Mohammad R. Salavatipour
Curriculum Vitae (updated May 2018)

Personal Info

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Positions:

July 2009 - Present	Associate Professor, Department of Computing Science, University of Alberta
July 2010 - June 2011	On sabbatical leave at Toyota Tech. Inst. at Chicago
July 2004 - June 2009:	Assistant Professor, Department of Computing Science, University of Alberta
Sept 2003 - July 2004:	Postdoctoral fellow and instructor, Department of Combinatorics and Optimizations, University of Waterloo

Education

Ph.D. 2003:	Department of Computer Science, University of Toronto **Advisor:** Prof. Michael Molloy **Thesis:** Graph Colouring via The Discharging Method
M.Sc. 2000:	Department of Computer Science, University of Toronto **Advisor:** Prof. Derek G. Corneil **Thesis:** On Sum Coloring of Graphs
B.Sc. 1998:	Department of Computer Engineering, Sharif University of Technology **Advisor:** Prof. Mohammad Ghodsi **Thesis:** Parallel Delaunay Triangulation

Awards and Grants

- NSERC Discovery Grant, 2018-2023 ($42,528/year)
- NSERC Discovery Grant, 2013-2018 ($44,000/year)
- NSERC Discovery Grant, 2008-2013 ($24,000/year)
- Alberta Ingenuity New Faculty Award 2008-2011 ($96,000/year)
- NSERC Discovery Grant grant, 2005-2007 ($20,000/year)
- Department of Computing Science Research Excellence Award, 2007.
- Faculty Start-up grant, University of Alberta, 2004-2006 ($20,000/year)
- NSERC postdoctoral fellowship, 2003-2005 (used only for 1 year)
- Killam postdoctoral fellowship, University of Dalhousie 2003 (declined)

Research Interests

Approximation Algorithms, Hardness of approximation, Combinatorial Optimization, Combinatorics and Algorithmic Graph Theory.

Teaching Experience

UNIVERSITY OF ALBERTA:	2018, 2015, 2013, 2011,2007: Topics on Approximation Algorithms and Approximability.
	2009: Topics on Algorithms and Combinatorial Optimization.
	2005: Randomized and Probabilistic Algorithms.
	2012, 2013: Inro. to Foundations of Comp. Science II.
	2008: Algorithms II.
	2012, 2009, 2007, 2005, 2004: CMPUT 204, Algorithms I.
	2015, 2009, 2007: Formal Systems and Logic in Computing Science.
	2005: Approximation Algorithms.
	2005: Honors Seminar.
UNIVERSITY OF TORONTO:	Summer 2003: Computational Complexity and Computability (CSC 364).
	Fall 2002: Discrete Mathematics for Computer Science (CSC 238).

Student/Postdocs supervision

Ph.D. and M.Sc. students supervised:

- Zachary Friggstad, M.Sc., Aug 2007.
  Winner of departmental outstanding M.Sc. thesis award.

- Zhipeng Cai, Ph.D. (co-supervised with Guohui Lin), Aug 2008.
  Winner of 2008 Queen Elizabeth II Doctoral award

- Reza Khani, M.Sc. Aug 2011 (now at Microsoft).

- Zachary Friggstad, Ph.D., Aug 2011.
  Winner of departmental outstanding Ph.D. thesis award.

- Babak Behsaz, Ph.D., Aug 2012 (now at Google).

- Saber Khakpash, M.Sc., Aug 2012.

- Amin Jorati, M.Sc., Aug 2013.

- Sina Khankhajeh, M.Sc., May 2015.

- Rohit Sivakumar, M.Sc., Aug 2015.

- Chris Martin, M.Sc., Aug 2016.

- Arnoosh Golestanian, M.Sc., Aug 2017.

- Mirmahdi Rahgoshayi, Ph.D. (Sept 2016-now).

- Dylan Hyatt-Denesik, M.Sc. (Sept 2017-now).

