

Paolo Bientinesi

Curriculum Vitae

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

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WEB: hpac.cs.umu.se
SOFTWARE: github.com/HPAC

RESEARCH INTERESTS

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

PROFESSIONAL EXPERIENCE

- Since 2020 **Director**
High Performance Computing Center North (HPC2N), Umeå Universitet

- 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: Results Replicated. “*The vectorization of the Tersoff multi-body potential: An exercise in performance portability*”, SC’17, Denver, 2017.
- 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

- Member of the Advisory Group to the Swedish Council for Research Infrastructures.
- Member of the E-Infrastructure Committee for the Swedish Council for Research Infrastructures.
- Member of the Program Committee for eSENCE, “The Swedish e-science collaboration”.
- Expert evaluator, EUROPEAN COMMISSION : 2013, 2014, 2015, 2018, 2019, 2023.
Horizon Europe - DG CONNECT
H2020 - Information and Communication Technologies
FP7 - Information and Communication Technologies
- Member, IFIP WORKING GROUP 2.5 ON NUMERICAL SOFTWARE.
Focus on software for tensor computations.
- Member, COUNCIL OF DOCTORAL EDUCATION, Umeå University.
- AICES, RWTH Aachen University.
Deputy Scientific Director: 2011, 2012, 2016, 2017, 2018, 2019.
Steering Committee Member: 11.2009 – 01.2013, 11.2015 – 12.2018.

EDITORIAL & REVIEW ACTIVITIES

- Editorial Boards
 - Editor in Chief, ACM Collected Algorithms (CALGO)
 - Algorithms Editor, ACM Transactions on Mathematical Software.
 - Topic Editor, “High-Performance Tensor Computations in Scientific Computing and Data Science”, Frontiers in Applied Mathematics and Statistics.
 - 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*.
 - Concurrency and Computation: Practice and Experience, Vol.27-6, 2015. Special issue on Parallel computing on graphics processing units and heterogeneous platforms; editors: Paolo Bientinesi, Jose R. Herrero, Enrique S. Quintana-Ortí, and Robert Strzodka.
 - Scientific Programming, Vol.16-1, 2008. Special issue on High Performance Computing on Cell B.E. Processors.

- Reviewer for
 - VR, Swedish Science Council (Vetenskapsrådet)
 - DFG, German Research Foundation (Deutsche Forschungsgemeinschaft)
 - NWO, Dutch Research Council (Nederlandse Organisatie voor Wetenschappelijk Onderzoek)
 - GIF, German-Israeli Foundation for Scientific Research
 - WWTF, Vienna Science and Technology Fund (Wiener Wissenschafts-, Forschungs- und Technologiefonds)
- 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.

ORGANIZER

- SIAM Conference on Parallel Processing for Scientific Computing (PP24), Baltimore, USA, March 2024. Organizing committee.
- Minisymposium on “Computational Aspects of Tensor Networks”. With E. Di Napoli. SIAM CSE 2023, Amsterdam, February 2023.
- Euro-Par 2022, Glasgow, August 2022. Global chair for “Parallel Numerical Methods and Applications”.
- Dagstuhl Seminar 22101 “Tensor Computations: Applications and Optimization”. With F. Huang, P. Kelly, and S. Sadayappan. Dagstuhl, Germany, March 6–11, 2022.
- Minisymposium on “High-Performance Tensor Computations in Scientific Computing and Machine Learning”. With E. Di Napoli, and S. Sadayappan. SIAM CSE 2021, Fort Worth, March 2021.
- Dagstuhl Seminar 20111 “Tensor Computations: Applications and Optimization”. With F. Huang, P. Kelly, and S. Sadayappan. Dagstuhl, Germany, March 8-13, 2020.
- 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 11th 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, July 2018.

