R. Mayo, **A. J. Peña**, E. S. Quintana-Ortí, and F. Silla. “Network influence on rCUDA”, in *Advanced Computer Architectures and Compilation for Embedded Systems (ACACES)*, pp. 9-12, HiPEAC Network of Excellence, Terrassa (Barcelona), Spain, July 2010.
8. J. Duato, **A. J. Peña**, F. Silla, R. Mayo, and E. S. Quintana-Ortí, “Modeling the CUDA remoting virtualization behaviour in high performance networks”, in *Workshop on Language, Compiler, and Architecture Support for GPGPU (LCA-GPGPU-I)*, Bangalore, India, Jan. 2010.
9. J. Duato, F. D. Igual, R. Mayo, **A. J. Peña**, E. S. Quintana-Ortí, and F. Silla, “Virtualized remote GPUs”, in *Advanced Computer Architectures and Compilation for Embedded Systems (ACACES)*, pp. 221-224, HiPEAC Network of Excellence, Terrassa (Barcelona), Spain, July 2009.
10. **A. J. Peña** and J. Fabregat, “A robust bolid and fireball detection algorithm for all-sky sequential images”, in *Meteoroids*, Barcelona, Spain, June 2007.

IV.2.5 Spanish Conferences

1. **A. Castelló**, J. Duato, R. Mayo, A. J. Peña, and E. S. Quintana-Ortí. “Acelerando aplicaciones científicas con GPUs remotas y procesadores de bajo consumo”, in *XXV Jornadas de Paralelismo*. Valladolid, Spain, Sep. 2014.
2. **S. Iserte**, A. Castelló, A. J. Peña, C. Reaño, J. Prades, F. Silla, R. Mayo, E. S. Quintana-Ortí, and J. Duato. “Extendiendo SLURM con soporte para el uso de GPUs remotas”, in *XXV Jornadas de Paralelismo*. Valladolid, Spain, Sep. 2014.
3. **C. Reaño**, A. Castelló, S. Iserte, A. J. Peña, F. Silla, R. Mayo, E. S. Quintana-Ortí, and J. Duato. “Virtualización remota de GPUs: evaluación de soluciones disponibles para CUDA”, in *XXIV Jornadas de Paralelismo*. Madrid, Spain, Sep. 2013.
4. **S. Iserte**, A. Castelló, C. Reaño, A. J. Peña, F. Silla, R. Mayo, E. S. Quintana-Ortí, and J. Duato. “Un planificador de GPUs remotas en clusters HPC”, in *XXIV Jornadas de Paralelismo*. Madrid, Spain, Sep. 2013.
5. **C. Reaño**, A. J. Peña, F. Silla, J. Duato, R. Mayo, and E. S. Quintana-Ortí. “CU2rCU: a CUDA-to-rCUDA converter”, in *XXIII Jornadas de Paralelismo*, pp. 44-49. Elche, Spain, Sep. 2012.
6. J. Duato, **A. J. Peña**, F. Silla, J. C. Fernández, R. Mayo, and E. S. Quintana-Ortí. “A new approach to rCUDA”, in *XXII Jornadas de Paralelismo*, pp. 305-310, La Laguna, Spain, Sep. 2011.

