

Curriculum Vitae

Alfredo Remón Gómez, born on May 9 1977, in Valencia, SPAIN.

Address: Max Planck Institute for Dynamics of Complex Technical Systems
Sandtorstr. 1
39106 Magdeburg, Germany
Email: remon@mpi-magdeburg.mpg.de

Phone: +49 3916110382
Fax: +49 3916110500

PROFESSIONAL EXPERIENCE

- since 05.2013: **Ph.D. Researcher** in Computational Methods in Systems and Control Theory group, Max-Planck-Institute für Dynamik komplexer technischer Systeme, Magdeburg (Germany)
- 03.2009-04.2013: **Ph.D. Assistant Researcher** in the High Performance Computing and Architectures group, Universidad Jaime I de Castellón (Spain)
- 12.2008-03.2009: **Lecturer** in Dept. Ingeniería y Ciencia de Computadores, Universidad Jaime I de Castellón (Spain)
- 11.2008-12.2008: **Ph.D. Assistant Researcher** in the High Performance Computing and Architectures group, Universidad Jaime I de Castellón (Spain)
- 05.2005-10.2008: **Assistant Researcher** in the High Performance Computing and Architectures group, Universidad Jaime I de Castellón (Spain)
- 01.2005-04.2005: **Instructor** in Dept. Ingeniería y Ciencia de Computadores, Universidad Jaime I de Castellón (Spain)

EDUCATION

- 04.2005-10.2008: **Ph.D. in Computer Sciences**, Universidad Jaime I de Castellón.
Dissertation: “Solution of band linear systems on multi-thread architectures and applications in control”. Advisors: Enrique S. Quintana Ortí and Gregorio Quintana Ortí
- 09.1995-09.2001: **Degree in Computer Sciences**, Universidad Politécnica de Valencia

JCR INDEXED JOURNAL PUBLICATIONS

- **Towards the Parallelization of GSL**; *J. Aliaga, F. Almeida, J. M. Badía, S. Barrachina, V. Blanco, M. Castillo, R. Mayo, E. S. Quintana, G. Quintana, A. Remón, C. Rodríguez, F. Sande, A. Santos.* J. of Supercomputing, Vol. 48(1), pp. 88–114, 2009 (ISSN: 0920-8542)
(JCR IF: 0.615, 32 of 49 in CAT.: Computer Science, Hardware & Architecture)
- **A mixed-precision algorithm for the solution of Lyapunov equations on hybrid CPU-GPU platforms**; *P. Benner, P. Ezzatti, D. Kressner, E. S. Quintana, A. Remón.* Parallel Computing, Vol. 37(8), pp. 439-450, 2011 (ISSN: 0167-8191)
(JCR IF: 1.311, 20 of 99 in CAT.: Computer Science, Theory & Methods)
- **Using graphics processors to accelerate the computation of the matrix inverse**; *P. Ezzatti, E. S. Quintana, A. Remón.* J. of Supercomputing, Vol. 58(3), pp. 428–437, 2011 (ISSN: 0920-8542)
(JCR IF: 0.578, 37 of 50 in CAT.: Computer Science, Hardware & Architecture)
- **Real-time endmember extraction on multi-core processors**; *A. Remón, S. Sánchez, A. Paz, E. S. Quintana, A. Plaza.* IEEE Geoscience and Remote Sensing Letters, Vol. 8(5), pp. 924–928, 2011 (ISSN: 1545-598X)
(JCR IF: 1.560, 71 of 244 in CAT.: Engineering, electrical & electronic)
- **Matrix inversion on CPU-GPU platforms with applications in control theory**; *P. Benner, P. Ezzatti, A. Remón, E. S. Quintana.* Concurrency and Computation: Practice & Experience, Vol 25(8), pp. 1170–1182, 2013 (ISSN: 1532-0626)
(JCR IF: 0.784, 50 of 102 in CAT.: Computer Science, Theory & Methods)
- **Accelerating the Lyapack library using GPUs**; *E. Dufrechou, P. Ezzatti, E. S. Quintana, A. Remón.* J. of Supercomputing, Vol 65(3), pp. 1114–1124, 2013 (ISSN: 0920-8542)
(JCR IF: 0.841, 47 of 102 in CAT.: Computer Science, Theory & Methods)
- **Performance versus Energy Consumption of Hyperspectral Unmixing Algorithms on Multi-Core Platforms**; *A. Remón, S. Sáchez, S. Bernabé, E. S. Quintana, A. Plaza.* EURASIP Journal on Advances in Signal Processing, Vol 68, 2013 (online) (ISSN: 1687-6180)
(JCR IF: 0.808, 164 of 247 in CAT.: Engineering, Electrical & Electronic)
- **A Factored Variant of the Newton Iteration for the Solution of Algebraic Riccati Equations via the Matrix Sign Function**; *P. Benner, P. Ezzatti, E. S. Quintana, A. Remón.* Numerical Algorithms, Vol 66(2), pp. 363–377, 2014 (ISSN: 1017-1398)
(JCR IF: 1.005(2013), 77 of 250 in CAT.: Mathematics, Applied)
- **Hyperspectral unmixing on multicore DSPs: Trading off performance for energy**; *M. Castillo, J.C. Fernández, F.D. Igual, A. Plaza, E. S. Quintana, A. Remón.* IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing, Vol 7(6), pp. 2297–2304, 2013 (ISSN: 1939-1404)
(JCR IF: 2.827, 33 of 247 in CAT.: Engineering, electrical & electronic)
- **Extending Lyapack for the Solution of Band Lyapunov Equations on Hybrid CPU-GPU Platforms**; *P. Benner, E. Dufrechou, P. Ezzatti, E. S. Quintana, A. Remón.* J. of Supercomputing, Vol 71(2), pp. 740–750, 2015 (ISSN:

