Curriculum Vitae

Andrea Alberto Pietracaprina

Current position and contact information

Professor of Computer Science
Dipartimento di Ingegneria dell'Informazione, Università of Padova
Via Gradenigo 6/B, I-35131 Padova, Italy

Education

5/1994 **Ph.D.** in Computer Science, University of Illinois at Urbana-Champaign. Advisor: Prof. Franco Preparata. Thesis Title: "Isotropic Graphs with Applications to Parallel Computation".

1/1991 **M.S.** in Computer Science, University of Illinois at Urbana-Champaign. Advisor: Prof. Franco Preparata. Thesis Title: "Analysis of the Unbuffered Butterfly Network".

2/1987 **Laurea (summa cum laude)** in Computer Science, University of Pisa, Italy. Advisor: Prof. Fabrizio Luccio. Thesis Title: "A Study of Parallel Hashing in VLSI".

Professional appointments

2002–today **Full Professor**, Dipartimento di Ingegneria dell'Informazione, Università di Padova, Italy.

2008–2013 **Vice-Chair**, Dipartimento di Ingegneria dell'Informazione, Università di Padova, Italy.

1998-2002 **Associate Professor**, Dipartimento di Ingegneria dell'Informazione, Università di Padova, Italy.

1995-1998 **Assistant Professor**, Dipartimento di Matematica Pura e Applicata, Università di Padova, Italy.

1994 **Postdoctoral Fellow**, Dipartimento di Elettronica e Informatica, Università di Padova, Italy.

1991-1993 **Research Assistant**, Department of Computer Science, Brown University, Providence RI, USA.

1989-1992 **Research Assistant**, Coordinated Science Laboratory, University of Illinois at Urbana-Champaign, Urbana-Champaign IL, USA.

1987 **Research Assistant**, Dipartimento di Informatica, Università di Pisa, Italy.

University services

2017-today **Head of Hiring Budget Committee**, Dipartimento di Ingegneria dell'Informazione, Università di Padova, Italy.

2014-2017 **Member of Hiring Budget Committee**, Dipartimento di Ingegneria dell'Informazione, Università di Padova, Italy.

2008-2013 **Member of Executive Board**, Dipartimento di Ingegneria dell'Informazione, Università di Padova, Italy.

2004-2007 **Vice-Chair of the Information Engineering Scientific Area**, Università di Padova, Italy.

Awards and fellowships

2014 Sponsored Research Fellowship, Institute for Computational and Experimental Research in Mathematics (ICERM), Providence RI, USA (2-5/2014).

2004 Best Paper Award, Algorithms Track (4 tracks, 140 entries), *18th IEEE International Parallel & Distributed Processing Symposium (IPDPS'04)*, Santa Fe NM, USA, April 2004.

1996 Research Fellowship, Chinese Academy of Science, Beijing, China (9/1996).

1987 IBM Italia Award for Laurea Thesis in Computer Science.

1987 UNITEAM Award for Laurea Thesis in Computer Science.

Professional memberships

ACM (Association for Computing Machinery); IEEE (Institute of Electrical and Electronics Engineers); EATCS (European Association for Theoretical Computer Science).

Teaching

Prof. Pietracaprina has been active in teaching (both undergraduate and graduate courses) since 1994. Topics of his courses include: *Introduction to programming*, *Information Systems*, *Algorithms and Data Structures*, *Parallel Computation*, *Data Mining*, *Big Data Computing*. Besides his institutional teaching at the University of Padova, he has taught courses at the University of Siena (1994, 1996), at the UNESCO Advanced School of Informatics, Damascus (2004), and at the Summer School on Architectures and Programming Paradigms for Parallel Computers, Padova, I (1996)

He has supervised 3 PhD students in Information Engineering: Francesco Silvestri (graduated in 2009), Fabio Vandin (graduated in 2010), and Matteo Ceccarello (graduated in 2017). He is currently co-supervisor of Andrea Pasin (starting 2023). He has also supervised over 60 undergraduate and master's students, in Computer Science, Computer Engineering, Mathematics and Management Engineering.

