

# Curriculum Vitae et Studiorum

**Paolo Penna**

## Personal Data:

Name Paolo Penna  
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## Education:

1991-1996 Degree in Computer Science at the University of Rome "La Sapienza"  
(advised by [Pilu Crescenzi](#))  
1996-2000 PhD in Computer Science at the University of Rome "La Sapienza"  
(advised by [Giorgio Gambosi](#))

## Working Experiences and Visiting Positions:

Apr 1999 - Jan 2001 Visiting INRIA in Sophia Antipolis (hosted by [Afonso Ferreira](#))  
Mar 2001 - Apr 2001 Visiting ETH Zurich (hosted by [Peter Widmayer](#))  
May 2001 - Sep 2002 PostDoc at ETH Zurich (hosted by [Peter Widmayer](#))  
Feb 2002 - Mar 2002 Visiting Carleton University (hosted by [Evangelos Kranakis](#))  
Oct 2002 - Aug 2011 PostDoc at Università di Salerno (hosted by [Vincenzo Auletta](#)  
and [Giuseppe Persiano](#))  
Sep 2011 - Dec 2011 PostDoc at ETH Zurich (hosted by [Peter Widmayer](#))  
Jan 2012 - Aug 2012 PostDoc at Università di Salerno (hosted by [Vincenzo Auletta](#)  
and [Giuseppe Persiano](#))  
Sep 2012 - Dec 2012 PostDoc at ETH Zurich (hosted by [Peter Widmayer](#))  
Apr 2013 - Jun 2013 PostDoc at ETH Zurich (hosted by [Peter Widmayer](#))  
Jun 2014 PostDoc at ETH Zurich (hosted by [Peter Widmayer](#))  
Sep 2014 - July 2014 PostDoc at LIAFA, Université Paris Diderot  
(hosted by [Pierre Fraigniaud](#))  
Sep 2015 - Present PostDoc at ETH Zurich (hosted by [Peter Widmayer](#))

## Languages:

Italian (mother tongue), English (fluent), French (fluent), German (basic).

## Program Committees:

2017 [IPDPS-18](#)  
2016 [DISC-16](#), [IPDPS-17](#)  
2015 [ICTCS-15](#)  
2013 [FUN-14](#)  
2012 [MFCS-12](#), [SAGT-12](#)  
2011 [SAGT-11](#)  
2008 [SOFSEM-09](#), [WAOA-08](#), [ComP2P-08](#)  
2007 [Student Research Competition at MOBICOM-07](#) (co-chair)  
[FUN-07](#), [P2P-07](#) [AD-HOC-NOW-07](#)  
2006 [P2P-06](#), [AD-HOC-NOW-06](#)  
2005 [P2P-05](#), [MOBIHOC-05](#)  
2003 [AD-HOC-NOW-03](#)

## Research Interests:

- Algorithms and Complexity,
- Algorithmic Game Theory, Micro Economics and the Internet,
- Wireless Networks,
- Online Algorithms,
- Parallel Computing,
- Knowledge Representation,
- Graph Drawing,
- Computational Biology.

## Publications

### Conferences with Review Process

1. B. Geissmann, S. Leucci, C.H. Liu, and P. Penna. *Optimal dislocation with persistent errors in subquadratic time*. Proc. of **STACS-18**.
2. B. Geissmann and P. Penna. *Inversions from Sorting with Distance-based Errors*. Proc. of **SOFSEM-18**.
3. B. Geissmann, S. Leucci, C.H. Liu, and P. Penna. *Sorting with Recurrent Comparison Errors*. Proc. of **ISAAC-17**.
4. C. Chen, P. Penna, and Y. Xu. *Selfish Jobs with Favorite Machines: Price of Anarchy vs Strong Price of Anarchy*. Proc. of **COCOA-17**.
5. A. Bärtschi, D. Graf, and P. Penna. *Truthful Mechanisms for Delivery with Mobile Agents*. Proc. of **ATMOS-17**.
6. A. Bärtschi, J. Chalopin, S. Das, Y. Disser, D. Graf, J. Hackfeld, and P. Penna. *Energy-efficient Delivery by Heterogeneous Mobile Agents*. Proc. of **STACS-17**.

