

# CURRICULUM VITAE

ASAF LEVIN

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**Date of Birth:** 20.8.1974  
**Military service:** 1995-2001

## Academic positions

Oct 2003 - Sep 2004 : Postdoctoral fellow;  
Faculty of Industrial Engineering and Management;  
Technion.

Starting Jul 2004 : Lecturer;  
Statistics department;  
The Hebrew university.

## Education

<b>B.Sc.</b>	Tel-Aviv University	(1995)	Computer Science and Mathematics.
<b>M.Sc.</b>	Tel-Aviv University	(1998)	Operations Research .
<b>Ph.D.</b>	Tel Aviv University	(2003)	Operations Research (with distinction).
	Thesis Title:		Synthesis of flow networks.
	Thesis Advisor:		R. Hassin.

## Awards

- Lapid prize for excellence in M.Sc. studies in the year 1997-1998.
- Blecher prize for excellence in Ph.D. in the year 2000-2001.
- Award for an excellence in Ph.D. studies in the year 2001-2002.
- Post-doctoral fellowship in the year 2003-2004.

- ORSIS Excellence prize 2004 (with R. Hassin) for the paper “A better-than-greedy approximation algorithm for the minimum set cover problem”.

## Main research interests

Combinatorial optimization, Algorithms, Approximation algorithms, Network design, Flow networks.

## Published papers

1. R. Hassin and A. Levin, “Approximation algorithms for constructing wavelength routing networks”, *Networks*, **40**, 32-37, 2002.
2. R. Hassin and A. Levin, “Graphs decomposable into two trees and  $k$ -edge-connected subgraphs”, *Discrete Applied Mathematics*, **126**, 181-195, 2003.
3. O. Goldschmidt, D.S. Hochbaum, A. Levin and E.V. Olinick, “The SONET-edge partition problem”, *Networks*, **41**, 13-23, 2003.
4. R. Hassin and A. Levin, “Minimum spanning tree with hop restrictions”, *Journal of Algorithms*, **48**, 220-238, 2003.
5. R. Hassin, A. Levin and D. Morad, “Lexicographic local search and the  $p$ -center problem”, *European Journal of Operational Research*, **151**, 265-279, 2003.
6. R. Hassin and A. Levin, “Minimum restricted diameter spanning trees”, *Discrete Applied Mathematics*, **137**, 343-357, 2004. An extended abstract version of this paper appeared in *Proc. APPROX 2002*, 175-184, 2002.
7. R. Hassin and A. Levin, ”Synthesis of 2-commodity flow networks”, *Mathematics of Operations Research*, **29**, 280-288, 2004. An extended abstract version of this paper appeared in *Proc. IPCO 2001*, 226-235, 2001.
8. R. Hassin and A. Levin, “An efficient polynomial time approximation scheme for the constrained minimum spanning tree problem using matroid intersection”, *SIAM Journal on Computing*, **33**, 261-268, 2004.
9. A. Levin, “A better approximation algorithm for the budget prize collecting tree problem,” *Operations Research Letters*, **32**, 316-319, 2004.