Research

Areas of interest

- *Big data algorithmics and data mining.*
- *Algorithms and data structures for parallel and hierarchical platforms.*
- *Models of computation.*
- *Wireless Interconnection networks and routing.*

Funding

Prof. Pietracaprina has been

- *National Coordinator* of the MIUR-PRIN project *AlgoDEEP: Algorithmic challenges for Data-intensivE processing on Emerging computing Platforms* (2010-2012)
- *Coordintor of the University of Padova Unit* of the MIUR-PRIN project *AMANDA: Algorithmics for MAssive and Networked DAta* (2014-2017)
- *Principal Investigator* of the following projects funded by the University of Padova: *BiD-Algo: Big Data Algorithmics* (2013-2015); *A Programming Framework for Parallel and Hierarchical Machines: Theory and Implementation* (2004-2006).
- *Principal Investigator* of the NATO project *Bulk Synchronous Computational Geometry*, in collaboration with Texas A&M University, College Station TX, USA (1996-1997).
- *Principal Investigator* of two CNR Bilateral Projects CNR96-02538-CT07 and CNR-97-03207-CT07 on *Load Balancing and Exhaustive Search Techniques for Parallel Architectures*, in collaboration with University College Cork, Cork, Ireland (1996-1997)

He has also been *Key Researcher* in the following projects: *AEOLUS: Algorithmic Principles for Building Efficient Overlay Computers* (EU FP6 2005-2009); *GEPPCOM: Fundations of GEneral Purpose Parallel COMputing* (EU ESPRIT 1994-1997); *AHeAD: efficient Algorithms for HArnessing networked Data* (MIUR-PRIN 2019-2022); *MAINSTREAM: Algorithms for Massive Information Structures and Data Streams* (MIUR-PRIN 2007-2009); *ALGONEXT: Algorithms for the Next Generation Internet and the Web* (MIUR-PRIN 2004-2006); *ALINWEB: Algorithmics for Internet and for the Web*, MIUR PRIN (MIUR-PRIN 2002-2004); *Algorithms for Large Data Sets: Science and Engineering* (MIUR-PRIN 1999-2001); *Center of Excellence: Science and Applications of Advanced Computational Paradigms* (MIUR 2001-2004). *Algorithms, Models of Computations e Information Structures* (MURST 40% 1995-1997); *Algorithms for Networks Analysis and Bioinformatics Applications* (University of Padova 2017-2019) *Resource-Tradeoffs Based Design of Hardware and Software for Parallel and Hierarchical Computing Systems* (University of Padova 2015-2018); *Models and Algorithms for the Dynamic Optimization of Computational Performance* (University of Padova 2011-2013).

Editorial activities

Prof. Pietracaprina has been

- *Co-Guest-Editor* of a Special Issue on *Big Data Algorithmics* of the open-access journal *Algorithms* (2019).
- *Member of the Editorial Board* of the *Elsevier Journal of Discrete Algorithms* (2010-2014).
- *Associate Editor* for the *IEEE Transactions on Parallel and Distributed Systems* (2004-2009).
- *Co-Guest-Editor* of a Special Issue of *Theoretical Computer Science* 408(2-3) entitled "Excursions in Algorithmics: A Collection of Papers in Honor of Franco P. Preparata" (2008).

Program committees and other scientific services

Prof. Pietracaprina has been

- *Area Vice Chair* for the Multidisciplinary Area of the *33rd IEEE International Parallel & Distributed Processing Symposium* (IPDPS 2019), Rio de Janeiro, Brazil
- *Global Chair* for Topic 12/13 (Theory and Algorithms for Parallel Computation) of the *International European Conference on Parallel and Distributed Computing* (Euro-Par 2004, 2005, 2009)
- *Program Committee Member* of several international conferences, including:
  - ACM-SIAM Symposium on Discrete Algorithms (SODA 2017).
  - International Colloquium on Automata, Languages, and Programming (ICALP 2014).
  - ACM Symposium on Parallelism in Algorithms and Architectures (SPAA 2002, 2005, 2008).
  - ACM International Conference on Web Search and Data Mining (WSDM 2023)
  - The ACM Web Conference (TheWebConf 2021, 2022)
  - IEEE International Parallel & Distributed Processing Symposium (IPDPS 2008, 2010, 2012, 2017).
  - International European Conference on Parallel and Distributed Computing (Euro-Par 1998, 2024).
  - SIAM International Conference on Data Mining (SDM 2022, 2024).
  - ACM Computing Frontiers (CF 2010, 2013, 2015, 2023).
  - European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases (ECML-PKDD 2015-2019).
  - Parallel Architectures and Compilation Techniques (PACT 2007).
  - International Workshop on Efficient and Experimental Algorithms (WEA, 2005).
  - Italian Conference on Theoretical Computer Science (ICTCS 2003, 2017).
- *Co-Chair* of the First Workshop on Algorithmic Aspects of Clustering and Related Problems (ALACARTE), Bertinoro, Italy 2023.

