

Paolo Bientinesi

Curriculum Vitae

Born on the 27th of October, 1973, in Livorno, ITALY. Italian citizen. Married.

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RESEARCH INTERESTS

High-performance & parallel computing, numerical linear algebra, computer automation, mathematical software, computer music, computational science and engineering.

PROFESSIONAL EXPERIENCE

- Since 2019 **Full Professor** in High-Performance Computing
Department of Computing Science, Umeå Universitet
- 2016 – 2019 **Deputy Scientific Director**
2011 – 2012 Aachen Institute for Advanced Study in Computational Engineering Science (AICES)
- 2015 – 2019 **Head**
Intel Parallel Computing Center, RWTH Aachen University
- 2014 – 2019 **W2 Professor**
Department of Computer Science, RWTH Aachen University
- 2008 – 2014 **W1 Professor** in Algorithm-Oriented Code Generation for High-Performance Architectures
Department of Computer Science, RWTH Aachen University
- 2008 – 2019 **Research Group Leader:** High-Performance and Automatic Computing
AICES, RWTH Aachen University
- 2006 – 2008 **Research Associate**
Department of Computer Science, Duke University
- 1998 – 1999 **Naval Officer**
Italian Navy. Ensign, head of class

EDUCATION

- 2000 – 2006 **Ph.D. in Computer Science**, The University of Texas at Austin
DISSERTATION *“Mechanical Derivation and Systematic Analysis of Correct Linear Algebra Algorithms”*
ADVISOR Prof. Robert van de Geijn
- 1992 – 1998 **Laurea Degree in Computer Science**, *Summa Cum Laude*, University of Pisa
THESIS *“Computational Geometry Techniques for Approximating Electrostatic Forces”*
SUPERVISOR Dr. Marco Pellegrini, Italian National Research Council

HONORS

- Recipient of the J. Tinsley Oden Faculty Research Fellowship for research collaboration with the Institute for Computational Engineering and Sciences at The University of Texas at Austin. 2009, 2015, 2017, 2018.
- Reproducibility Initiative Winner: “*The vectorization of the Tersoff multi-body potential: An exercise in performance portability*”, SC’17, Denver, 2017. **Artifacts Available; Results Replicated**
- Recipient of the Karl Arnold Prize from the North Rhine-Westphalian Academy of Sciences and Humanities, 2009.
- Ph.D. dissertation: Finalist for the Householder Award for the best dissertation in numerical linear algebra of the years 2006–2008. Householder XVII Symposium on Numerical Linear Algebra.
- Pegori-Giraldi Fellowship, Italian Naval Academy. May 1999.
- Distinctions for *Summa Cum Laude* laurea thesis, University of Pisa, April 1998.

SERVICE

- EUROPEAN COMMISSION – Expert evaluator: 2013, 2014, 2015, 2018, 2019.
H2020 - Information and Communication Technologies
FP7 - Information and Communication Technologies
- AICES STEERING COMMITTEE
Deputy Scientific Director: 2011, 2012, 2016, 2017, 2018, 2019.
Member: 11.2009 – 01.2013, 11.2015 – 12.2018.
- EXAMINATION BOARDS Master’s program on Simulation Sciences (SiSc), RWTH Aachen University
Study program on Computational Engineering Science, RWTH Aachen University

ORGANIZER

- Workshop “From Linear Algebra to High-Performance Code”.
PASC 2017, Lugano, June 2017.
- Minisymposium on “Tensor Contractions: Algorithms, Libraries, and Applications”.
SIAM CSE 2017, Atlanta, February 2017.
- “AC.CES” conference series on Computational Engineering Science.
Aachen, July 2011, September 2013, July 2015, July 2017.
- Euro-Par 2015, Vienna, August 2015. Global chair for “Numerical methods and applications”.
- The International Workshop on Algorithms, Models and Tools for Parallel Computing on Heterogeneous Platforms (HeteroPar 2013). Aachen, August 2013. Program chair.
- Workshops on “Writing from the Reader’s Perspective” with Prof. G. Gopen (Duke University).
AICES, July 2009, June 2011, December 2013.
- Minisymposium on “High-Performance Linear Algebra on GPUs”.
GAMM Annual Meeting 2012, Darmstadt.
- Regional school “PETSc tutorial”, with Dr. V. Eijkhout. AICES, April 2012.
- Regional schools on “The Eigenproblem on Shared Memory Architectures”, and “GPU Programming”. AICES, 2011.