7. M. Mihalák, P. Penna, and P. Widmayer. *Bribeproof mechanisms for two-values domains*. Proc. of **SAGT-16**.
8. P. Crescenzi, P. Fraigniaud, Z. Lotker, and P. Penna. *Core-Periphery Clustering and Collaboration Networks*. Proc. of **ASONAM-16** (short paper).
9. A. Bärtschi, B. Geissmann, D. Graf, T. Hruz, P. Penna, and T. Tschager. *On computing the total displacement number via weighted Motzkin paths*. Proc. of **IWOCA-16**.
10. S. Montanari and P. Penna. *On Sampling Simple Paths in Planar Graphs According to Their Lengths*. Proc. of **MFCS-15**.
11. D. Ferraioli and P. Penna. *Imperfect Best-Response Mechanisms*. Prof. of **SAGT-13**.
12. J. Chalopin, S. Das, M. Mihalák, P. Penna, and P. Widmayer. *Data-Delivery by Energy-Constrained Mobile Robots*. Proc. of **ALGOSENSORS-13**.
13. V. Auletta, D. Ferraioli, F. Pasquale, P. Penna, and G. Persiano. *Logit Dynamics with Concurrent Updates for Local Interaction Games*. Proc. of **ESA-13**.
14. V. Auletta, G. Christodoulou, and P. Penna. *Mechanisms for scheduling with single-bit private values*. Proc. of **SAGT-12**.
15. V. Auletta, D. Ferraioli, F. Pasquale, P. Penna, and G. Persiano. *Convergence to Equilibrium of Logit Dynamics for Strategic Games*. Proc. of **SPAA-11**.
16. P. Penna, F. Schoppmann, R. Silvestri, and P. Widmayer. *Pseudonyms in cost-sharing games*. Proc. of **WINE-09**.
17. V. Auletta, P. Penna, and G. Persiano. *Private capacities in mechanism design*. Proc. of **MFCS-09**.
18. P. Penna and C. Ventre. *Optimal collusion-resistant mechanisms with verification*. Proc. of **EC-09**.
19. V. Auletta, L. Moscardelli, P. Penna, and G. Persiano. *Interference Games in Wireless Networks*. Proc. of **WINE-08**.
20. P. Penna and C. Ventre. *Collusion-Resistant Mechanisms with Verification Yielding Optimal Solutions*. Proc. of **ESA-08**.
21. V. Auletta, P. Penna, G. Persiano, and C. Ventre. *Alternatives to Truthfulness are Hard to Recognize*. Proc. of **SAGT-08**.
22. A. Monti, P. Penna, and R. Silvestri. *An Equivalent Version of the Caccetta-Häggkvist Conjecture in an Online Load Balancing Problem*. Proc. of **WG-07**.
23. P. Penna, G. Proietti, and P. Widmayer, *Strongly Polynomial-Time Truthful Mechanisms in One Shot*. Proc. of **WINE-06**.
24. V. Auletta, R. De Prisco, P. Penna, P. Persiano, and C. Ventre. *New Constructions of Mechanisms with Verification*. Proc. of **ICALP-06**.
25. P. Penna and C. Ventre. *The Algorithmic Structure of Group Strategyproof Cost-Sharing Mechanisms* Proc. of **STACS-06**.
26. P. Crescenzi, M. Di Ianni, A. Lazzone, P. Penna G. Rossi, and P. Vocca. *Equilibria for Broadcast Range Assignment Games in Ad-Hoc Networks*. Proc. of **AD-HOC-NOW-05**.
27. V. Auletta, R. De Prisco, P. Penna, and G. Persiano. *On Designing Truthful Mechanisms for Online Scheduling*. Proc. of **SIROCCO-05**.