- *Co-Chair of the Satellite Events Committee* for the
- *Member of the Advisory Board* the EURO-PAR Conference (since 1999).
- *Reviewer for 5th EU Framework Programme projects.*
- *Co-Chair of the Satellite Events Committee* for the *33rd International Colloquium on Automata, Languages and Programming* (ICALP 2006), Venezia, Italy.
- *Member of the organizing committee* of the following scientific events:
  - *Workshop on Graph Analytics* (2015), Bertinoro, Italy.
  - *6th Annual European Symposium on Algorithms* (ESA 1998), Venezia, Italy.
  - *8th ACM Symposium on Parallel Algorithms and Architectures* (SPAA 1998), Padova, Italy.
  - *Summer School on Architectures and Programming Paradigms for Parallel Computers* (1996), Padova, Italy.
  - *Italian-Israeli Workshop on Algorithmic Aspects of Molecular Biology* (1994) Padova, Italy.

Invited Lectures

- *Workshop FestivEli: Celebrating Eli Upfal's Random Walk through Life and Computer Science* (2024), Providence, RI USA.
- *Workshop on Data Science in Low-dimensional Spaces* (2019), Providence, RI USA.
- *Workshop on Computation and Statistics in Data Science* (2019), Bertinoro, Italy
- *Workshop on Foundations of Learning from Data* (2018), Bertinoro, Italy
- *Dagstuhl-Seminars* on *Parallel and Distributed Algorithms* (1995, 1997), *Dynamic Communication Networks* (2009), and *Probabilistic Methods in the Design and Analysis of Algorithms* (2017), Schloss Dagstuhl, Germany.
- *Workshop on Social Impact through Network Science* (2016), Venezia, Italy.
- *Data Driven Innovation Summit* (2016), Roma, Italy.
- *Workshop on Scalable Approaches to High Performance and High Productivity Computing* (2007, 2011, 2013, 2014, 2015), Bertinoro, Italy.
- *Random Graals Workshop* (2008, 2010), Bertinoro Italy.
- *Workshop on Frequent Itemsets Mining Implementation (FIMI)* at the IEEE International Conference on Data Mining (2003), Melbourne FL, USA.
- *DIMACS Workshop on Distributed Data and Structures* (1999), Princeton NJ, USA.
- *Chinese Academy of Sciences* (1996), Beijing, China.

Research Visits

4/2016 *Visiting Faculty*, Department of Computer Science, Brown University, Providence RI, USA (invited by Prof. Eliezer Upfal).

2/2016 *Visiting Faculty*, Department of Computer Science and Engineering, Texas A&M University, College Station TX, USA (invited by Prof. Nancy M. Amato and Prof. Lawrence Rauchwerger).

11/2015 *Visiting Scientist*, Laboratoire d'Informatique Algorithmique: Fondements et Applications (LIAFA), CNRS and Paris 7 Diderot, France (invited by LIAFA Director Prof. Pierre Fraigniaud).

2-4/2014 *Sponsored Research Fellow*, Semester Program on Network Science and Graph Algorithms, The Institute for Computational and Experimental Research in Mathematics (ICERM), Providence, RI USA.

11/2000 *Visiting Faculty*, School of Computer Science, Carleton University, Ottawa, Canada (invited by Prof. Frank Dehne).

1/1996 *Visiting Faculty*, Department of Computer Science, University College Cork, Cork, Ireland (invited by prof. Kieran Herley).

12/1995 *Visiting Faculty*, Heinz Nixdorf Institute, University of Paderborn, Paderborn, Germany (invited by Prof. Friedhelm Meyer auf der Heide).

1/1995 *Visiting Faculty*, Department of Computer Science, University College Cork, Cork, Ireland (invited by prof. Kieran Herley).

Bibliometric indicators As of the date of this CV, his bibliometric indicators (from Google Scholar) are the following: H-index 21 (10 from 2019); i10-index 41 (11 from 2019); Citations 1503 (396 from 2019).

PUBLICATIONS

Books and Book Chapters

[1] G. Bilardi and A. Pietracaprina. Theoretical Models of Computation. In *Encyclopedia of Parallel Computing* (D. Padua Ed.), pages 1150-1158. Springer, 2011.

[2] R.H. Bisseling, E. Lebhar, A. Pietracaprina, A. Tiskin. Topic 12: Theory and algorithms for parallel computation. *Proceedings of the 15th Euro-Par Conference*, page 989. LNCS 5704. Springer-Verlag, Delft, NL, 2009.

[3] N.M. Amato, D.T. Lee, A. Pietracaprina, R. Tamassia (Eds.). Excursions in Algorithmics: A Collection of Papers in Honor of Franco P. Preparata. In *Special Issue of Theoretical Computer Science* 408(2-3), Elsevier, 2008.

[4] G. Bilardi, A. Pietracaprina, and G. Pucci. Decomposable BSP: A bandwidth-latency model for parallel and hierarchical computation. In *Handbook of Parallel Computing*, (J. Reif and S. Rajasekaran Eds.), CRC Press, Boca Raton Fl, USA, 2007.