- Regional schools on “Python for Scientific Computing”, “Development Practices in Extreme Programming”, “Efficient Solution of Linear Systems Arising in Finite Discretization Methods”, and “Matrix Factorization and Approximation Problems”. AICES, 2010.
- Symposium on “High-Performance Computing and Numerical Linear Algebra”, as part of the International Conference of Numerical Analysis and Applied Mathematics, Crete, September 2009.

PROGRAM COMMITTEES

- ARRAY 2019: 6th ACM SIGPLAN International Workshop on Libraries, Languages and Compilers for Array Programming. Phoenix, USA.
- PPAM: International Conference on Parallel Processing and Applied Mathematics. Poland, 2019, 2017, 2015, 2013.
- ICPP 2019: International Conference on Parallel Processing. Kyoto, Japan.
- SBAC-PAD 2018: International Symposium on Computer Architecture and High-Performance Computing. Lyon, France.
- PMAA: International Workshop on Parallel Matrix Algorithms and Applications. 2018, 2016, 2014.
- GPUComp, Workshop on “GPU Computing”, in conjunction with PPAM. 2017, 2015, 2013, 2011.
- ARRAY 2017, 4th ACM SIGPLAN International Workshop on Libraries, Languages and Compilers for Array Programming, Barcelona, Spain, June 2017.
- Big Data & Deep Learning in HPC, within VECPAR 2016, Porto, Portugal, June 2016.
- Joint IXPUG-EMEA Conference, Ostrava, Czech Republic, March 2016.
- PDCKDD 2015, Parallel and Distributed Computing for Knowledge Discovery in Data Bases, Porto, Portugal, September 2015.
- 1st European Workshop on Parallel and Distributed Computing Education for Undergraduate Students (Euro-EDUPAR), in conjunction with Euro-Par 2015, Vienna, Austria, August 2015.
- HeteroPar 2014, the International Workshop on Algorithms, Models and Tools for Parallel Computing on Heterogeneous Platforms, Porto, Portugal, August 2014.
- CSE: IEEE International Conference on Computational Science and Engineering. 2013, 2012.
- WorldCIST’13, Lisbon, Portugal, March 2013.

EDITORIAL & REVIEW ACTIVITIES

- Editorial Boards
 - Editor for the areas Numerical Analysis (math.NA, cs.NA), Mathematical Software (cs.MS), and Computational Science, Engineering and Finance (cs.CE) of [arXiv.org](https://arxiv.org).
 - Concurrency and Computation: Practice and Experience (special issue on GPU Computing); editors: Paolo Bientinesi, Jose R. Herrero, Enrique S. Quintana-Ortí, and Robert Strzodka.
 - Scientific Programming (special issue on High Performance Computing on Cell B.E. Processors).
- Journal Reviewer
 - ACM Computing Surveys, ACM Journal on Experimental Algorithmics, ACM Transactions on Mathematical Software, ACM Transactions on Parallel Computing, Advances in Engineering Software Journal, BIT, Computers & Electrical Engineering, Computing, Concurrency and Computation: Practice and Experience, Future Generation Computer Systems, IEEE Transactions on Parallel and Distributed Systems, International Journal of Computational Science and Engineering,

International Journal of High Performance Computing Applications, Journal of Computational and Applied Mathematics, Journal of Computational Science, Journal of Parallel and Distributed Computing, Journal of Supercomputing, Journal of Systems and Software, Numerical Algorithms, Parallel Computing, Proceedings of the IEEE, SIAM Journal on Matrix Analysis and Applications, SIAM Journal on Scientific Computing, Software: Practice and Experience.