28. P. Penna and C. Ventre. *Free-riders in Steiner tree cost-sharing games*. Proc. of **SIROCCO-05**.
29. P. Penna and C. Ventre. *Energy-efficient Broadcasting in Ad-Hoc Networks: Combining MSTs with Shortest-path Trees*. Proc. of **PE-WASUN-04**.
30. P. Penna and C. Ventre. *More Powerful and Simpler Cost-Sharing Methods*. Proc. of **WAOA-04**.
31. V. Auletta, R. De Prisco, P. Penna, and P. Persiano. *The Power of Verification for One-Parameter Agents*. Proc. of **ICALP-04**.
32. G. Melideo, P. Penna, G. Proietti, R. Wattenhofer, and P. Widmayer. *Truthful mechanisms for generalized utilitarian problems*. Proc. of **IFIP-TCS-04**.
33. V. Auletta, R. De Prisco, P. Penna, and P. Persiano. *How to Route and Tax Selfish Unsplittable Traffic*. Proc. of **SPAA-04**.
34. P. Penna and C. Ventre. *Sharing the cost of multicast transmissions in wireless networks*. Proc. of **SIROCCO-04**.
35. V. Auletta, R. De Prisco, P. Penna, and P. Persiano. *Deterministic Truthful Approximation Mechanisms for Scheduling Related Machines*. Proc. of **STACS-04**.
36. P. Crescenzi, G. Gambosi, G. Nicosia, P. Penna, and W. Unger. *On-line load balancing made simple: Greedy strikes back*. Proc. of **ICALP-03**.
37. C. Ambuehl, A. Clementi, P. Penna, G. Rossi, and R. Silvestri. *Energy Consumption in Radio Networks: Selfish Agents and Rewarding Mechanisms*. Proc. of **SIROCCO-03**.
38. M. Cielibak, S. Eidenbenz, A. Pagourtzis, and P. Penna. *Noisy Data Make the Partial Digest NP-hard*. Proc. of **WABI-03**.
39. G. Bongiovanni and P. Penna. *XOR-based schemes for fast parallel IP lookups*. Proc. of **CIAC-03**.
40. E. Kranakis, P. Penna, K. Schlude, D.S. Taylor, and P. Widmayer. *Improving Customer Proximity to Railway Stations*. Proc. of **CIAC-03**.
41. A.E.F. Clementi, G. Huiban, P. Penna, G. Rossi, and Y.C. Verhoeven. *On the Approximation Ratio of the MST-based Heuristic for the Energy-Efficient Broadcast Problem in Static Ad-Hoc Radio Networks*. Proc. of **WMAN-03**.
42. A.E.F. Clementi, G. Huiban, P. Penna, G. Rossi, and Y.C. Verhoeven. *Some Recent Theoretical Advances and Open Questions on Energy Consumption in Ad-Hoc Wireless Networks*. Proc. of **ARACNE-02**.
43. L. Anderegg, P. Penna, and P. Widmayer. *Online train disposition: to wait or not to wait?* Proc. of **ATMOS-02**.
44. A. Pagourtzis, P. Penna, K. Schlude, K. Steinhofel, D.S. Taylor, and P. Widmayer. *Server Placements for Win-Win Strategies*. Proc. of **IFIP-TCS-02**.
45. T. Erlebach, M. Gantenbein, D. Huerlimann, G. Neyer, A. Pagourtzis, P. Penna, K. Schlude, K. Steinhofel, D.S. Taylor, and P. Widmayer. *On the complexity of train assignment problems*. Proc. of **ISAAC-01**.
46. A. Clementi, P. Crescenzi, A. Monti, P. Penna, and R. Silvestri. *On Computing Ad-Hoc Selective Families*. Proc. of **RANDOM-01**.
47. A. Clementi, P. Crescenzi, P. Penna, G. Rossi, and P. Vocca. *On the Complexity of Computing Minimum Energy Consumption Broadcast Subgraphs*. Proc. of the **STACS-01**.