7. **C. Reaño**, A. J. Peña, F. Silla, R. Mayo, E. S. Quintana, and J. Duato. “rCUDA: Uso concurrente de dispositivos compatibles con CUDA de forma remota. Adaptación a CUDA 4”, in *XXII Jornadas de Paralelismo*, pp. 311-316, La Laguna, Spain, Sep. 2011.
8. J. Duato, **A. J. Peña**, F. Silla, R. Mayo, and E. S. Quintana-Ortí. “rCUDA: a framework to perform remote CUDA calls”, in *XXI Jornadas de Paralelismo*, pp. 519-526, Valencia, Spain, Sep. 2010.
9. J. Duato, F. D. Igual, R. Mayo, **A. J. Peña**, E. S. Quintana-Ortí, and F. Silla, “CUDA remoto para clusters de altas prestaciones”, in *II Workshop en Aplicaciones de Nuevas Arquitecturas de Consumo y Altas Prestaciones (ANACAP)*, Móstoles (Madrid), Spain, Nov. 2009.
10. J. Duato, **A. J. Peña**, F. Silla, F. D. Igual, R. Mayo, and E. S. Quintana-Ortí, “Accelerating computing through virtualized remote GPUs”, in *XX Jornadas de Paralelismo*, pp. 635-639, A Coruña, Spain, Sep. 2009.
11. **A. J. Peña**, J. M. Claver, A. Sanjuan, and V. Arnau, “Análisis paralelo de secuencias de ADN mediante el uso de GPU y CUDA”, in *Workshop de Aplicaciones de Nuevas Arquitecturas de Consumo y Altas Prestaciones (ANACAP)*, Móstoles (Madrid), Spain, Nov. 2008.
12. **R. Rodríguez**, J. M. Claver, G. Fernández, A. J. Peña, and J. L. Sánchez, “Aceleración de la estimación de movimiento en la codificación H.264/AVC mediante GPUs”, in *Workshop de Aplicaciones de Nuevas Arquitecturas de Consumo y Altas Prestaciones (ANACAP)*, Móstoles (Madrid), Spain, Nov. 2008.

IV.3 Invited Talks

1. A. J. Peña. “Toward heterogeneous memory systems for HPC”, in *Enhancing software development for emerging platforms using algorithms and performance tools Minisymposium, SIAM CSE*, Salt Lake City, UT, USA, Mar. 2015.
2. A. J. Peña. “Virtualization of accelerators in high performance clusters”. Argonne National Laboratory, Argonne, IL, USA, Oct. 2012.
3. A. J. Peña and R. Mayo, “GPGPU as a service in HPC clusters”, in *HPC Advisory Council Spain Conference*, Málaga, Spain, Sep. 2012.
4. F. Silla and A. J. Peña. “rCUDA, an approach to provide remote access to GPU computational power”, in *HPC Advisory Council Switzerland Conference*, Lugano, Switzerland, Mar. 2012.

IV.4 Organization of Research Activities

1. Scale Challenge Co-chair. The 16th IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing (CCGrid). Madrid, Spain, May 2016.
2. Program Co-chair. The Sixth International Workshop on Accelerators and Hybrid Exascale Systems (ASHES). Chicago, IL, USA, May 2016.
3. Program Chair. Heterogeneous and Unconventional Cluster Architectures and Applications (HUCAA). Chicago, IL, USA, Sep. 2015.
4. Web Co-chair. IEEE Cluster. Chicago, IL, USA, Sep. 2015.
5. Co-organizer. Enhancing Software Development for emerging Platforms using Algorithms and Performance Tools. SIAM CSE Minisymposium. Salt Lake City, UT, USA, Mar. 2015.
6. Session Chair. The Seventh International Workshop on Parallel Programming Models and Systems Software for High-End Computing (P2S2). Minneapolis, MN, USA, Sep. 2014.
7. Publicity Chair. The Fourth International Workshop on Accelerators and Hybrid Exascale Systems (ASHES). Phoenix, AZ, USA, May 2014.
8. Volunteer Student at the Local Organization Committee. III Computer Science Spanish Conference (CEDI). Valencia, Spain, Sep. 2010.