DOCTORAL ADVISING

- Aravind Sankaran *Data-based Performance Prediction*
- Christos Psarras *Model-based Generation of Linear Algebra Algorithms*
- Mickael Zehren *Automatic Seamless Mixing of Computer Generated Playlists*
- Markus Höhnerbach *Multibody and Long-range Solvers on Accelerators*
- Henrik Barthels *Linnea: A Compiler for Linear Algebra*

ALUMNI

- Paul Springer (magna cum laude, 2018) NVIDIA
- Elmar Peise (magna cum laude, 2017) Google Inc.
- Daniel Tameling (magna cum laude, 2017) NEC Deutschland
- Diego Fabregat (magna cum laude, 2013) Utimaco
- Matthias Petschow (summa cum laude, 2013) Astron Research Center
- Roman Iakymchuk (magna cum laude, 2012) KTH Stockholm

SOFTWARE

HPAC's page on GitHub: github.com/HPAC

SELECTED TALKS & INVITED LECTURES¹

- *Automation in Matrix Computations*, [invited speaker], IFIP Working Group 2.5, July 2019, Valencia, Spain.
- *Programming Languages for Matrix Computations*, [invited speaker], Numerical Analysis and Scientific Computing seminar, May 2019, The University of Manchester, England.
- *Tensor Computations: Efficiency Or Productivity?*, [invited speaker]. SIAM Conference on Computational Science and Engineering, February 2019, Spokane, WS.
- *Development of a Fully Automated Dj-mixing Algorithm for Electronic Dance Music*, with M. Zehren, December 2018, Umeå, Sweden.
- *High-Performance & Automatic Computing – Fast & portable code for complex molecular dynamics simulations*, with M. Höhnerbach, [invited speaker]. Babuska forum, Oden Institute for Computational Engineering and Sciences, November 2018, Austin, TX.
- *A Set of Building Blocks for Tensor Operations: Transposition, Contraction and Summation*, [invited speaker]. SIAM Conference on Parallel Processing for Scientific Computing, March 2018, Tokyo, Japan.
- *Teaching Computers Linear Algebra*, [distinguished speakers series]. Friedrich-Schiller-Universität Jena, January 2018, Jena, Germany.

¹The complete list is available at <http://hpac.rwth-aachen.de/talks/author/Bientinesi>

- *A Journey from Scalar to Tensor Computations*, [**invited talk**].
Tensor Computation Workshop, September 2017, Flatiron Institute, New York City.
- *Compiling Linear Algebra Expressions to High-Performance Code*, [**invited talk**]. 8th International Workshop on Parallel Symbolic Computation, July 2017, Kaiserslautern, Germany.
- *LAMP: the Linear Algebra Mapping Problem*.
Platform of Advanced Scientific Computing Conference, June 2017, Lugano, Switzerland.
- *The Linear Algebra Mapping Problem (LAMP)*.
Householder Symposium XX on Numerical Linear Algebra, June 2017, Blacksburg, VA.
- *When $1+1 > 2$: The Power of Interdisciplinary Research*, [**invited speaker**]. Opening Workshop of the SimLab Quantum Materials, Forschungszentrum Jülich, March 2017, Jülich, Germany.
- *Vectorization of Multi-Level Potentials: Performance AND Portability*, [**invited speaker**].
SIAM Conference on Computational Science and Engineering, February 2017, Atlanta, GA.
- *A Scalable, Linear-Time Dynamic Cutoff Algorithm for Molecular Dynamics*.
International Supercomputing Conference (ISC), July 2015, Frankfurt, Germany.
- *Can Numerical Linear Algebra make it in Nature?*
Householder Symposium XIX on Numerical Linear Algebra, June 2014, Spa, Belgium.
- *Performance Prediction for Tensor Contractions*.
Platform of Advanced Scientific Computing Conference, June 2014, Zürich, Switzerland.
- *Recent Trends in Dense Linear Algebra*, [**invited lecturer**].
ComplexHPC Spring School 2013, June 2013, Uppsala University, Uppsala, Sweden.
- *Genome-Wide Association Studies: Computing Petaflops over Terabytes of Data*, [**invited speaker**].
Blue Gene Active Storage Workshop, January 2013, Jülich Supercomputing Center.
- *A Compiler for Linear Algebra Operations*, [**invited speaker**].
CScADS Autotuning Workshop 2012, August 2012, Snowbird, UT.
- *Automatic Modeling and Ranking of Algorithms*, [**invited speaker**]. 7th International Workshop on Automatic Performance Tuning, July 2012, Kobe, Japan.
- *Fast and Scalable Eigensolvers for Multicore and Hybrid Architectures*, [**plenary speaker**].
Speedup 2012, February 2012, Basel, Switzerland.
- *Automation in Computational Biology*, [**keynote speaker**]. 9th International Conference on Parallel Processing and Applied Mathematics, September 2011, Torun, Poland.
- *Solvers and Eigensolvers for Multicore Processors*, [**invited speaker**].
Max-Planck-Institute für biologische Kybernetik, March 2011, Tübingen, Germany.
- *Goal-oriented and Modular Stability Analysis*, [**invited speaker**]. Conference on Numerical Linear Algebra: Perturbation, Performance and Portability, July 2010, Austin, TX.
- *Automatic Computing*, [**Karl Arnold Prize acceptance speech**]. North Rhine-Westphalian Academy of Sciences and Humanities, April 2009, Düsseldorf, Germany.
- *Numerical Methods for Large Linear Systems*, [**invited speaker**].
3rd LHC Detector Alignment Workshop, June 2009, CERN, Geneva, Switzerland.