Postdocs supervised:

- MohammadAli Safari, 2007 - 2008 (now at Google).

- Zoya Svitkina, 2008-2010 (now at Google).

- Imran Pirwani, 2008 - 2010 (now at Apple).

- Mohsen Rezapour, 2015-2016. (now at K. Nasir University).
- Kamyar Khodamoradi, 2017-now.

Publications

Note: Papers that have appeared both at a conference proceedings and then later at a journal appear only ONCE in the following list. In all the publications except [24,37,38,39], the authors' names have been in alphabetical order.

a) Articles Published or Accepted in Refereed Journals

[1] Z. Friggstad, M. Rezapour, and M.R. Salavatipour,
Local Search Yields a PTAS for k-Means in Doubling Metrics,
To appear in special issue of SIAM J. on Computing (selected papers of FOCS'16). Earlier version in Proc. of FOCS 2016.

[2] B. Behsaz, Z. Friggstad, M.R. Salavatipour, and R. Sivakumar,
Approximation Algorithms for Min-Sum k-Clustering and Balanced k-Median, To appear in Algorithmica.
Earlier version in Proc. of ICALP 2015.

[3] S. Ahmadian, B. Behsaz, Z. Friggstad, A. Jorati, M.R. Salavatipour, and C. Swamy,
Approximation Algorithms for Minimum-Load k-Facility Location, TALG 14(2), Article 16, 2018. Earlier version in Proceedings of APPROX 2014.

[4] C. Martin and M.R. Salavatipour, *Approximation Algorithms for Capacitated k-tours,*
To appear in Algorithmica.
Earlier version in Proc. of ISAAC 2016.

[5] B. Behsaz, M.R. Salavatipour, and Z. Svitkina,
New Approximation Algorithms for the Unsplittable Capacitated Facility Location Problem,
To appear in Algorithmica.
Earlier version in Proc. of SWAT 2012.

[6] Sariel Har-Peled, Amir Nayyeri, Mohammad R. Salavatipour, Anastasios Sidiropoulos,
How to Walk Your Dog in the Mountains with No Magic Leash,
Discrete and Computational Geometry 55(1): 39-73 (2016).
Earlier version in Proc. of SoCG 2012.

[7] M. Reza Khani, Mohammad R. Salavatipour,
Improved approximations for buy-at-bulk and shallow-light k-Steiner trees and $(k, 2)$-subgraph,
J. Comb. Optim. 31(2): 669-685 (2016).
Earlier version in Proc. of ISAAC 2011.

[8] Babak Behsaz, Mohammad R. Salavatipour,
On Minimum Sum of Radii and Diameters Clustering,
Algorithmica 73(1): 143-165 (2015).
Earlier version in Proc. of SWAT 2012

[9] M. Reza Khani, Mohammad R. Salavatipour,
Improved Approximation Algorithms for the Min-max Tree Cover and Bounded Tree Cover Problems,
Algorithmica 69(2): 443-460 (2014).
Earlier version in Proc. of APPROX 2011.

[10] Nikhil Bansal, Zachary Friggstad, Rohit Khandekar, Mohammad R. Salavatipour,
A logarithmic approximation for unsplittable flow on line graphs,
ACM Trans. Algorithms 10(1): 1 (2014).
Earlier version in Proc. of SODA 2009.

[11] Zachary Friggstad, Mohammad R. Salavatipour, Zoya Svitkina,
Asymmetric Traveling Salesman Path and Directed Latency Problems,
SIAM J. Comput. 42(4): 1596-1619 (2013).
Earlier version in Proc. of SODA 2010.

[12] R. Khandekar, G. Kortsarz, V. Mirrokni, and M.R. Salavatipour,
Approximation and hardness results for robust network design with exponential scenarios,
Algorithmica 65(2): 391-408 (2013).
Earlier version in Proc. of ESA 2008.