[5] K.T. Herley, A. Pietracaprina, C.D. Zaroliagis, C. Rodriguez-Leon. Topic 12: Theory and algorithms for parallel computation. *Proceedings of the 11th Euro-Par Conference*, page 929. LNCS 3648. Springer-Verlag, Lisbon, Portugal, 2005.

[6] A. Pietracaprina N. Amato, C. Kaklamanis, D. Krizanc, A. Pietracaprina. Topic 13 Theory and algorithms for parallel computation. *Proceedings of the 10th Euro-Par Conference*, page 803. LNCS 3149. Springer-Verlag, Pisa, Italy, 2004.

[7] G. Bilardi, G.F. Italiano, A. Pietracaprina, and G. Pucci (Eds.). *Proceedings of the 6th Annual European Symposium on Algorithms (ESA'98)*. LNCS 1461. Springer-Verlag, Venice, Italy, 1998.

Journals

[8] M. Ceccarello, A. Pietracaprina, G. Pucci, and F. Soldà. Scalable and Space-Efficient Robust Matroid Center Algorithms. *Journal of Big Data* 10 (49), 2023.

[9] P. Pellizzoni, A. Pietracaprina, and G. Pucci. k-Center Clustering with Outliers in Sliding Windows. *Algorithms, Special Issue on Discrete Optimization Theory, Algorithms, and Applications* 15(2):52, 2022.

[10] P. Pellizzoni, A. Pietracaprina, and G. Pucci. Adaptive k-Center and Diameter Estimation in Sliding Windows. *International Journal of Data Science and Analytics*, 14(2):155-173, 2022.

[11] M. Ceccarello, A. Pietracaprina, G. Pucci, and E. Upfal. Distributed Graph Diameter Approximation. *Algorithms, Special Issue on Algorithmic Aspects of Networks* 13(9):216, 2020.

[12] M. Ceccarello, A. Pietracaprina, G. Pucci. A General Coreset-Based Approach to Diversity Maximization under Matroid Constraints. *ACM Trans. Knowl. Discov. Data*, 14(5):60:1-60:27, 2020. arXiv version

[13] M. Ceccarello, A. Pietracaprina, G. Pucci. Solving k-center Clustering (with Outliers) in MapReduce and Streaming, almost as Accurately as Sequentially. *Proceedings of the VLDB Endowment (PVLDB)*, 12(7):766-778, 2019.

[14] M. Ceccarello, C. Fantozzi, A. Pietracaprina, G. Pucci, and F. Vandin. Clustering uncertain graphs. *Proceedings of the VLDB Endowment (PVLDB)*, , 11(4):472-484, 2017.

[15] M. Ceccarello, A. Pietracaprina, G. Pucci, and E. Upfal. MapReduce and streaming algorithms for diversity maximization in metric spaces of bounded doubling dimension. *Proceedings of the VLDB Endowment (PVLDB)*, 10(5):469-480, 2017.

[16] G. Bilardi, A. Pietracaprina, G. Pucci, F. Silvestri, and M. Scquizzato. Network-oblivious algorithms. *Journal of the ACM*, 63(1):3.1-3.36, 2016.

[17] P. Crescenzi, P. Fraigniaud, M. Halldorsson, H.A. Harutyunyan, C. Pierucci, A. Pietracaprina, and G. Pucci. On the complexity of the shortest-path broadcast problem *Discrete and Applied Mathematics*, 199:101-109, 2016.

[18] N. Lazzarini, L. Nanni, C. Fantozzi, A. Pietracaprina, G. Pucci, T.M. Seccia, and G.P. Rossi. Heterogeneous machine learning system for improving the diagnosis of primary aldosteronism. *Pattern Recognition Letters*, 6:124-130, 2015. See also *Journal of Hypertension*, 31(e-Supplement A):e409, 2013.

[19] A. Pietracaprina, G. Pucci, F. Silvestri, and F. Vandin. Space-efficient parallel algorithms for combinatorial search problems. *Journal of Parallel and Distributed Computing*, Special Issue on *Architectures and Algorithms for Irregular Applications*. 76:58-65, 2015.

[20] A. Pettarin, A. Pietracaprina, and G. Pucci. On the expansion and diameter of bluetooth-like topologies. *Theory of Computing Systems*, 52(2):319-339, 2013.

[21] A. Kirsch, M. Mitzenmacher, A. Pietracaprina, G. Pucci, E. Upfal, and F. Vandin. An efficient rigorous approach for identifying statistically significant frequent itemsets. *Journal of the ACM*, 59(3):12, 2012.