Publication List

JOURNAL PUBLICATIONS²

1. *Optimizing AIREBO: Navigating the Journey from Complex Legacy Code to High Performance*, Höhnerbach and P. Bientinesi. *Journal of Computational Chemistry*, 2019. Accepted.
2. *Assessment Of Sound Spatialisation Algorithms For Sonic Rendering With Headsets*, A. Tarzan, M. Alunno and P. Bientinesi. *Journal of New Music Research*, Volume 48(2), 107–124, 2019.
3. *Spin Summations: A High-Performance Perspective*, P. Springer, D. Matthews and P. Bientinesi. *ACM Transactions on Mathematical Software*, 2018. Accepted.
4. *Accelerating Scientific Codes by Performance and Accuracy Modeling*, D. Fabregat-Traver, A. E. Ismail and P. Bientinesi. *Journal of Computational Science*, Volume 27, Pages 77–90, July 2018.
5. *Design of a High-Performance GEMM-like Tensor-Tensor Multiplication*, P. Springer and P. Bientinesi. *ACM Transactions on Mathematical Software*, Vol. 44(3), 28:1–28:29, January 2018.
6. *The ELAPS Framework: Experimental Linear Algebra Performance Studies*, E. Peise and P. Bientinesi. *International Journal of High Performance Computing*, 1-13, March 2018.
7. *TTC: A High-Performance Compiler for Tensor Transpositions*, P. Springer, J. Hammond and P. Bientinesi. *ACM Transactions on Mathematical Software*, Vol. 44(2), 15:1–15:21, August 2017.
8. *Recursive Algorithms for Dense Linear Algebra: The ReLAPACK Collection*, E. Peise and P. Bientinesi. *ACM Transactions on Mathematical Software*, Vol. 44(2), 16:1–16:19, August 2017.
9. *High-Performance Generation of the Hamiltonian and Overlap Matrices in FLAPW Methods*, E. Di Napoli, E. Peise, M. Hrywniak and P. Bientinesi. *Computer Physics Communications*, Vol. 211, 61–72, February 2017.
10. *Large-Scale Linear Regression: Development of High-Performance Routines*, A. Frank, D. Fabregat-Traver and P. Bientinesi. *Applied Mathematics and Computation*, Vol. 275, 411–421, February 2016.
11. *High-Performance Solutions for Big-Data GWAS*, E. Peise, D. Fabregat-Traver and P. Bientinesi. *Parallel Computing*, Vol. 42, 75–87, February 2015.
12. *Big-Data, High-Performance, Mixed Models Based Genome-Wide Association Analysis*, D. Fabregat-Traver, S. Sharapov, C. Hayward, I. Rudan, H. Campbell, Y. Aulchenko and P. Bientinesi. *F1000Research*, Vol. 3(200), August 2014.