[13] I. Pirwani and M.R. Salavatipour,
A Weakly Robust PTAS for Minimum Clique Partition in Unit Disk Graphs,
Algorithmica 62(3-4): 1050-1072 (2012).
Earlier version in Proc. of SWAT 2010.

[14] M.A. Safari and M.R. Salavatipour,
A constant factor approximation for minimum λ-edge-connected k-subgraph with metric costs,
SIAM J. Discrete Math. 25 (3): 1089-1102 (2011).
Earlier version in Proc. of APPROX 2008.

[15] Z. Friggstad and M.R. Salavatipour,
Minimizing movement in mobile facility location problems,
ACM Transactions on Algorithms 7(3): 28 (2011).
Earlier version in Prof. of FOCS 2008.

[16] Z. Friggstad and M.R. Salavatipour,
Approximability of packing disjoint cycles,
Algorithmica 60(2): 395-400 (2011).
Earlier version in Proc. of ISAAC 2007.

[17] C. Chekuri, M. Hajiaghayi, G. Kortsarz, M. Salavatipour,
Approximation algorithms for non-uniform buy-at-bulk network design,
SIAM J. on Computing (SICOMP) 39(5):1772–1798, 2010.
Earlier version in Prof. of SODA 2007.

[18] L. Lau, S. Naor, M.R. Salavatipour, and M. Singh,
Survivable network design with degree or order constraints,
SIAM J. on Computing (special issue for selected papers of STOC 2007), Vol.39, No.3 pp 1062-1087, 2009.
Earlier version in Proc. of STOC 2007.

[19] M. Hajiaghayi, G. Kortsarz, and M.R. Salavatipour,
Approximating Buy-at-Bulk and Shallow-light k-Steiner tree,
Algorithmica, Volume 53(1), pp 89-103, 2009.
Earlier version in APPROX 2006.

[20] E. Demaine, U. Feige, M. Hajiaghayi, and M.R. Salavatipour,
Combination can be hard: approximability of the unique coverage problem,
SIAM J. on Computing, Volume 38, No 4, pp. 1464-1483.
Earlier version in Proc. of SODA 2006.

[21] M. Krivelevich, Z. Nutov, M.R. Salavatipour, J. Verstraete, and R. Yuster
Approximation algorithms and hardness results for cycle packing problems,

ACM Transactions on Algorithms, Volume 3(4), November 2007.

[22] J. Cheriyan and M.R. Salavatipour,
Packing element-disjoint steiner trees,
ACM Transactions on Algorithms, Volume 3(4), November 2007.
Earlier version in Proc. of APPROX 2005.

[23] M. Molloy and M.R. Salavatipour,
The resolution complexity of random constraint satisfaction problems,
SIAM J. on Computing 37(3): 895-922, 2007. Earlier version in FOCS 2003.

[24] Z. Cai, R. Goebel, M.R. Salavatipour, and G. Lin,
Selecting dissimilar genes for multi-class classification, an application in cancer subtyping,
BMC Bioinformatics 2007, 8(206), 15 pages.

[25] J. Cheriyan and M.R. Salavatipour,
Hardness and approximation results for packing steiner trees,
Algorithmica 45(1):21-43, 2006.
The special issue for selected papers of ESA 2004.

[26] M.R. Salavatipour,
Large induced forests in triangle-free planar graphs,
Graphs and Combinatorics 22(1):113-126, 2006.

[27] M. Molloy and M.R. Salavatipour,
A bound on the chromatic number of the square of a planar graph,
J. of Combinatorial Theory (Series B), Volume 94(2), pp 189-213, 2005.
Earlier version (with a different title) in Proc. of ESA 2002.

[28] O.V. Borodin, A.N. Glebov, A. Raspaud, M.R. Salavatipour,
Planar graphs without cycles of length from 4 to 7 are 3-colorable,
J. of Combinatorial Theory (Series B), 93:303-311, 2005.