[22] R. Grossi, A. Pietracaprina, N. Pisanti, G. Pucci, E. Upfal, and F. Vandin. MADMX: A strategy for maximal dense motif extraction. *Journal of Computational Biology*, 18(4):535–545, 2011.

[23] A. Pietracaprina, M. Riondato, E. Upfal, F. Vandin. Mining top-K frequent itemsets through progressive sampling. *Data Mining and Knowledge Discovery*, 21(2):310-326, 2010.

[24] S. Nasso, F. Silvestri, F. Tisiot, B. Di Camillo, A. Pietracaprina, G.M. Toffolo. An optimized data structure for high-throughput 3D proteomics data: mzRTree. *Journal of Proteomics*, 73(6):1176-1182, 2010.

[25] P. Crescenzi, C. Nocentini, A. Pietracaprina, and G. Pucci. On the connectivity of bluetooth-based *ad hoc* networks. *Concurrency and Computation: Practice and Experience*, 21(7):875–887, 2009.

[26] P. Bertasi, M. Bianco, A. Pietracaprina, G. Pucci. Obtaining performance measures through microbenchmarking in a peer-to-peer overlay computer. *International Journal of Computational Intelligence Research* 4(1):1–8, 2008. Special issue on Computational Intelligence in Scheduling and Simulation.

[27] K.T. Herley, A. Pietracaprina, and G. Pucci. Store-and-forward multicast routing on the mesh. *Theory of Computing Systems*, (42):519-535, 2008.

[28] C. Fantozzi, A. Pietracaprina, and G. Pucci. Translating submachine locality into locality of reference. *Journal of Parallel and Distributed Computing*, 66(5):633–646, 2006. Special issue for the 4 Best Papers of IEEE IPDPS 2004.

[29] A. Pietracaprina and G. Pucci. Optimal many-to-one routing on the mesh with constant queues. *Information Processing Letters*, 96(1):24-29, 2005.

[30] G. Bilardi, K.T. Herley, A. Pietracaprina, and G. Pucci. On stalling in LogP. *Journal of Parallel and Distributed Computing*, 65(3):307-312, 2005.

[31] C. Fantozzi, A. Pietracaprina, and G. Pucci. A general PRAM simulation scheme for clustered machines. *The Internationa Journal on Foundations of Computer Science*, 14(6):1147-1164, 2003.

[32] K. Herley, A. Pietracaprina, and G. Pucci. Deterministic parallel backtrack search. *Theoretical Computer Science*, 270(1-2):309–324, 2002.

[33] R. Grossi, A. Pietracaprina, and G. Pucci. Optimal deterministic protocols for mobile robots on a grid. *Information and Computation*, 173:132–142, 2002.

[34] K. Herley, A. Pietracaprina, and G. Pucci. Implementing shared memory on mesh-connected computers and on the fat-tree. *Information and Computation*, 165:123–142, 2001.

[35] A. Pietracaprina, G. Pucci, and J. Sibeyn. Constructive, deterministic implementation of shared memory on meshes. *SIAM Journal on Computing*, 30(2):625–648, 2000.

[36] K. Herley, A. Pietracaprina, and G. Pucci. Fast deterministic branch-and-bound. *Parallel Processing Letters*, 9(3):325–334, 1999.

[37] K. Herley, A. Pietracaprina, and G. Pucci. Deterministic branch-and-bound on distributed memory machines. *The Journal on Foundations of Computer Science*, 10(4):391-404, 1999.

[38] G. Bilardi, K.T. Herley, A. Pietracaprina, G. Pucci, and P. Spirakis. BSP vs LogP. *Algoritmica*, 24:405-422, 1999. Special Issue on Coarse Grained Parallel Algorithms.

[39] A. Bäumker, W. Dittrich, and A. Pietracaprina. The complexity of parallel multisearch on coarse grained machines. *Algoritmica*, 24:209–242, 1999. Special Issue on Coarse Grained Parallel Algorithms.

[40] A. Pietracaprina and G. Pucci. The complexity of deterministic PRAM simulation on Distributed Memory Machines. *Theory of Computing Systems*, 30(3):231-247, 1997.

[41] A. Pietracaprina and F.P. Preparata. Practical constructive schemes for deterministic shared-memory access. *Theory of Computing Systems*, 30(1):3-37, 1997. Special Issue for selected papers of ACM SPAA 1993.

[42] A. Krishna, A. Pietracaprina, and B. Hajek. Sharper analysis of packet routing on a butterfly. *Networks*, 24(2):91-101, 1994.