²Preprints are available at <http://hpac.rwth-aachen.de/publications/author/Bientinesi>

13. *Computing Petaflops over Terabytes of Data: The Case of Genome-Wide Association Studies*,
D. Fabregat-Traver and P. Bientinesi.
ACM Transactions on Mathematical Software, Vol. 40(4), 27:1–27:22, June 2014.
14. *Towards an Efficient Use of the BLAS Library for Multilinear Tensor Contractions*,
E. Di Napoli, D. Fabregat-Traver, G. Quintana-Orti and P. Bientinesi.
Applied Mathematics and Computation, Vol. 235, 454–468, May 2014.
15. *Solving Sequences of Generalized Least-Squares Problems on Multi-threaded Architectures*,
D. Fabregat-Traver, Y. Aulchenko and P. Bientinesi.
Applied Mathematics and Computation, Vol. 234, 606–617, May 2014.
16. *Improved Accuracy and Parallelism for MRRR-based Eigensolvers*,
M. Petschow and P. Bientinesi.
SIAM Journal on Scientific Computing, Vol. 36(2), 240–263, April 2014.
17. *Multilevel Summation for Dispersion: A Linear-Time Algorithm for $1/r^6$ Potentials*,
D. Tameling, P. Springer, P. Bientinesi and A. Ismail.
Journal of Chemical Physics, Vol. 140, 024105, January 2014.
18. *Application-tailored Linear Algebra Algorithms: A Search-Based Approach*,
D. Fabregat-Traver and P. Bientinesi. International Journal of High Performance Computing
Applications, Vol. 27(4), 425–438, November 2013.
19. *High-Performance Solvers for Dense Hermitian Eigenproblems*,
M. Petschow, E. Peise and P. Bientinesi.
SIAM Journal on Scientific Computing, Vol. 35(1), 1–22, 2013.
20. *Dissecting the FEAST Algorithm for Generalized Eigenproblems*,
L. Krämer, E. Di Napoli, M. Galgon, B. Lang and P. Bientinesi.
Journal of Computational and Applied Mathematics, Vol. 244, 1–9, May 2013.
21. *Correlation in Sequences of Eigenproblems Arising in Density Functional Theory*,
E. Di Napoli, S. Blügel and P. Bientinesi.
Computer Physics Communications (CPC), Vol. 183(8), 1674–1682, August 2012.
22. *Solving Dense Generalized Eigenproblems on Multi-Threaded Architectures*,
J. Aliaga, P. Bientinesi, D. Davidovic, E. Di Napoli, F. Igual and E. Quintana-Ortí.
Journal of Applied Mathematics and Computation, Vol. 218(22), 11279–11289, July 2012.
23. *Modeling Performance through Memory-Stalls*,
R. Iakymchuk and P. Bientinesi.
ACM SIGMETRIC Performance Evaluation Review, 40(2), 86–91, 2012.
24. *Deriving Dense Linear Algebra Libraries*,
P. Bientinesi, J. Gunnels, M. Myers, E. Quintana-Ortí, T. Rhodes, R. van de Geijn and F. Van
Zee. Formal Aspects of Computing, 1–13, January 2012.
25. *MR3-SMP: A Symmetric Tridiagonal Eigensolver for Multi-Core Architectures*,
M. Petschow and P. Bientinesi.
Parallel Computing, Vol. 37, Issue 12, December 2011.
26. *Goal-Oriented and Modular Stability Analysis*,
P. Bientinesi and R. van de Geijn.
SIAM Journal on Matrix Analysis and Applications, 32(1), 286–308, March 2011.
27. *Condensed Forms for the Symmetric Eigenvalue Problem on Multi-threaded Architectures*,
P. Bientinesi, F. Igual, D. Kressner, M. Petschow and E. Quintana-Ortí.
Concurrency and Computation: Practice and Experience, Vol. 23, Issue 7, May 2011.