0920-8542)

(JCR IF: 0.858, 25 of 50 in CAT.: Computer Science, Hardware & Architecture)

- **Fast and Reliable Noise Estimation for Hyperspectral Subspace Identification;** *P. Benner, V. Novakovic, A. Plaza, E. S. Quintana, A. Remón.* IEEE Geoscience and Remote Sensing Letters, vol 12(6), pp. 1199–1203, 2015 (ISSN: 1545-598X)
(JCR IF: 2.095, 57 of 249 in CAT.: Engineering, Electrical & Electronic)
- **Unleashing GPU Acceleration for Symmetric Band Linear Algebra Kernels and Model Reduction;** *P. Benner, E. Dufrechou, P. Ezzatti, E. S. Quintana, A. Remón.* Cluster Computing (available online), 2015 (ISSN: 1386-7857)
(JCR IF: 1.510, 24 of 102 in CAT.: Computer Science, Theory & Methods)

JOURNAL PUBLICATIONS

- **Trading Off Performance for Energy in Linear Algebra Operations with Applications in Control Theory;** *P. Benner, P. Ezzatti, E. S. Quintana, A. Remón.* CLEI Electronic Journal, Vol. 17, 2014 (ISSN:0717-5000)
- **Solving Matrix Equations on Multi-core and Many-core Architectures;** *P. Benner, P. Ezzatti, H. Mena, E. S. Quintana, A. Remón.* Algorithms, Vol. 6, pp. 857–870, 2013 (ISSN:1999-4893)
- **HPC en simulación y control a gran escala;** *P. Benner, P. Ezzatti, H. Mena, E. S. Quintana, A. Remón.* Elementos, Vol. 3, pp. 1–35, 2013 (ISSN:2248-5252)
- **The impact of the multi-core revolution on signal processing;** *A. González, J. A. Belloch, F. J. Martínez, P. Alonso, V. M. García, E. S. Quintana, A. Remón, A. Vidal.* Waves, Vol 2, pp. 74–85, 2010 (ISSN:7889-8297)
- **Application of multi-core and GPU architectures on signal processing: case studies;** *A. González, J. A. Belloch, G. Piñero, J. Llorente, M. Ferrer, S. Roger, C. Roig, F. J. Martínez, M. de Diego, P. Alonso, V. M. García, E. S. Quintana, A. Remón, A. Vidal.* Waves, Vol 2, pp. 86–96, 2010 (ISSN:7889-8297)