[43] F. Luccio, A. Pietracaprina, and G. Pucci. Analysis and implementation of parallel uniform hashing. *The International Journal on Foundations of Computer Science*, 3(1):55-63, 1992.

[44] F. Luccio, A. Pietracaprina, and G. Pucci. Analysis of parallel uniform hashing. *Information Processing Letters*, 37(2):67-69, 1991.

[45] F. Luccio, A. Pietracaprina, and G. Pucci. A new scheme for the deterministic simulation of PRAMs in VLSI. *Algorithmica*, 5(4):529-544, 1990.

[46] F. Luccio, A. Pietracaprina, and G. Pucci. A probabilistic simulation of PRAMs on a bounded degree network. *Information Processing Letters*, 28:141-147, 1988.

Conferences

[47] M. Ceccarello, A. Pietracaprina, G. Pucci. Fast and Accurate Fair k-Center Clustering in Doubling Metrics. In *Proc. ACM on Web Conference 2024*, pages 756-767, 2024.

[48] E. Dandolo, A. Pietracaprina, G. Pucci. Distributed k-Means with Outliers in General Metrics. In *Proc. 29th International European Conference on Parallel and Distributed Computing (Euro-Par'23)*, pages 474-488, 2023. Paper recipient of the Best Paper Award.

[49] P. Pellizzoni, A. Pietracaprina, G. Pucci. Fully dynamic clustering and diversity maximization in doubling metrics. In *Proc. 18th Algorithms and Data Structures Symposium (WADS'23)*, pages 620-636, 2023.

[50] F. Altieri, F. Vandin, A. Pietracaprina, G. Pucci. Scalable Distributed Approximation of Internal Measures for Clustering Evaluation . In *Proc. SIAM International Conference on Data Mining (SDM'21)*, pages 648-656, 2021.

[51] P. Pellizzoni, A. Pietracaprina, G. Pucci. Dimensionality-adaptive k-center in sliding windows . In *Proc. 7th IEEE International Conference on Data Science and Advanced Analytics (DSAA'20)*, pages 197-206, 2020.

[52] A. Mazzetto, A. Pietracaprina, and G. Pucci, Accurate MapReduce Algorithms for k-Median and k-Means in General Metric Spaces. In *Proc. 30th International Symposium on Algorithms and Computation (ISAAC'19)*, pages 34:1-34:16, 2019.

[53] M. Ceccarello, A. Pietracaprina, and G. Pucci, Fast coreset-based max-sum diversity under matroid constraints . In *Proc. 11th ACM International Conference on Web Search and Data Mining (WSDM'18)*, pages 81-89, 2018.

[54] M. Ceccarello, A. Pietracaprina, G. Pucci, and E. Upfal. A practical parallel algorithm for diameter approximation of massive weighted graphs. In *Proc. 30th IEEE International Parallel & Distributed Processing Symposium (IPDPS'16)* , Chicago IL USA, May 2016.

[55] M. Ceccarello, A. Pietracaprina, G. Pucci, and E. Upfal. Space and time efficient parallel graph decomposition, clustering and diameter approximation. . In *Proc. 27th ACM Symp. on Parallelism in Algorithms and Architectures (SPAA'15)*, pages 182-191, 2015.

[56] A. Pietracaprina, G. Pucci, F. Silvestri, and F. Vandin. Space-efficient parallel algorithms for combinatorial search problems. In *Proc. 38th International Symposium on Mathematical Foundations of Computer Science (MFCS'13)*, pages 717-728, 2013.

[57] N. Lazzarini, L. Nanni, C. Fantozzi, A. Pietracaprina, G. Pucci, T.M. Seccia, and G.P. Rossi. Heterogeneous machine learning system for diagnosing primary aldosteronism. *Proc. European Meeting on Hypertension and Cardiovascular Protection (ESH'13)*, 2013. Poster.

[58] A. Pietracaprina, G. Pucci, M. Riondato, F. Silvestri, and E. Upfal. Space-round tradeoffs for MapReduce computations. In *Proc. ACM International Conference on Supercomputing (ICS'12)*, pages 235-244, 2012.

[59] A. Pettarin, A. Pietracaprina, G. Pucci, and E. Upfal. Tight bounds on information dissemination in sparse mobile networks. In *Proc. 30th ACM Symposium on Principles of Distributed Computing (PODC'11)*, pages 355-362, 2011.

[60] A. Pettarin, A. Pietracaprina, and G. Pucci. On the expansion and diameter of bluetooth-like topologies. In *Proc. 17th European Symposium on Algorithms (ESA'09)*, LNCS 5757, pages 528-539, 2009.