28. *Sparse Direct Factorizations through Unassembled Hyper-Matrices*, P. Bientinesi, V. Eijkhout, K. Kim, J. Kurtz and R. van de Geijn. Computer Methods in Applied Mechanics and Engineering, Vol. 199(9–12), 430–438, January 2010.
29. *Families of Algorithms Related to the Inversion of a Symmetric Positive Definite Matrix*, P. Bientinesi, B. Gunter and R. van de Geijn. ACM Transactions on Mathematical Software, 35(1), July 2008.
30. *Scalable Parallelization of FLAME Code via the Workqueuing Model*, P. Bientinesi, T. Meng Low, R. van de Geijn and F. Van Zee. ACM Transactions on Mathematical Software, 34(2), March 2008.
31. *A Parallel Eigensolver for Dense Symmetric Matrices Based on Multiple Relatively Robust Representations*, P. Bientinesi, I. Dhillon and R. van de Geijn. SIAM Journal on Scientific Computing, 27(1), 43–66, 2005.
32. *Representing Linear Algebra Algorithms in Code: The FLAME APIs*, P. Bientinesi, E. Quintana-Ortí and R. van de Geijn. ACM Transactions on Mathematical Software, 31(1), 27–59, March 2005.
33. *The Science of Deriving Dense Linear Algebra Algorithms*, P. Bientinesi, J. Gunnels, M. Myers, E. Quintana-Ortí and R. van de Geijn. ACM Transactions on Mathematical Software, 31(1), 1–26, March 2005.
34. *On Numerical Approximation of Electrostatic Energy in 3D*, D. Finocchiaro, M. Pellegrini and P. Bientinesi. Journal of Computational Physics 146/2, 707–725, 1998.

BOOKS & BOOK CHAPTERS

- *Euro-Par 2013: Parallel Processing Workshops*. (editor) Lecture Notes in Computer Science, Vol. 8374, Springer, 2014.
- *HPC on Competitive Cloud Resources*, P. Bientinesi, R. Iakymchuk, J. Napper. Handbook of Cloud Computing. Springer, 2010.

NEWS

- *Molecular Dynamics Research Enhanced by More Scalable LAMMPS HPC Code*, L. Barney. ScientificComputing.com, April 2016. <http://www.scientificcomputing.com/articles/2016/04/molecular-dynamics-research-enhanced-more-scalable-lammps-hpc-code>
- *HPC Sharing in the Cloud*, J. Napper, R. Iakymchuk and P. Bientinesi.
 - Feature Article, HPC In the Cloud, August 12, 2010. HPCintheCloud.com
 - Crowded Clouds, HPCwire, August 12, 2010. HPCWire.com

PEER-REVIEWED CONFERENCE PUBLICATIONS

1. *Automatic Generation of Efficient Linear Algebra Programs*, Platform of Advanced Scientific Computing Conference, June 2020, Switzerland. (accepted)
2. *A Timer-Augmented Cost Function for Load Balanced DSMC*, W. McDoniel and P. Bientinesi. Proceedings of the International Meeting on High-Performance Computing for Computational Science (VECPAR), LNCS, Vol. 11333, Springer, 2019.
3. *Extended Pipeline for Content-Based Feature Engineering in Music Genre Recognition*, T. Raissi, A. Tibo and P. Bientinesi. Proceeding of 2018 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), 2661–2665, April 2018. Also in: 13th Women in Machine Learning Workshop (WiML 2018), December 2018.