PEER-REVIEWED INTERNATIONAL CONFERENCE PUBLICATIONS

- *Accelerating model reduction of large linear systems with graphics processors.* A. Remón, E. S. Quintana, G. Quintana. Lecture Notes in Computer Science 4699, State of the Art in Scientific and Parallel Computing – PARA 2006, pp. 608–616, 2007, 2006. Umeå (Sweden) (ISBN: 978-3-540-75754-2)
- *Solution of band linear systems in model reduction for VLSI circuits.* A. Remón, E. S. Quintana, G. Quintana. Mathematics in Industry, vol. 11, Scientific Computing in Electrical Engineering – SCEE 2006, pp. 387–393, 2007, 2006. Sinaia (Romania) (ISBN: 978-3-540-71979-3)
- *Parallel LU Factorization of Band Matrices on SMP Systems.* A. Remón, E. S. Quintana, G. Quintana. Lecture Notes in Computer Science 4208, High Performance Computing and Communications – HPCCC 2006, pp. 110–118, 2006, 2006. München (Germany) (ISBN: 3-540-39368-4)

- *Parallel implementation of LQG balanced truncation for large-scale systems.* J. M. Badía, P. Benner, R. Mayo, E. S. Quintana, G. Quintana, A. Remón. Lecture Notes in Computer Science 4818, 6th Int. Conference on Large-Scale Scientific Computations – LSSC’07, (Eds. I. Lirkov, S. Margenov, J. Waśniewski,) pp. 227-234, 2008. Sozopol (Bulgaria) (ISBN: 3-540-78825-5)
- *The implementation of BLAS for band matrices.* A. Remón, E. S. Quintana, G. Quintana. Lecture Notes in Computer Science 4967, 7th Int. Conf. on Parallel Processing and Applied Mathematics – PPAM 2007, (Eds. R. Wyrzykowski, J. Dongarra, K. Karczewski, J. Wasniewski,) pp. 668–677, 2007. Gdansk (Poland) (ISBN: 3-540-68105-1)
- *Parallel solution of band linear systems in model reduction.* A. Remón, E. S. Quintana, G. Quintana. Lecture Notes in Computer Science 4967, 7th Int. Conf. on Parallel Processing and Applied Mathematics – PPAM 2007, (Eds. R. Wyrzykowski, J. Dongarra, K. Karczewski, J. Wasniewski,) pp. 678–687, 2007. Gdansk (Poland) (ISBN: 3-540-68105-1)
- *An algorithm-by-blocks for SuperMatrix band Cholesky factorization.* G. Quintana, E. S. Quintana, A. Remón, R. A. van de Geijn. Lecture Notes in Computer Science 5336, 8th Int. Meeting on High Performance Computing for Computational Science – VECPAR 2008, (J. M. Laginha M. Palma, P. R. Amestoy, M. Daydé, M. Mattoso, J. Correia Lopes, Eds.) pp. 228-239, 2008. Toulouse (France) (ISBN: 3-540-92858-4)
- *Using hybrid CPU-GPU platforms to accelerate the computation of the matrix sign function.* P. Benner, P. Ezzatti, E. S. Quintana, A. Remón. Lecture Notes in Computer Science 6043, 7th Int. Workshop on Algorithms, Models and Tools for Parallel Computing on Heterogeneous Networks – HeteroPar’09, pp. 132–139, (Eds. H.X. Lin, M. Alexander, M. Forsell, A. Knüpfer, R. Prodan, L. Sousa, A. Streit), 2009. Delft (Holland) (ISBN: 3-642-14121-8)
- *Improving the performance of the matrix inversion on a Tesla GPU.* P. Ezzatti, E. S. Quintana, A. Remón. 39 Jornadas Argentinas de Informática e Investigación Operativa, pp. 3211-3219, 2010. Buenos Aires (Argentina) (ISBN: 1851-9326)
- *High performance matrix inversion on a multi-core platform with several GPUs.* P. Ezzatti, E. S. Quintana, A. Remón. 19th Euromicro Conference on Parallel, Distributed and Network based Processing – PDP 2011, pp. 87–93, 2011. Ayia Napa (Ciprus) (ISBN: 1066-6192)
- *High performance matrix inversion of SPD matrices on graphics processors.* P. Benner, P. Ezzatti, E. S. Quintana, A. Remón. Workshop on Exploitation of Hardware Accelerators – WEHA 2011, pp. 640–646, 2011. Estambul (Turkey) (ISBN: 978-1-61284-382-7)
- *Solving differential Riccati equations on multi-GPU platforms.* P. Benner, P. Ezzatti, H. Mena, E. S. Quintana, A. Remón. 10th International Conference on Computational and Mathematical Methods in Science and Engineering – CMMSE’11, pp. 178–188, 2011. Benidorm (Spain) (ISBN: 978-84-614-6167-7)
- *Efficient model order reduction of large-scale systems on multi-core processors.* P. Ezzatti, E. S. Quintana, A. Remón. Lecture Notes in Computer Science 6786, 11th Int. Conf. on Computational Science and Its Applications – ICCSA 2011, pp. 643–653, (Eds. B. Murgante, O. Gervasi, A. Iglesias, D. Taniar, B. O. Apduhan), 2011. Santander (Spain) (ISBN: 978-3-642-21933-7)