[61] A. Kirsch, M. Mitzenmacher, A. Pietracaprina, G. Pucci, E. Upfal, and F. Vandin. An efficient rigorous approach for identifying statistically significant frequent itemsets. In *Proc. 17th ACM Symposium on Principles of Database Systems (PODS'09)*, pages 117-126, 2009.

[62] R. Grossi, A. Pietracaprina, N. Pisanti, G. Pucci, E. Upfal, and F. Vandin. MADMX: A novel strategy for maximal dense motif extraction. In *Proc. 9th International Workshop on Algorithms in Bioinformatics (WABI'09)*, LNCS 5724, pages 362-374, 2009.

[63] P. Bertasi, M. Bianco, A. Pietracaprina, and G. Pucci. Obtaining performance measures through microbenchmarking in a peer-to-peer overlay computer. In *Proc. 1st IEEE International Conference on Complex, Intelligent and Software Intensive Systems*, pages 285-290, 2007.

[64] P. Crescenzi, C. Nocentini, A. Pietracaprina, G. Pucci, and C. Sandri. On the connectivity of Bluetooth-based ad hoc networks. In *Proc. 13th International European Conference on Parallel and Distributed Computing (Euro-Par'07)*, LNCS 4641, pages 960-969, 2007.

[65] G. Bilardi, A. Pietracaprina, G. Pucci, and F. Silvestri. Network-oblivious algorithms. In *Proc. 21st International Parallel & Distributed Processing Symposium (IPDPS'07)*, 2007.

[66] A. Pietracaprina, and F. Vandin. Efficient Incremental Mining of Top-K Frequent Closed Itemsets. In *Proc. Discovery Science (DS'07)*, LNCS 4755, pages 275-280, 2007.

[67] A. Pietracaprina, G. Pucci, F. Silvestri. Cache-oblivious simulation of parallel programs. In *Proc. IEEE IPDPS Workshop on Advances in Parallel and Distributed Computational Models*, 2006.

[68] G. Bilardi, A. Pietracaprina, G. Pucci, F. Schifano and R. Tripiccione. The potential of on-chip multiprocessing for QCD machines. In *Proc. 12th International Conference on High-Performance Computing (HiPC'12)*, LNCS 3769, pages 386-397, 2005.

[69] C. Fantozzi, A. Pietracaprina, and G. Pucci. Translating submachine locality into locality of reference. In *Proc. 18th International Parallel & Distributed Processing Symposium (IPDPS'04)*, 2004. Best Paper Award (Algorithm Track).

[70] A. Pietracaprina and D. Zandolin. Mining frequent itemsets using Patricia tries. In *Proc. Workshop on Frequent Itemset Mining Implementations (FIMI'03)*, 2003. CEUR-WS Workshop On-line Proceedings, Vol. 90.

[71] C. Fantozzi, A. Pietracaprina, and G. Pucci. Seamless integration of parallelism and memory hierarchy. In *Proc. 29th Int. Colloquium on Automata, Languages and Programming (ICALP'02)*, LNCS 2380, pages 856-867, 2002.

[72] F. Dehne, S. Mardegan, A. Pietracaprina, and G. Prencipe. Distribution sweeping on clustered machines with hierarchical memories. In *Proc. 16th International Parallel & Distributed Processing Symposium (IPDPS'02)*, 2002.

[73] A. Pietracaprina and G. Pucci. Optimal many-to-one routing on the mesh. In *Proc. 7th International European Conference on Parallel and Distributed Computing (Euro-Par'01*, LNCS 2150, pages 645-650, 2001.

[74] K.T. Herley, A. Pietracaprina, and G. Pucci. One-to-many routing on the mesh. In *Proc. 13th ACM Symp. on Parallel Algorithms and Architectures (SPAA'01)*, pages 31-37,

[75] G. Bilardi, C. Fantozzi, A. Pietracaprina, and G. Pucci. On the effectiveness of D-BSP as a bridging model of parallel computation. In *Proc. Int. Conference on Computational Science*, LNCS 2074, pages 579-588, 2001.

[76] C. Fantozzi, A. Pietracaprina, and G. Pucci. Implementing shared memory on clustered machines. In *Proc. 15th International Parallel & Distributed Processing Symposium (IPDPS'01)*, San Francisco, USA, 2001.

[77] G. Bilardi, A. Pietracaprina, and P. D'Alberto. On the space and access complexity of computation dags. In *Proc. 26th Workshop on Graph-Theoretic Concepts in Computer Science (WG'00)*, LNCS 1928, pages 47-58, 2000.

[78] G. Bilardi, K. Herley, A. Pietracaprina, and G. Pucci. On stalling in LogP. In *Proc. IEEE IPDPS Workshop on Advances in Parallel and Distributed Computational Models*, LNCS 1800, pages 109-115, 2000.