48. A. Clementi, A. Ferreira, P. Penna, S. Perennes, and R. Silvestri. *The Minimum Range Assignment Problem on Linear Radio Networks*. Proc. of **ESA-00**.
49. P. Crescenzi, G. Gambosi, and P. Penna. *On-Line Algorithms for the Channel Assignment Problem in Cellular Networks*. Proc. of **DIALM-00**.
50. G. Bongiovanni, A. Clementi, and P. Penna. *A Note on Parallel Read Operations on Large Public Databases*. Proc. of **ARACNE-00**.
51. P. Penna. *Succinct Representations of Model Based Belief Revision*. Proc. of **STACS-00**.
52. A. Clementi, P. Penna, and R. Silvestri. *The Power Range Assignment Problem in Radio Networks on the Plane*. Proc. of **STACS-00**.
53. A. Clementi, P. Penna, and R. Silvestri. *Hardness Results for The Power Range Assignment Problem in Packet Radio Networks*. Proc. of **APPROX-99**.
54. A. Andreev, A. Clementi, P. Penna, and J. Rolim. *Memory Organization Schemes for Large Shared Data: A Randomized Solution for Distributed Memory Machines*. Proc. of **STACS-99**.
55. P. Penna and P. Vocca. *Proximity Drawings: Three Dimensions are Better than Two*. Proc. of **GD-98**.
56. P. Penna and P. Vocca. *Proximity Drawings of Binary Trees in Polynomial Area*. Proc. of **CCCG-98**.
57. P. Crescenzi and P. Penna. *Minimum-Area  $h$ - $v$  Drawings of Complete Binary Trees*. Proc. of **GD-97**.
58. P. Crescenzi and P. Penna. *Upward Drawings of Search Trees*. Proc. of **WG-96**.

#### International Journals

59. S. Leucci, A. Mamageishvili, and P. Penna. *No truthful mechanism can be better than  $n$  approximate for two natural problems*. **Games and Economic Behavior**, 111: 64-74, 2018.
60. B. Geissmann and P. Penna. *Sorting processes with energy-constrained comparisons*. **Physical Review E**, 97(5):052108, 2018.
61. P. Penna. *The price of anarchy and stability in general noisy best-response dynamics*. **International Journal of Game Theory**, 47(3): 839-855, 2018.
62. A. Mamageishvili and P. Penna. *Tighter Bounds on the Inefficiency Ratio of Stable Equilibria in Load Balancing Games*. **Operations Research Letters**, 44:645-648, 2016.
63. V. Auletta, D. Ferraioli, F. Pasquale, P. Penna, G. Persiano. *Logit Dynamics with Concurrent Updates for Local Interaction Potential Games*. **Algorithmica**, 73(3): 511-546, 2015.
64. V. Auletta, G. Christodoulou, P. Penna. *Mechanisms for Scheduling with Single-Bit Private Values*. **Theory of Computing Systems**, 57(3): 523-548, 2015.
65. D. Ferraioli, P. Penna. *Imperfect Best-Response Mechanisms*. **Theory of Computing Systems**, 57(3): 681-710, 2015.
66. P. Penna and C. Ventre. *Optimal collusion-resistant mechanisms with verification*. **Games and Economic Behavior**, 86: 491-509, 2014.
67. P. Penna and C. Ventre. *Collusion-Resistant Mechanisms with Verification Yielding Optimal Solutions*. **ACM Transactions on Computation Theory**, 4(2), Article 6, 2012.