[29] M.R. Salavatipour, *A (1+ϵ)-approximation algorithm for partitioning hypergraphs using a new algorithmic version of the Lovász local lemma* ,
Random Struc. & Algorithms 25(1) 68-90, 2004.
Earlier version in Proc. of SODA 2003.

[30] M.R. Salavatipour,
A polynomial time algorithm for strong edge coloring of partial k-trees,
Discrete Applied Mathematics 143:(1-3) 285-291, 2004.

[31] M.R. Salavatipour,
On sum coloring of graphs,
Discrete Applied Math. 127(3) 477-488, 2003.

[32] M. Mahdian, E.S. Mahmoodian, A. Saberi, M.R. Salavatipour, and R. Touserkani,
On a Conjecture of Keedwell and the Cycle Double Cover Conjecture,
Disc. Math. 216: (1-3), pp 287-292, 2000.

c) Articles in Refereed Conferences (without a journal version)

[33] Z. Friggstad, K. Khodamoradi, M. Rezapour, and M.R. Salavatipour,
Approximation Schemes for Clustering with Outliers,
In Proceedings of SODA 2018.

[34] Z. Friggstad, A. Golestanian, K. Khodamoradi, C. Martin, M. Rahgoshay, M. Rezapour, and M.R. Salavatipour,
Scheduling Problems over Network of Machines, In Proceedings of APPROX 2017.

[35] Z. Friggstad, M. Rezapour, and M.R. Salavatipour,
Approximating Connected Facility Location with Lower and Upper Bounds via LP Rounding,
In Proceedings of SWAT 2016.

[36] J. A. Soto, M. Rezapour, Z. Friggstad, and M. R. Salavatipour,
LP-based Approximation Algorithms for Facility Location in Buy-at-Bulk Network Design,
In Proceedings of WADS 2015.

[37] O. Madani, W. Greiner, D. Kempe, and M. Salavatipour,
Recall systems: efficient learning and use of category indices,
In Proceedings of the Eleventh International Conference on Artificial Intelligence and Statistics (AISTAT) 2007.

[38] Z. Cai, R. Goebel, M. Salavatipour, Y. Shi, Lizhe Xu, and G. Lin,
Selecting genes with dissimilar discrimination strength for sample class prediction,
In Proceedings of the Fifth Asia-Pacific Bioinformatics Conference (APBC) 2007, pp 81-90.

[39] Z. Cai, L. Xu, Y. Shi, M. Salavatipour, R. Goebel, and G. Lin,
Using gene clustering to identify discriminatory genes with higher classification accuracy,
In Proceedings of IEEE 6th Symposium on Bioinformatics and Bioengineering (BIBE) 2006, pp 235-242.

[40] C. Chekuri, M. Hajiaghayi, G. Kortsarz, M. Salavatipour,
Approximation algorithms for non-uniform buy-at-bulk network design problems,
In Proceedings of the 47th Annual IEEE Symposium on Foundations of Computer Science (FOCS) 2006, pp 677-686.

[41] M.R. Salavatipour and J. Verstraete,
Disjoint cycles: integrality gap, hardness, and approximation,
In Proceedings of the Eleventh Conference on Integer Programming and Combinatorial Optimization (IPCO) 2005, pp 51-65.

[42] K. Jain, M. Mahdian, and M.R. Salavatipour,
Packing steiner trees,
In Proceedings of the fourteenth Annual ACM-SIAM Symposium on Discrete Algorithms (SODA) 2003, pp 266-274.

d) Non-refereed Contributions

[43] M.R. Salavatipour,
The three color problem for planar graphs, Technical Report CSRG-458, Department of Computer Science, University of Toronto, 2002.

e) Theses

[44] M.R. Salavatipour,
Graph Colouring via the Discharging Method,
Ph.D. thesis, Department of Computer Science, University of Toronto, Aug 2003.

[45] M.R. Salavatipour,
On Sum Coloring of Graphs,
M.Sc thesis, Department of Computer Science, University of Toronto, Jan 2000.

f) Patents

"Packing Steiner trees", joint with K. Jain and M. Mahdian, patent No. 302152.01, Filed 11/20/2003 in USA.