- *Solving algebraic Riccati equations on hybrid CPU-GPU platforms.* P. Ezzatti, E. S. Quintana, A. Remón. 40 Jornadas Argentinas de Informática e Investigación Operativa - High Performance Computing Symposium, pp. 41-47, 2011. Córdoba (Argentina) (ISBN: 1851-9326)
- *Accelerating model reduction of large linear systems with graphics processors.* P. Benner, P. Ezzatti, D. Kressner, E. S. Quintana, A. Remón. Lecture Notes in Computer Science 7134, State of the Art in Scientific and Parallel Computing – PARA 2010, pp. 88–97, 2012, 2010. Reykjavik (Iceland) (ISBN: 978-3-642-28144-0)
- *Accelerating BST methods for model reduction with graphics processors.* P. Benner, P. Ezzatti, E. S. Quintana, A. Remón. Lecture Notes in Computer Science 7203, 9th Int. Conf. on Parallel Processing and Applied Mathematics – PPAM 2011, pp. 549–558, 2012. Torun (Poland) (ISBN: 978-3-642-31464-3)
- *High performance implementations of the BST method on hybrid CPU-GPU platforms.* P. Benner, P. Ezzatti, E. S. Quintana, A. Remón. ISPA 2012 Int. Workshop on Heterogeneous Architectures and Computing – HAC 2012, pp. 662–668, 2012. Leganés (Spain) (ISBN: 978-0-7695-4701-5)
- *Towards a many-core Lyapack library.* E. Dufrechou, P. Ezzatti, E. S. Quintana, A. Remón. 11th International Conference on Computational and Mathematical Methods in Science and Engineering – CMMSE’12, Vol. 2, pp. 510–514, 2012. La Manga del Mar Menor (Spain) (ISBN: 978-84-615-5392-1)
- *Unleashing CPU-GPU acceleration for control theory applications.* P. Benner, P. Ezzatti, E. S. Quintana, A. Remón. Lecture Notes in Computer Science 7640, Int. Workshop on Algorithms, Models and Tools for Parallel Computing on Heterogeneous Platforms – HeteroPar’12, pp. 102–111, 2012. Rodas (Greece) (ISBN: 0302-9743)
- *Trading off performance for power-energy in dense linear algebra operations.* P. Benner, P. Ezzatti, E. S. Quintana, A. Remón. VI Latin American Symposium on High Performance Computing (HPCLatAm 2013) pp. 158–166, 2013. Mendoza (Argentina) (ISBN: -)
- *Exploiting data- and task-parallelism in the solution of Riccati equations on multicore servers and GPUs.* P. Benner, P. Ezzatti, E. S. Quintana, A. Remón. International Conference on Parallel Computing - ParCo 2013 pp. 367–374, 2013. München (Germany) (ISBN: 978-1-61499-380-3)
- *On the impact of optimization in the time-power-energy balance of dense linear algebra factorizations.* P. Benner, P. Ezzatti, E. S. Quintana, A. Remón. The 2013 International Symposium on Advances of Distributed and Parallel Computing – ADPC 2013, pp. 3–10, 2013. Sorrento (Italy) (ISBN: 978-3-319-03888-9)
- *Accelerating Band Linear Algebra Operations on GPUs with Application in Model Reduction.* P. Benner, E. Dufrechou, P. Ezzatti, P. Igounet, E. S. Quintana, A. Remón. Lecture Notes in Computer Science 8584, The 14th International Conference on Computational Science and Its Applications (ICCSA 2014) pp. 386–400, 2014. Guimaraes (Portugal) (ISBN: 978-3-319-09152-5)
- *Improving the Solution of Band Linear Systems on Hybrid CPU+GPU Platforms.* E. Dufrechou, P. Ezzatti, E. S. Quintana, A. Remón. The 14th International Conference on Computational and Mathematical Methods in Science