10. A. Levin, "A strongly polynomial-time approximation for a class of bicriteria problems", *Operations Research Letters*, **32**, 530-534, 2004.
11. R. Hassin and A. Levin, "Approximation algorithms for quickest spanning tree problem," *Algorithmica*, **41**, 43-52, 2005. An extended abstract version appeared in *Proc. ESA 2004*.
12. J. Konemann, A. Levin and A. Sinha, "Approximating the degree bounded minimum diameter tree problem", *Algorithmica*, **41**, 117-129, 2005. An extended abstract version appeared in *Proc. APPROX 2003*, 109-121, 2003.
13. R. Hassin and A. Levin, "A better-than-greedy approximation algorithm for the minimum set cover problem", *SIAM Journal on Computing*, **35**, 189-200, 2005.
14. L. Epstein, A. Levin, "The chord version for SONET ADMs minimization", *Theoretical Computer Science*, **349**, 337-346, 2005.
15. R. Hassin and A. Levin, "The minimum generalized vertex cover problem", *ACM/Transactions on Algorithms*, **2**, 66-78, 2006. An extended abstract version appeared in *Proc. ESA 2003*, 289-300, 2003.
16. E. M. Arkin, R. Hassin and A. Levin, "Approximations for min-max vehicle routing problems", *Journal of Algorithms*, **59**, 1-18, 2006.
17. A. Levin and G. J. Woeginger, "The constrained minimum weighted sum of job completion times problem", *Mathematical Programming*, **108**, 115-126, 2006. An extended abstract version appeared in *Proc. IPCO 2004*, 298-307, 2004.
18. D.S. Hochbaum and A. Levin, "Optimizing over consecutive 1's and circular 1's constraints", *SIAM Journal on Optimization*, **17**, 311-330, 2006.
19. D.S. Hochbaum and A. Levin, "Methodologies and algorithms for group rankings decision", *Management Science*, **52**, 1394-1408, 2006.
20. A. Levin, "Real time scheduling with a budget: Parametric-search is better than binary search," *Information Processing Letters*, **99**, 187-191, 2006.
21. L. Epstein and A. Levin, "The conference call search problem in wireless networks," *Theoretical Computer Science*, **359**, 418-429, 2006. An earlier extended abstract version of this paper appeared in *Proc. WAOA 2005*, 133-146, 2005.

22. A. Levin and D. Segev, "Partial Multicuts in Trees," *Theoretical Computer Science*, **369**, 384-395, 2006. An earlier extended abstract version of this paper appeared in *Proc. WAOA 2005*, 320-333, 2005.
23. R. Hassin and A. Levin, "Flow trees for vertex-capacitated networks", *Discrete Applied Mathematics*, **155**, 572-578, 2007.
24. E. Brosh, A. Levin and Y. Shavitt, "Approximation and heuristic algorithms for minimum delay application-layer multicast trees", *IEEE/ACM Transactions on Networking*, **15**, 473-484, 2007.
25. L. Epstein and A. Levin, "SONET ADMs minimization with divisible paths," *Algorithmica*, **49**, 51-68, 2007. An earlier extended abstract version of this paper appeared in *Proc. WAOA 2005*, 119-132, 2005.
26. A. Levin, "The finite horizon investor problem with a budget constraint," accepted to *Information Processing Letters*.
27. D.S. Hochbaum and A. Levin, "Cyclical scheduling and multi-shift scheduling: complexity and approximation algorithms", accepted to *Discrete Optimization*.
28. A. Levin, D. Paulusma and G. J. Woeginger, "The computational complexity of graph contractions I: polynomially solvable and NP-complete cases," accepted to *Networks*. An earlier version titled "The complexity of graph contractions" appeared in *Proc. WG 2003*, 322-333, 2003.
29. A. Levin, D. Paulusma and G. J. Woeginger, "The computational complexity of graph contractions II: two tough polynomially solvable cases," accepted to *Networks*.
30. A. Levin, "A generalized minimum cost  $k$ -clustering," accepted to *ACM/Transactions on Algorithms*.
31. A. Archer, A. Levin and D. P. Williamson, "A Faster, Better Approximation Algorithm for the Minimum Latency Problem," accepted to *SIAM Journal on Computing*.
32. L. Epstein and A. Levin, "An APTAS for generalized cost variable sized bin packing," accepted to *SIAM Journal on Computing*.
33. L. Epstein, T. Erlebach, A. Levin, "Variable Sized Online Interval Coloring with Bandwidth," accepted to *Algorithmica*. An earlier version of this paper appeared in *Proc. 10th Scandinavian Workshop on Algorithm Theory (SWAT)*, 2006, 29-40.