[79] N.M. Amato, J. Perdue, A. Pietracaprina, G. Pucci, L.K. Dale, and J. Purdue. Predicting performance on SMP's. A case study: The SGI Power Challenge. In *Proc. 14th International Parallel & Distributed Processing Symposium (IPDPS'00)*, pages 729-737, 2000.

[80] G. Bilardi, A. Pietracaprina, and G. Pucci. A quantitative measure of portability with application to bandwidth-latency models for parallel computing. In *Proc. 5th International European Conference on Parallel and Distributed Computing (Euro-Par'99)*, LNCS 1685, pages 543-551, 1999.

[81] K. Herley, A. Pietracaprina, and G. Pucci. Deterministic branch-and-bound on distributed memory machines. In *Proc. IEEE IPDPS Workshop on Solving Irregularly Structured Problems in Parallel (IRREGULAR'99)*, pages 1085-1094, 1999.

[82] A. Pietracaprina. Deterministic routing of h-relations on the multibutterfly. In *Proc. of the First Merged IPPS/SPDP Symposium: 12th International Parallel Processing Symposium and 9th Symposium on Parallel and Distributed Processing*, pages 375-379, 1998.

[83] R. Grossi, A. Pietracaprina, and G. Pucci. Optimal deterministic protocols for mobile robots on a grid. In *Proc. 6th Scandinavian Workshop on Algorithm Theory (SWAT'98)*, LNCS 1432, pages 181-192, 1998.

[84] N.M. Amato, A. Pietracaprina, G. Pucci, L.K. Dale, and J. Purdue. A cost model for shared memory access on a symmetric multiprocessor. In *10th ACM Symp. on Parallel Algorithms and Architectures (SPAA'98)*, 1998. Poster.

[85] A. Bäumker, W. Dittrich, and A. Pietracaprina. The deterministic complexity of parallel multisearch. In *Proc. 5th Scandinavian Workshop on Algorithm Theory (SWAT'96)*, LNCS 1097, pages 404-415, 1996.

[86] K. Herley, A. Pietracaprina, and G. Pucci. Fast deterministic backtrack search. In *Proc. 23rd Int. Colloquium on Automata, Languages and Programming (ICALP'96)*, LNCS 1099, pages 598-609, 1996.

[87] G. Bilardi, K.T. Herley, A. Pietracaprina, G. Pucci, and P. Spirakis. BSP vs LogP. In *Proc. of the 8th ACM Symp. on Parallel Algorithms and Architectures (SPAA'96)*, pages 25-32, 1996.

[88] K. Herley, A. Pietracaprina, and G. Pucci. Implementing shared memory on multi-dimensional meshes and on the fat-tree. In *Proc. 3rd European Symposium on Algorithms (ESA'95)*, LNCS 979, pages 60-74, 1995.

[89] A. Pietracaprina and G. Pucci. Improved deterministic PRAM simulation on the mesh. In *Proc. 22nd Int. Colloquium on Automata, Languages and Programming (ICALP'95)*, LNCS 1099, pages 598-609, 1995.

[90] A. Pietracaprina and G. Pucci. Tight bounds on deterministic PRAM emulations with constant redundancy. In J.V. Leeuwen, editor, *Proc. 2nd European Symposium on Algorithms (ESA'94)*, LNCS 855, pages 319-400, 1994.

[91] A. Pietracaprina, G. Pucci, and J. Sibeyn. Constructive deterministic PRAM simulation on a mesh-connected computer. In *Proc. 6th ACM Symp. on Parallel Algorithms and Architectures (SPAA'94)*, pages 248-256, 1994.

[92] A. Pietracaprina and F.P. Preparata. A practical constructive scheme for deterministic shared-memory access. In *Proc. 5th ACM Symp. on Parallel Algorithms and Architectures (SPAA'93)*, pages 100-109, 1993.

[93] A. Pietracaprina and F.P. Preparata. An $O(\sqrt{n})$-worst-case-time solution to the granularity problem. In K.W. Wagner P. Enjalbert, A. Finkel, editor, *Proc. 10th Symp. on Theoretical Aspects of Computer Science (STACS'93)*, LNCS 665, pages 110-119, 1993.

[94] A. Krishna, A. Pietracaprina, and B. Hajek. Packet routing in optimal time on a butterfly. In *Proc. 10th IEEE International Conference on Computer Communications (INFOCOM'91)*, pages 0840-0849, 1991.

[95] F. Luccio, A. Pietracaprina, and G. Pucci. Analysis and implementation of parallel uniform hashing. In *Proc. 1st Italian Conference on Algorithms and Complexity*, pages 1-12, 1990.

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