IV.5 Technical Committees

IV.5.1 Program Committee for International Conferences and Workshops

1. The 24rd International Conference on Computer Communications and Networks (ICCCN). Las Vegas, NV, USA. Aug. 2015.
2. The Fifth International Workshop on Accelerators and Hybrid Exascale Systems (AsHES). Hyderabad, India. May 2015.
3. The Sixth International Conference on Cloud Computing, GRIDs, and Virtualization (CLOUD COMPUTING). Nice, France. Mar. 2015.
4. International Workshop on Enhancing Parallel Scientific Applications with Accelerated HPC (ESAA). Kyoto, Japan, Sep. 2014.
5. IEEE Cluster. Madrid, Spain. Sep. 2014.
6. Heterogeneous and Unconventional Cluster Architectures and Applications (HUCAA). Minneapolis, MN, USA. Sep. 2014.
7. The 23rd International Conference on Computer Communications and Networks (ICCCN). Shanghai, China. Aug. 2014.
8. The Fifth International Conference on Cloud Computing, GRIDs, and Virtualization (CLOUD COMPUTING). Venice, Italy. May 2014.
9. The Fourth International Workshop on Accelerators and Hybrid Exascale Systems (AsHES). Phoenix, AZ, USA. May 2014.
10. 5th IEEE International Conference on Cloud Computing Technology and Science (CloudCom). Bristol, UK. Dec. 2013.

IV.5.2 Technical Referee for International Journals

1. International Journal of High Performance Computing Applications (IJHPCA), Sage. 2015.
2. International Journal of High Performance Computing Applications (IJHPCA), Sage. 2015.
3. Future Generation Computer Systems (FGCS), Elsevier. 2015.
4. INFOCOMP Journal of Computer Science. 2015.
5. Future Generation Computer Systems (FGCS), Elsevier. 2015.
6. Transactions on Cloud Computing (TCC), IEEE Computer Society. 2015.
7. Concurrency and Computation: Practice and Experience (CCPE). Special Issue on Heterogeneous and Unconventional Cluster Architectures and Applications, Wiley. 2015.
8. Simulation Modelling Practice and Theory (SIMPAT). Special Issue on Techniques and Applications for Sustainable Ultrascale Computing Systems, Elsevier. 2015.
9. Parallel Computing Journal (ParCo). Special Issue on Parallel Programming Models and Systems Software, Elsevier. 2015.
10. Transactions on Cloud Computing (TCC), IEEE Computer Society. 2014.
11. Concurrency and Computation: Practice and Experience (CCPE), Wiley. 2014.
12. Parallel Processing Letters (PPL), World Scientific. 2014.
13. Future Generation Computer Systems (FGCS), Elsevier. 2014.
14. Parallel Processing Letters (PPL), World Scientific. 2013.
15. Future Generation Computer Systems (FGCS), Elsevier. 2013.
16. Transactions on Cloud Computing (TCC), IEEE Computer Society. 2013.
17. Transactions on Parallel and Distributed Systems (TPDS), IEEE Computer Society. 2013.
18. Parallel Computing Journal (ParCo). Special Issue on Parallel Programming Models and Systems Software, Elsevier. 2013.

19. Parallel Computing Journal (ParCo). Special issue on Programming Models and Applications for Multicores and Manycores, Elsevier. 2013.
20. Journal of Automated Software Engineering, Springer (JASE). 2012.
21. Future Generation Computer Systems (FGCS), Elsevier. 2012.
22. Concurrency and Computation: Practice and Experience, Wiley. 2010.

IV.5.3 Additional Reviewer for Conferences and Workshops

1. The 24th International Conference on Parallel Architectures and Compilation Techniques (PACT). San Francisco, CA, USA, Oct. 2015.
2. IEEE Hot Interconnects (HOTI). Santa Clara, CA, USA, Aug. 2015.
3. IEEE International Conference on High Performance Computing (HiPC). Goa, India, Dec. 2014.
4. The International Conference for High Performance Computing, Networking, Storage and Analysis (SC). New Orleans, LA, USA, Nov. 2014.
5. Euro-Par. Aachen, Germany, Aug. 2013.
6. International Supercomputing Conference (ISC) – Research Paper Sessions. Leipzig, Germany, June 2013.
7. The 13th IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing (CCGrid) – Doctoral Symposium. Delft, The Netherlands, May 2013.
8. The Third International Workshop on Accelerators and Hybrid Exascale Systems (AsHES). Boston, MA, USA, May 2013.
9. 22nd International Heterogeneity in Computing Workshop (HCW). Boston, MA, USA, May 2013.
10. International Workshop on Heterogeneous Architectures and Computing (HAC). Leganes, Spain, July 2012.
11. The 14th International Conference on High Performance Computing and Communications (HPCC). Liverpool, UK, June 2012.
12. The Eight International Conference on Parallel Processing and Applied Mathematics (PPAM). Wroclaw, Poland, Sep. 2009.