- 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

- 29th International European Conference on Parallel and Distributed Computing (Euro-Par 2023), Cyprus, August 2023.
- 31st Euromicro International Conference on Parallel, Distributed, and Network-Based Processing (PDP 2023), Naples, Italy, March 2023.
- Workshop on Big Data & Deep Learning in High-Performance Computing. BDL 2022: Bordeaux, France, November 2, 2022. BDL 2020: Porto, Portugal, 2020.
- PPAM: International Conference on Parallel Processing and Applied Mathematics. Poland, 2022, 2019, 2017, 2015, 2013.
- ISC 2022 Workshops Committee, ISC High Performance conference, Frankfurt, Germany, June 2022.
- 30th Euromicro International Conference on Parallel, Distributed and Network-based Processing (PDP22), Valladolid, Spain, March 2022.
- SIAM Conference on Parallel Processing for Scientific Computing (PP22), Seattle (WA), USA, February 2022.
- 21st International Society for Music Information Retrieval Conference (ISMIR 2020), virtual conference, October 2020.
- ARRAY 2019: 6th ACM SIGPLAN International Workshop on Libraries, Languages and Compilers for Array Programming. Phoenix, USA, June 2019.
- ICPP 2019: International Conference on Parallel Processing. Kyoto, Japan, August 2019.
- SBAC-PAD 2018: International Symposium on Computer Architecture and High-Performance Computing. Lyon, France, September 2018.
- 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 12th 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.

DOCTORAL ADVISING

- Francisco Lopez *Towards a Compile-time Linnea*
- Aravind Sankaran *Data-based Performance Prediction*
- Mickael Zehren *Automatic Seamless Mixing of Computer Generated Playlists*

ALUMNI

- Christos Psarras (magna cum laude, 2023) NVIDIA
- Henrik Barthels (magna cum laude, 2022) RelationalAI, Inc.
- Markus Höhnerbach (magna cum laude, 2020) NVIDIA
- 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) Cinemo
- Matthias Petschow (summa cum laude, 2013) Medical doctor, Lucerne
- Roman Iakymchuk (magna cum laude, 2012) Uppsala University

PEDAGOGICAL EXPERIENCE

COURSES

- *Languages for Scientific Computing* 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2017, 2018
- *Automatic Generation and Analysis of Algorithms* 2009, 2010, 2012, 2014
- *High-performance Matrix Computations* 2011, 2013, 2015, 2016, 2018
- *Introduction to High-Performance Computing* 2011, 2015
- *Parallel Programming* 2015, 2016, 2017, 2018
- *Scientific Computing* 2019
- *Design of High-Performance Software* 2020, 2021, 2022

SEMINARS

- *Languages for Scientific Computing* 2011, 2012, 2013
- *Topics in Automation, Compilers, and Code-Generation* 2014, 2015, 2016
- *Topics in High-Performance and Scientific Computing* 2014
- *Topics in Computer Music* 2015, 2016, 2017, 2018

- *Computational Acoustics* 2016
- *Evaluation of Languages and Libraries* 2017, 2018