4. *The Generalized Matrix Chain Algorithm*, H. Barthels, M. Copik and P. Bientinesi. Proceedings of the International Symposium on Code Generation and Optimization, February 2018.
5. *Program Generation for Small-Scale Linear Algebra Applications*, D. Spampinato, D. Fabregat-Traver, M. Püschel and P. Bientinesi. Proceedings of the International Symposium on Code Generation and Optimization, February 2018.
6. *Efficient Pattern Matching in Python*, M. Krebber, H. Barthels and P. Bientinesi. Proceedings of the 7th Workshop on Python for High-Performance and Scientific Computing (PyHPC 2017), November 2017.
7. *MatchPy: A Pattern Matching Library*, M. Krebber, H. Barthels and P. Bientinesi. Proceedings of the 15th Python in Science Conference (SciPy 2017), July 2017.
8. *Linnea: Compiling Linear Algebra Expressions to High-Performance Code*, H. Barthels and P. Bientinesi. Proceedings of the 8th International Workshop on Parallel Symbolic Computation, July 2017.
9. *HPTT: A High-Performance Tensor Transposition C++ Library*, P. Springer, T. Su and P. Bientinesi. Proceedings of the 4th ACM SIGPLAN International Workshop on Libraries, Languages and Compilers for Programming ARRAY, 2017.
10. *LAMMPS' PPPM Long-Range Solver for the Second Generation Xeon Phi*, W. McDoniel, M. Höhnerbach, R. Canales, A. E. Ismail and P. Bientinesi. High Performance Computing: 32nd International Conference, ISC High Performance 2017, Vol. 10266, 61–78, June 2017.
11. *The Vectorization of the Tersoff Multi-Body Potential: An Exercise in Performance Portability*, M. Höhnerbach, A. Ismail and P. Bientinesi. Proceedings of the International Conference for High Performance Computing, Networking, Storage and Analysis (SC'16), Article Nr.7, IEEE Press, 7:1–7:13, 2016.
12. *TTC: A Tensor Transposition Compiler for Multiple Architectures*, P. Springer, A. Sankaran and P. Bientinesi. Proceedings of the 3rd ACM SIGPLAN International Workshop on Libraries, Languages and Compilers for Programming ARRAY@PLDI 2016, 41–46, 2016.
13. *The Tersoff Many-Body Potential: Sustainable Performance Through Vectorization*, M. Höhnerbach and P. Bientinesi. Proceedings of High Performance and Sustainable Software for Molecular Simulation, part of SC15, 2015.
14. *A Scalable, Linear-Time Dynamic Cutoff Algorithm for Molecular Dynamics*, P. Springer, A. Ismail and P. Bientinesi. High Performance Computing: 30th International Conference, ISC High Performance 2015, Vol. 9137, 155–170, July 2015.
15. *Scalable and Efficient Linear Algebra Kernel Mapping for Low Energy Consumption on the Layers CGRA*, Z. Rakossy, D. Stengele, A. Acosta-Aponte, S. Chafekar, P. Bientinesi and A. Chattopadhyay. Applied Reconfigurable Computing, Lecture Notes in Computer Science, Vol. 9040, 301–310, January 2015.
16. *On the Performance Prediction of BLAS-based Tensor Contractions*, E. Peise, D. Fabregat-Traver and P. Bientinesi. High Performance Computing Systems. Performance Modeling, Benchmarking, and Simulation, part of SC14. Lecture Notes in Computer Science, Volume 8966, 193–212, 2015.
17. *A Study on the Influence of Caching: Sequences of Dense Linear Algebra Kernels*, E. Peise and P. Bientinesi. High Performance Computing for Computational Science – VECPAR 2014. Lecture Notes in Computer Science, Vol. 8969, 245–258, Springer, 2015.
18. *Algorithms for Large-scale Whole Genome Association Analysis*, E. Peise, D. Fabregat-Traver, Y. Aulchenko and P. Bientinesi. Proceedings of the PBio 2013: International Workshop on Parallelism in Bioinformatics. EuroMPI'13, 229–234, 2013.