68. V. Auletta, P. Penna, G. Persiano, and C. Ventre. *Alternatives to truthfulness are hard to recognize.* **Autonomous Agents and Multi-Agent Systems**, 22(1): 200-216, 2011.
69. V. Auletta, R. De Prisco, P. Penna, and P. Persiano. *The Power of Verification for One-parameter Agents.* **Journal of Computer and System Sciences**, 75:190-211, 2009.
70. V. Auletta, R. De Prisco, P. Penna, G. Persiano. *On designing truthful mechanisms for online scheduling.* **Theoretical Computer Science**, 410(36): 3348-3356, 2009.
71. L. Anderegg, P. Penna, P. Widmayer. *Online Train Disposition: To Wait or Not to Wait?* **Electronic Notes in Theoretical Computer Science**, Volume 66, Issue 6, Pages 32-41, 2002.
72. V. Auletta, R. De Prisco, P. Penna, and P. Persiano. *Routing Selfish Unsplittable Traffic.* **ACM Transactions on Algorithms**, 3(4), 2007.
73. P. Crescenzi, G. Gambosi, G. Nicosia, P. Penna, and W. Unger. *On-line load balancing made simple: Greedy strikes back.* **Journal of Discrete Algorithms**, 5(1):162-175, 2007.
74. G. Bongiovanni and P. Penna. *XOR-based schemes for fast parallel IP lookups.* **Theory of Computing Systems**, 38: 481-501, 2005.
75. C. Ambuehl, A. Clementi, P. Penna, G. Rossi, and R. Silvestri. *On the Approximability of the Range Assignment Problem in Radio Networks in Presence of Selfish Agents.* **Theoretical Computer Science**, 343(1-2): 27-41, 2005.
76. M. Cieliebak, S. Eidenbenz, and P. Penna. *Partial Digest is hard to solve for erroneous input data.* **Theoretical Computer Science**, 349(3): 361-381, 2005.
77. P. Crescenzi, G. Gambosi, and P. Penna. *On-Line Algorithms for the Channel Assignment Problem in Cellular Networks.* **Discrete Applied Mathematics**, 137(3):237-266, 2004.
78. A. Clementi, P. Penna, and R. Silvestri. *On the Power Assignment Problem in Radio Networks.* **ACM Mobile Networks and Applications**, 9(2):125-140, 2004.
79. P. Penna and P. Vocca. *Proximity Drawings in Polynomial Area and Volume.* **Computational Geometry: Theory and Applications**, 20:91-116, 2004.
80. A. Clementi, A. Ferreira, P. Penna, S. Perennes, and R. Silvestri. *The Minimum Range Assignment Problem on Linear Radio Networks.* **Algorithmica**, 35: 95-110, 2003.
81. P. Penna. *On the Approximability of Two Tree Drawing Conventions.* **Information Processing Letters**, Vol. 82/5, pag. 237-242, 2002.
82. P. Crescenzi and P. Penna. *Strictly-upward drawings of ordered search trees.* **Theoretical Computer Science**, Vol. 203, No. 1, pag. 51-67, 1998.
83. P. Crescenzi, P. Penna, and A. Piperno. *Linear Area Upward Drawings of AVL Trees.* **Computational Geometry: Theory and Applications**, Vol. 9, No. 1-2, pag. 25-42, 1998.

#### Chapters in Books

84. A. Ferreira, J. Galtier, and P. Penna. *Topological design, routing and hand-over in satellite networks.* Chapter in Handbook of Wireless Networks and Mobile Computing, John Wiley & Sons, pag. 473-491, 2002.

#### Others

85. D. Ferraioli, A. Meier, P. Penna, and C. Ventre. *On the approximation guarantee of obviously strategyproof mechanisms*. arXiv TR 2018. Available at <https://arxiv.org/abs/1805.04190>
86. B. Geissmann, S. Leucci, C.-H. Liu, and P. Penna. *Optimal Sorting with Persistent Comparison Errors*. arXiv TR 2018. Available at <https://arxiv.org/abs/1804.07575>
87. P. Giessler, A. Mamageishvili, M. Mihalák, and P. Penna. *Sequential Solutions in Machine Scheduling Games*. arXiv TR 2017. Available at <https://arxiv.org/abs/1611.04159>
88. P. Penna and L. Viennot *Independent lazy better-response dynamics on network games*. arXiv TR 2016. Available at <https://arxiv.org/abs/1609.08953>.
89. S. Collet, P. Fraigniaud, and P. Penna. *Local Distributed Algorithms for Selfish Agents*. arXiv TR 2016. Available at <https://arxiv.org/abs/1607.03677>.
90. P. Penna and C. Ventre. *Some New Ideas for Critical Resource Sharing Involving Selfish Agents*. Manuscript, 2005. Available at <http://cgi.csc.liv.ac.uk/~carven/papers/chapter.ps>.
91. A. Clementi, P. Crescenzi, P. Penna, G. Rossi, and P. Vocca. *A Worst-case Analysis of a MST-based Heuristic to Construct Energy-efficient Broadcast Subtrees in Wireless Networks*. Technical Report 010 of the Univ. of Rome "Tor Vergata", 2001. Available at <http://www.liafa.univ-paris-diderot.fr/~penna/papers/stacs01full.pdf>
92. J. Galtier and P. Penna. *Complexity Links Between Matrix Multiplication, Klee's Measure and Call Access Control for Satellite Constellations*. INRIA TR-4166, France, April 2001. Available at <https://hal.inria.fr/inria-00072456/document>
93. A. Andreev, A. Clementi, P. Penna, and J. Rolim. *Parallel Read Operations Without Memory Contention*. Technical report of Electronic Colloquium in Computational Complexity, ECCC TR-0053, 2000.

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