SELECTED TALKS & INVITED LECTURES¹

- *The Linear Algebra Mapping Problem and how programming languages solve it*, **invited speaker**, NHR PerfLab Seminar Series, September 2023, via Zoom.
- *Current state of programming languages for linear algebra computations*, **invited speaker**, DCSE High Performance Computing Symposium, June 2023, TU Delft, Delft, The Netherlands.
- *High-Performance Matrix Computations: We Need More Than Fast Libraries*, **invited speaker**, SIAM Conference on Computational Science and Engineering, February 2023, Amsterdam, The Netherlands.
- *The fragmented landscape of tensor computations*, **invited speaker**, 4th Workshop on Scientific Computing in Sweden (SwedComp22), October 2022, Göteborg, Sweden.
- *Matrix computations: Going beyond libraries*, **invited speaker**, Swedish e-Science Academy, October 2022, Umeå, Sweden.
- *High-performance matrix computations: It's not all about libraries*, **invited speaker**, EU-Regional School, RWTH Aachen University, May 2022, Aachen, Germany.
- *Software for tensor computations: What is happening???* Dagstuhl Seminar 22101, Tensor Computations: Applications and Optimization, March 2022, Dagstuhl, Germany.
- *High-Performance Tensor Computations: Where Do We Stand?* SIAM Conference on Computational Science and Engineering, March 2021, Fort Worth, TX (via Zoom).
- *Tensor computations: A fragmented landscape*, **invited speaker**, January 2021, Huawei (via Zoom).
- *How fast can you drive your computer?*, **invited speaker**, Knowledge week, October 2020, Umeå, Sweden.
- *Programming Languages and Linear Algebra Computations*, **invited speaker**, Uppsala University, April 2020, Uppsala, Sweden.
- *Building Blocks: From Matrix to Tensor Operations*, Dagstuhl Seminar 20111, Tensor Computations: Applications and Optimization, March 2020, Dagstuhl, Germany.
- *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.
- *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.
- *Teaching Computers Linear Algebra*, **distinguished speakers series**. Friedrich-Schiller-Universität Jena, January 2018, Jena, Germany.
- *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.

¹The complete list is available at <http://hpac.cs.umu.se/talks/author/Bientinesi>

- *The Linear Algebra Mapping Problem (LAMP)*.
Householder Symposium XX on Numerical Linear Algebra, June 2017, Blacksburg, VA.
- *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.
- *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

- Submitted *The Essential Algorithms for the Matrix Chain Problem*,
F. Lopez, L. Karlsson, and P. Bientinesi. SIAM Journal of Computing, 2023.
- Submitted *High-quality and Reproducible Automatic Drum Transcription from Crowdsourced Data*,
M. Zehren, M. Alunno, and P. Bientinesi. Music & Science, 2023.
1. *Automatic Detection of Cue Points for the Emulation of DJ Mixing*,
M. Zehren, M. Alunno, and P. Bientinesi. Computer Music Journal, Vol. 46, No. 3, 2023.
 2. *The Linear Algebra Mapping Problem. Current State of Linear Algebra Languages and Libraries*,
C. Psarras, H. Barthels, and P. Bientinesi.
ACM Transactions on Mathematical Software, Vol. 48(3), 1–30, 2022.
 3. *Accelerating Jackknife Resampling for the Canonical Polyadic Decomposition*,
C. Psarras, L. Karlsson, R. Bro, and P. Bientinesi. Frontiers in Applied Mathematics and
Statistics Mathematics of Computation and Data Science, 2022.
 4. *Algorithm 1026: Concurrent Alternating Least Squares for multiple simultaneous Canonical
Polyadic Decompositions*, C. Psarras, L. Karlsson, R. Bro, and P. Bientinesi.
ACM Transactions on Mathematical Software, Vol. 48(3), 1–20, 2022.
 5. *Work-Stealing Prefix Scan: Addressing Load Imbalance In Large-Scale Image Registration*,
M. Copik, T. Grosser, T. Hoefler, P. Bientinesi, B. Berkels.
IEEE Transactions on Parallel and Distributed Systems, Vol. 33(3), 523–535, March 2022.
 6. *Rational Spectral Filters with Optimal Convergence Rate*,
K. Kollnig, P. Bientinesi, and E. Di Napoli.
SIAM Journal on Scientific Computing, Vol. 43, No. 4, A2660–A2684, 2021.
 7. *Linnea: Automatic Generation of Efficient Linear Algebra Programs*,
H. Barthels, C. Psarras, and P. Bientinesi.
ACM Transactions on Mathematical Software, Vol. 47(3), 22:1–26, June 2021.
 8. *Accelerating Deep Learning Inference in Constrained Embedded Devices Using Hardware Loops
and Dot Product Unit*, J. Vreća, K. Sturm, E. Gungl, F. Merchant, P. Bientinesi, R. Leupers,
and Z. Brezočić. IEEE Access, Vol. 8, 165913–26, 10.1109/ACCESS.2020.3022824, Sept 2020.
 9. *Optimizing AIREBO: Navigating the Journey from Complex Legacy Code to High Performance*,
M. Höhnerbach and P. Bientinesi.
Journal of Computational Chemistry, Vol. 40(14), 1471–1482, May 2019.
 10. *Assessment Of Sound Spatialisation Algorithms For Sonic Rendering With Headsets*,
A. Tarzan, M. Alunno and P. Bientinesi.
Journal of New Music Research, Vol. 48(2), 107–124, 2019.
 11. *Spin Summations: A High-Performance Perspective*,
P. Springer, D. Matthews and P. Bientinesi.
ACM Transactions on Mathematical Software, Vol. 45(1), 10:1–10:22, March 2019.