Professional Activities

Member of Program/Organizing Committee for:
     PC Chair for Algorithms and Data Structures Symposium 2019,
     Workshop on Approximation Algorithms and Hardness of Approximation (Banff, Canada, 2011 and 2014).
     First Canadian Discrete and Algorithmic Mathematics Conference (2007),
     SWAT 2014, SODA 2013, COCOON (2007,2009).

Referee/Review for the Following Journals/Conferences/Grant Agencies:

> *Journals and Conferences:* SIAM J. on Computing, SIAM J. on Discrete Math, J. of Combinatorial Theory (Series B), ACM Transactions on Algorithms, J. of Graph Theory, Theory of Computing, Algorithmica, J. of Discrete Algorithms, Discrete Applied Mathematics, Discrete Mathematics, Networks, Discrete Optimization, Electronic J. of Combinatorics, Random Structures and Algorithms, FOCS, STOC, ACM/SIAM (SODA), (STACS), European Symposium on Algorithms (ESA), Workshop on Approximation Algorithms for Combinatorial Optimization Problems (APPROX), International Colloquium on Automata, Languages and Programming (ICALP), Conference on Integer Programming and Combinatorial Optimization (IPCO), International Symposium on Algorithms and Computation (ISAAC), Italian Conference on Theoretical Computer Science (ICTCS).

Collaborators

List of my collaborators in alphabetic order:
     Sara Ahmadian (U. Waterloo), Nikhil Bansal (IBM research), Babak Behsaz (UAlberta), Oleg Borodin (Institute of Mathematics, Novosibirsk, Russia), Zhipeng Cai (University of Alberta), Chandra Chekuri (University of Illinois at Urbana-Champaign), Joseph Cheriyan (University of Waterloo), Erik Demaine (MIT), Uriel Feige (Weizmann Inst), Zachary Friggstad (University of Alberta), Alexei Glebov (Institute of Mathematics, Novosibirsk, Russia), Randy Goebel (University of Alberta), Arnoosh Golestanian (U. Alberta), Wile Greiner (Los Angeles Software), Mohammadtaghi Hajiaghayi (AT&T Research), Sariel Har-Peled (UIUC), Kamal Jain (Microsoft Research), Amin Jorati (U. Waterloo) David Kempe (University of Southern California), Rohit Khandekar (IBM Research), M. Reza Khani (U. Maryland), Kamyar Khodamoradi (U. Alberta), Guy Kortsarz (Rutgers University), Michael Krivelevich (Tel Aviv University), Lap Chi Lau (Chinese University of Hong Kong), Guohui Lin (University of Alberta), Omid Madani (Yahoo! Research), Mohammad Mahdian (Yahoo! Research), Ebad Mahmoodian (Sharif University of Tech.), Chris Martin (U. Alberta), Michael Molloy (University of Toronto), Vahab Mirrokni (Microsoft Research), Seffi Naor (Microsoft Research and Technion, Israel), Amir Nayyeri (University of Illinois at Urbana Champaign), Zeev Nutov (Open University of Israel), Imran Pirwani (University of Alberta), Mirmahdi Rahgoshay (U. Alberta) Andre Raspaud (Université Bordeaux, France), Mohsen Rezapour (U. Alberta), Amin Saberi (Stanford University), MohammadAli Safari (University of Alberta), Yi Shi (University of Alberta), Mohit Singh (Carnegie Mellon University), Rohit Sivakumar (U. Alberta), Anastasios Sidiropoulos (Toyota Tech. Inst, Chicago), Jose Soto (Universidad de Chile), Zoya Svitkina (University of Alberta), Chaitanya Swamy (U. Waterloo), Roozbeh Tusserkani (Sharif University of Tech.), Jacques Verstraete (University of California, San Diego), Lizhe Xu (University of Alberta), Raphael Yuster (University of Haifa).