and Engineering (CMMSE 2014), pp. 485–491, 2014. Cádiz (Spain) (ISBN: 978-84-616-9216-3)

- *Accelerating the General Band Matrix Multiplication Using Graphics Processors*. P. Benner, E. Dufrechou, P. Ezzatti, E. S. Quintana, A. Remón. XI Conferencia Latinoamericana en Informática (CLEI 2014), pp. , 2014. Montevideo (Uruguay) (ISBN:)
- *Efficient Symmetric Band Matrix-Matrix Multiplication on GPUs*. E. Dufrechou, P. Ezzatti, E. S. Quintana, A. Remón. Communications in Computer and Information Science 485, VII Latin American Symposium on High Performance Computing (HPCLatAm 2014) pp. 1–12, 2014. Valparaíso (Chile) (ISBN: 978-3-662-45482-4)
- *Revisiting the Gauss-Huard Algorithm for the Solution of Linear Systems on Graphics Accelerators*. P. Benner, P. Ezzatti, E. S. Quintana, A. Remón. Accepted for publication in Lecture Notes in Computer Science, 2015. Krakow (Poland) (ISBN:)
- *A Parallel Multi-Threaded Solver for Symmetric Positive Double Bordered-Band Linear Systems*. P. Benner, P. Ezzatti, E. S. Quintana, A. Remón. Accepted for publication in Lecture Notes in Computer Science, 2015. Krakow (Poland) (ISBN:)
- *Solving Linear Systems on the Intel Xeon Phi Accelerator via the Gauss-Huard Algorithm*. E. Dufrechou, P. Ezzatti, E. S. Quintana, A. Remón. Accepted for publication in Communications in Computer and Information Science, 2015. Petropolis (Brazil) (ISBN:)