34. L. Epstein and A. Levin, "A Robust APTAS for the Classical Bin Packing Problem," accepted to *Mathematical Programming*. An earlier extended abstract version appeared in *Proc. of the 33rd International Colloquium on Automata, Languages and Programming (ICALP) (1)*, 2006, 214-225.
35. L. Epstein and A. Levin, "A PTAS for delay minimization in establishing wireless conference calls", accepted to *Discrete Optimization*. An earlier extended abstract version appeared in *Proc. WAOA 2004*, 36-47, 2004.
36. A. Levin and M. Penn, "Approximation Algorithm for Minimizing Total Latency in Machine Scheduling with Deliveries", accepted to *Discrete Optimization*.
37. L. Epstein, A. Levin, R. van Stee, "Two dimensional packing with conflicts", accepted to *ACTA Informatica*. An earlier version titled "Multi-dimensional Packing with Conflicts," appeared in *Proc. FCT 2007*, 288-299
38. D.S. Hochbaum and A. Levin, "The multi-integer set cover and the facility terminal cover problem", accepted to *Networks*.
39. L. Epstein, M. M. Halldórsson, A. Levin and H. Shachnai, "Weighted sum coloring in batch scheduling of conflicting jobs," accepted to *Algorithmica*. An earlier extended abstract version appeared in *Proc. Of the 9th International Workshop on Approximation Algorithms for Combinatorial Optimization Problems (APPROX)*, 2006, 116-127.
40. L. Epstein and A. Levin, "More on online bin packing with two item sizes", accepted to *Discrete Optimization*.
41. L. Epstein, A. Levin and R. van Stee, "Online unit clustering: variations on a theme", accepted to *Theoretical Computer Science*.
42. L. Epstein and A. Levin, "On bin packing with conflicts," accepted to *SIAM Journal on Optimization*. An earlier extended abstract version appeared in *Proc. of the 4th Workshop on Approximation and Online Algorithms (WAOA)*, 160-173, 2006.
43. L. Epstein, C. Imreh and A. Levin, "Class constrained bin covering," accepted to *Theory of Computing Systems*.
44. L. Epstein and A. Levin, "Asymptotic fully polynomial approximation schemes for variants of open-end bin packing," accepted to *Information Processing Letters*.
45. A. Levin, G. Mosheiov and A. Sarig, "Scheduling a maintenance activity on parallel identical machines," accepted to *Naval Research Logistics*.

46. L. Epstein and A. Levin, "Better bounds for minimizing SONET ADMs", accepted to *Journal of Computer and System Sciences*. An earlier extended abstract version appeared in *Proc. WAOA 2004*, 281-294, 2004.
47. J. R. Correa and A. Levin, "Monotone covering problems with an additional covering constraint," accepted to *Mathematics of Operations Research*.
48. A. Levin, "Approximating the unweighted k-set cover problem: greedy meets local search," accepted to *SIAM Journal on Discrete Mathematics*. An earlier extended abstract version appeared in *Proc. of the 4th Workshop on Approximation and Online Algorithms (WAOA)*, 290-301, 2006.
49. R. Hassin and A. Levin, "An approximation algorithm for the minimum latency set cover problem", *Proc. ESA 2005*.
50. L. Epstein, A. Levin and G. J. Woeginger, "Graph coloring with rejection," *Proc. of 14th European Symposium on Algorithms (ESA)*, 2006, 364-375.
51. D. S. Hochbaum and A. Levin, "The k-allocation problem and its variants," *Proc. of the 4th Workshop on Approximation and Online Algorithms (WAOA)*, 253-264, 2006.
52. D.S. Hochbaum and A. Levin, "Covering the edges of bipartite graphs using  $K_{2,2}$  graphs," accepted to *Proc. of the 5th Workshop on Approximation and Online Algorithms (WAOA 2007)*.
53. L. Epstein and A. Levin, "On the max coloring problem," accepted to *Proc. of the 5th Workshop on Approximation and Online Algorithms (WAOA 2007)*.
54. L. Epstein and A. Levin, "Minimum weighted sum bin packing," accepted to *Proc. of the 5th Workshop on Approximation and Online Algorithms (WAOA 2007)*.
55. L. Epstein and A. Levin, "Improved randomized results for that interval selection problem," accepted to *Proc. of the 16th European Symposium on Algorithms (ESA 2008)*.