²Preprints are available at <http://hpac.cs.umu.se/publications/author/Bientinesi>

12. *Accelerating Scientific Codes by Performance and Accuracy Modeling*,
D. Fabregat-Traver, A. E. Ismail and P. Bientinesi.
Journal of Computational Science, Vol. 27, 77–90, July 2018.
13. *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.
14. *The ELAPS Framework: Experimental Linear Algebra Performance Studies*,
E. Peise and P. Bientinesi.
International Journal of High Performance Computing Applications, 1-13, March 2018.
15. *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.
16. *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.
17. *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.
18. *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.
19. *High-Performance Solutions for Big-Data GWAS*,
E. Peise, D. Fabregat-Traver and P. Bientinesi.
Parallel Computing, Vol. 42, 75–87, February 2015.
20. *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.
21. *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.
22. *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.
23. *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.
24. *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.
25. *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.
26. *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.

27. *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.
28. *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.
29. *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.
30. *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.
31. *Modeling Performance through Memory-Stalls*,
R. Iakymchuk and P. Bientinesi.
ACM SIGMETRIC Performance Evaluation Review, 40(2), 86–91, 2012.
32. *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.
33. *MR3-SMP: A Symmetric Tridiagonal Eigensolver for Multi-Core Architectures*,
M. Petschow and P. Bientinesi.
Parallel Computing, Vol. 37, Issue 12, December 2011.
34. *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.
35. *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.
36. *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.
37. *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.
38. *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.
39. *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.
40. *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.
41. *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.

42. *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 & MISC

- *Tensor Computations: Applications and Optimization (Dagstuhl Seminar 22101)*, P. Bientinesi et al., November 2022. <https://drops.dagstuhl.de/opus/volltexte/2022/17267/>
- *Tensor Computations: Applications and Optimization (Dagstuhl Seminar 20111)*, P. Bientinesi et al., December 2020. <https://drops.dagstuhl.de/opus/volltexte/2020/13430/>
- *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. *A Test for FLOPs as a Discriminant for Linear Algebra Algorithms*, A. Sankaran, P. Bientinesi. Proceedings of the IEEE 34th International Symposium on Computer Architecture and High Performance Computing (SBAC-PAD 2022), Nov. 2022.
2. *FLOPs as a Discriminant for Dense Linear Algebra Algorithms*, F. Lopez Sanchez, L. Karlsson and P. Bientinesi. Proceedings of the 51st International Conference on Parallel Processing (ICPP 2022), Aug. 2022.
3. *MOM: Matrix Operations in MLIR*, L. Chiellini, H. Barthels, M. Copik, T. Grosser, P. Bientinesi and D. Spampinato. Proceedings of the 12th International Workshop on Polyhedral Compilation Techniques (IMPACT), May 2022.
4. *Benchmarking the Linear Algebra Awareness of TensorFlow and PyTorch*, A. Sankaran, N. Alashti, C. Psarras and P. Bientinesi. Proceedings of the Seventeenth International Workshop on Automatic Performance (iWAPT2022), May 2022.
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