PEER-REVIEWED SPANISH CONFERENCE PUBLICATIONS

- *Dynamic scheduling of operations in the parallel factorization of band matrices*. G. Quintana, E. S. Quintana, A. Remón. XIX Jornadas de Paralelismo, pp. 80-85, 2008. Castellón (España) (ISBN: 978-84-8021-676-0)
- *Using hybrid CPU-GPU platforms to accelerate the computation of the matrix sign function*. A. Remón, E. S. Quintana. XX Jornadas de Paralelismo, pp. 323-336, 2009. A Coruña (España) (ISBN: 84-9749-346-8)
- *Evaluación de bibliotecas de altas prestaciones para el cálculo de la FFT en procesadores multinúcleo y GPUs*. P. Alonso, J. A. Belloch, A. González, E. S. Quintana, A. Remón, A. M. Vidal. II Workshop Aplicaciones de Nuevas Arquitecturas de Consumo y Altas Prestaciones – ANACAP 2009 (CD-ROM), 2009. Móstoles (España) (ISBN: 978-84-692-7320-3)
- *Numerical solution of differential Riccati equations on hybrid CPU-GPU platforms*. P. Benner, P. Ezzatti, H. Mena, E. S. Quintana, A. Remón. 2nd Meeting on Linear Algebra, Matrix Analysis and Applications – ALAMA'10, CD-ROM, 2010. Valencia (España) (ISBN: 978-84-8363-544-5)
- *Inversión de matrices en arquitecturas CPU-GPU*. P. Ezzatti, E. S. Quintana, A. Remón. XXI Jornadas de Paralelismo, pp. 503-510, 2010. Valencia (España) (ISBN: 978-84-92812-49-3)
- *Optimización del Método BST para la Reducción de Modelos en Arquitecturas Multinúcleo*. P. Ezzatti, E. S. Quintana, A. Remón. XXII Jornadas de Paralelismo, pp. 27-32, 2011. La Laguna (España) (ISBN: 978-84-694-1791-1)

- *Resolución de ecuaciones de Lyapunov dispersas en GPU*. E. Dufrechou, P. Ezzatti, E. S. Quintana, A. Remón. XXIII Jornadas de Paralelismo, pp. 237–242, 2012. Elche (España) (ISBN: 978-84-695-4471-6)

ADVISOR OF PHD THESIS

- *Aceleración de métodos para la resolución de problemas de reducción de modelos mediante procesadores gráficos*
 Author: P. Ezzatti
 Advisors: E. S. Quintana and A. Remón
 Institution: Universidad de la República – Uruguay (2011)

ADVISOR OF MASTER THESIS

- *Aceleración de la Resolución de Sistemas Lineales de Banda con Procesadores Gráficos*
 Author: P. Igounet
 Advisors: P. Ezzatti and A. Remón
 Institution: Universidad de la República – Uruguay (2014)

GRANTS

- *Assistant scholar*. Dep. of System Engineering and Automatic, Univ. Politécnica de Valencia. Period 05.2001-10.2001
- *Assistant scholar*. Dep. of System Engineering and Automatic, Univ. Politécnica de Valencia. Period 01.2002-07.2002
- *Assistant scholar*. Dep. of System Engineering and Automatic, Univ. Politécnica de Valencia. Period 10.2002-03.2004
- *Assistant scholar*. Dep. of System Engineering and Automatic, Univ. Politécnica de Valencia. Period 05.2004-12.2004
- *Travel funding*. European Commission. Visited center: Edinburgh Parallel Computing Center. Period 06.2007-08.2007
- *Travel funding*. Univ. Jaume I of Castellón. Visited center: Chemnitz of Technology. Period 10.2007-12.2007
- *Travel funding*. Univ. Jaume I of Castellón. Visited center: Max Planck Institute Magdeburg. Period 10.2010-12.2010
- *Travel funding*. Max Planck Institute Magdeburg. Visited center: Max Planck Institute Magdeburg. Period 03.2012-05.2012
- *Travel funding*. EHFARS project funded by German Ministry of Education and Research BMBF. Visited center: Universidad de la República in Montevideo. Period 03.2015-04.2015

ORGANIZER

- *XIX Jornadas de Paralelismo*. 2009, Castellón

- *I WORKSHOP en computación de altas prestaciones - CAPAPH*. 2010, Alicante
- *II WORKSHOP en computación de altas prestaciones - CAPAPH*. 2011, Gijón
- *YOUNG RESEARCHERS MINISYMPOSIA: Parallel computing in numerical linear algebra* within *International Linear Algebra Society Conference (ILAS) 2011*, Braunschweig
- *MINISYMPOSIA: Moving from multicore to manycore in applied linear algebra* within *SIAM Conference on Applied Linear Algebra 2012*, Valencia
- *I WORKSHOP on Power Aware COmputing - PACO*. 2015, Magdeburg