IV.6 Involvement in Standardization Efforts

1. MPI: A Message-Passing Standard, Version 3.1. Message Passing Interface Forum. Released June 2015.
2. OpenFabrics Interfaces (OFI) v1.0. Released May 2015.

IV.7 Other Activities

1. Moderator of the hpc-announce@mcsl.anl.gov mailing list from May 2013 to July 2015.
2. Release Manager of MPICH 3.1rc1 (Nov. 2013), 3.1.4 (Feb. 2015), and 3.2b1 (Mar. 2015).
3. IEEE member since 2013.
4. ACM member since 2014.

V. PROFESSIONAL TRAINING AND ADDITIONAL EDUCATION

V.1 Internships

Type: Graduate.

Center: Swiss National Supercomputing Centre (CSCS), Swiss Federal Institute of Technology (ETH) Zürich.

Main responsibilities: Development of a port for the NetPIPE communication benchmark for the Cray XE6 network. Extension of NetPIPE to characterize accelerator-accelerator communication over high performance interconnects. Early port of LAMMPS to rCUDA. Benchmarking and evaluation of accelerator-based HPC systems. Performance characterization of GPUDirect-RDMA on different cluster configurations.

Supervisor: Dr. Sadaf Alam.

Dates: Sep. 2011 – Dec. 2011, and Oct. 2012.

Type: Undergraduate.

Organization: Innova Advanced Consulting (Castellón, Spain).

Main responsibilities: Analysis and programming tasks on *Microsoft Business Solutions – Navision*. Eventual consulting and teaching activities.

Dates: July 2005 – May 2006.

V.2 Former Fellowships

Department: Basic and Clinical Psychology and Psychobiology, Jaume I University (Castellón, Spain).

Main activities and responsibilities: Changes on the methodology of using The Internet as self-learning tool. Designed and developed an online practical session.

Dates: Feb. 2004 – July 2004.

Position: Collaboration Fellowship.

V.3 Languages

1. English. Advanced Level (CEFR B2). Official Languages School of Castellón (Spain). Oct. 2010.
2. Valencian. Advanced Level (CEFR B2). Official Languages School of Castellón (Spain). Oct. 2010.
3. Valencian. Top Grade (*Grau Superior*) (CEFR C2). Junta Qualificadora de Coneixements del Valencià, Conselleria de Cultura, Educació i Esport, Generalitat Valenciana. July 2005.

V.4 Additional Education

V.4.1 Specific Education for Research on High Performance Computing

1. Barcelona Computing Week: “Programming and Tuning Massively Parallel Systems (PUMPS)”. Advanced Track. Barcelona, Spain, July 2010.
2. Sixth International Summer School on Advanced Computer Architecture and Compilation for High-Performance and Embedded Systems (ACACES). Terrassa, Spain, July 2010.
3. Fifth International Summer School on Advanced Computer Architecture and Compilation for High-Performance and Embedded Systems (ACACES). Terrassa, Spain, July 2009.

V.4.2 Higher Education Courses

1. Mobile Devices Programming. Postgraduate Studies and Continuous Education Center, Jaume I University. Castellón, Spain, Feb. – May 2006.
2. Voice over IP. Postgraduate Studies and Continuous Education Center, Jaume I University. Castellón, Spain, Apr. 2006.
3. Computer Vision and Applications. Postgraduate Studies and Continuous Education Center, Jaume I University. Castellón, Spain, Mar. 2005.