19. *Streaming Data from HDD to GPUs for Sustained Peak Performance*, L. Beyer and P. Bientinesi. Proceedings of Euro-Par 2013, 19th International European Conference on Parallel and Distributed Computing. LNCS Vol. 8097, 788-799, Springer, 2013.
20. *Performance Modeling for Dense Linear Algebra*, E. Peise and P. Bientinesi. SCC'12 Proceedings of the 2012 SC Companion: High Performance Computing, Networking Storage and Analysis, IEEE Computer Society, 406-416, 2012.
21. *A Domain-Specific Compiler for Linear Algebra Operations*, D. Fabregat and P. Bientinesi. Proceedings of International Conference on High Performance Computing for Computational Science - VECPAR 2012. LNCS Vol. 7851, 346-361, Springer, 2013.
22. *Execution-Less Performance Modeling*, R. Iakymchuk and P. Bientinesi. Proceedings of the 2nd International Workshop on Performance Modeling, Benchmarking and Simulation of High-Performance Computing Systems (PMBS11), part of SC11.
23. *Knowledge-Based Generation of Partitioned Matrix Expressions*, D. Fabregat and P. Bientinesi. Proceedings of the 13th International Workshop on Computer Algebra in Scientific Computing (CASC 2011), Lecture Notes in Computer Science, Vol. 6885, 144-157, Springer, 2011.
24. *Automatic Generation of Loop-Invariants for Matrix Operations*, D. Fabregat and P. Bientinesi. Proceedings of the 11th International Conference on Computational Science and Its Applications (ICCSA 2011), 82-92, IEEE Computer Society, 2011.
25. *The Algorithm of Multiple Relatively Robust Representations for Multi-Core Processors*, M. Petschow and P. Bientinesi. Proceedings of PARA10: PARA 2010, Part I, Lecture Notes in Computer Science, Vol. 7133, Springer, 2012.
26. *High-Performance Parallel Computations using Python as a High-Level Dynamic Language*, S. Masini and P. Bientinesi. Proceedings of PROPER'10, EuroPar 2010, Lecture Notes in Computer Science, Vol. 6586, 541-548, Springer, 2011.
27. *Improving High-Performance Computations on Clouds Through Resource Underutilization*, R. Iakymchuk, J. Napper and P. Bientinesi. Proceedings of the ACM 26th Symposium on Applied Computing, 119-126, ACM, 2011.
28. *Automatic Generation of Partitioned Matrix Expressions for Matrix Operations*, D. Fabregat-Traver and P. Bientinesi. Proceedings of 8th International Conference of Numerical Analysis and Applied Mathematics. AIP Conference Proceedings, Vol. 1281, 774-777, 2010.
29. *Matrix Structure Exploitation in Generalized Eigenproblems Arising in Density Functional Theory*, E. Di Napoli and P. Bientinesi. Proceedings of 8th International Conference of Numerical Analysis and Applied Mathematics. AIP Conference Proceedings, Vol. 1281, 937-940, 2010.
30. *Benchmarking Different Direct Solution Methods for Large Power System Simulation*, A. Benigni, P. Bientinesi and A. Monti. Proceedings of the 2010 Conference on Grand Challenges in Modeling & Simulation (SummerSIM'10).
31. *Toward Mechanical Derivation of Krylov Solver Libraries*, V. Eijkhout, P. Bientinesi and R. van de Geijn. Proceedings of ICCS2010. Procedia CS, Vol. 1(1), 1805-1813, 2010.
32. *An Example of Symmetry Exploitation for Energy-related Eigencomputations*, M. Petschow, E. Di Napoli and P. Bientinesi. Proceedings of the 7th International Conference of Computational Methods in Sciences and Engineering. AIP Conference Proceedings, Vol. 1504, 1134-1137, 2012.
33. *On Parallelizing the MRRR Algorithm for Data-Parallel Coprocessors*, C. Lessig and P. Bientinesi. PPAM 2009, Eighth International Conference on Parallel Processing and Applied Mathematics. Lecture Notes in Computer Science, Springer, Vol. 6067, 2010.

34. *Reduction to Condensed Forms for Symmetric Eigenvalue Problems on Multi-core Architectures*, P. Bientinesi, F. Igual, D. Kressner and E. Quintana-Ortí. PPAM 2009, Eighth International Conference on Parallel Processing and Applied Mathematics. Lecture Notes in Computer Science, Springer, Vol. 6067, 2010.
35. *Can Cloud Computing Reach the Top500?*, J. Napper and P. Bientinesi. Proceedings of the Workshop on UnConventional High Performance Computing, part of The 2009 ACM International Conference on Computing Frontiers, 17–20, 2009.
36. *Multi-dimensional Array Operations for Signal Processing Algorithms*, P. Bientinesi, N. Pitsianis and X. Sun. Proceedings of PARA'08: 9th International Workshop on State-of-the-Art in Scientific and Parallel Computing. (to appear)
37. *Fast Computation of Local Correlation Coefficients*, P. Bientinesi, N. Pitsianis and X. Sun. Proceedings of SPIE Vol. 7074, Advanced Signal Processing Algorithms, Architectures, and Implementations XVIII, 707405, 2008.
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