

Curriculum vitae - Nikhil Bansal

Personal Details

Name Nikhil Bansal
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Education

1999–2003 PhD in Computer Science (awarded Dec 22, 2003), Carnegie Mellon University, USA
Thesis: Algorithms for Flow Time Scheduling. Advisor: Prof. Avrim Blum
1995–1999 Bachelor of Technology, Computer Science and Engineering
Indian Institute of Technology, Mumbai, India.

Employment

2018– Part-time researcher at CWI, Amsterdam
2016 (Fall) Chancellor's Visiting Professor, CS Department, UC Berkeley
2014– Full Professor, Eindhoven University of Technology (TU/e), Netherlands
2011–2013 Associate Professor, Eindhoven University of Technology (TU/e), Netherlands
2008–2011 Manager, Algorithms Group, IBM T.J. Watson Research Center, New York
In addition to research, duties include obtaining funding, seeking business/research opportunities within IBM, and creating a productive environment for the group.
2004–2008 Researcher, IBM T.J. Watson Research Center, New York
Duties include performing basic research, technical consulting with external IBM customers and working with IBM product development teams.

Research Interests

Design and analysis of algorithms with focus on approximation and online algorithms. Related areas such as combinatorial optimization, discrete mathematics, machine learning, complexity theory, queueing theory.

Awards

- Best Paper Award at Foundations of Computer Science (FOCS 2011) for the paper *A polylogarithmic competitive algorithm for the k -server problem*.
- Best Paper Award at European Symposium on Algorithms (ESA 2011) for the paper *Deterministic Discrepancy Minimization*.
- Pat Goldberg Best Paper Award at IBM Research 2010 for the paper *Constructive Algorithms for Discrepancy Minimization*.

- Best Paper Award at European Symposium on Algorithms (ESA 2010) for the paper *When LP Is the Cure for Your Matching Woes*.
- Pat Goldberg Best Paper Award at IBM Research 2007 for the paper *A Primal-Dual Randomized Algorithm for Weighted Paging*.
- Siebel Scholarship Award (2003-2004) for exceptional leadership and academic performance.
- IBM PhD Fellowship Award. Two years 2001-2002 and 2002-2003.

Invited Long-Term visits

- Bridging Continuous and Discrete Optimization Program, Simons Institute, UC Berkeley, Aug-Nov 2017.
- Chancellor's Visiting Professorship, Computer Science Department, Fall 2016, UC Berkeley.
- Algorithms and Uncertainty Program at Simons Institute, UC Berkeley, Aug-Dec 2016.
- Fine-Grained Complexity Program at Simons Institute, UC Berkeley, Aug-Dec 2015.

Honorary Lectures

- Mini-course at *IPCO summer school*, IPCO 2019, Michigan.
- Invited plenary speaker at *Highlights of Algorithms*, HALG 2017, Berlin.
- Invited plenary speaker at *Symposium on Discrete Algorithms*, SODA 2017, Barcelona.
- Invited plenary speaker at MAPSP 2017.
- Teaching a Phd level course, *Algorithms and Uncertainty* at UC Berkeley, Fall 2016.
- Invited speaker at the event *Mathematics of Jiri Matousek* 2016, Prague.
- Invited plenary speaker at FSTTCS 2014, New Delhi.
- Invited plenary speaker at SWAT 2014, Copenhagen.
- Invited semi-plenary speaker at Intl. Symposium on Math. Programming (ISMP 2012), Berlin.
- Invited plenary speaker at ALGO 2012, Ljubljana.
- Montreal Summer School in Graph Theory, 2012, organized by Bruce Reed and Louigi Addario-Berry. Gave 7.5 hour lectures on discrepancy theory.
- Summer School in Combinatorics of Linear and Semidefinite Programming, organized by Fritz Eisenbrand, Berlin, 2012. Gave 3 hour lectures on algorithms for discrepancy.
- Invited lectures at Lunteren LNMB conference, Netherlands, 2012.
- Invited plenary speaker at MAPSP 2007.
- Keynote speaker at IBM-NYU-Columbia New York Area Theory Day, 2005.

Other Invited Talks

Over 70 invited lectures and colloquiums at various top universities and research labs including MIT (4x), Princeton (3x), EPFL (3x), Harvard, Stanford, CMU (2x), U. Washington, Columbia (2x), NYU (2x), Microsoft Research (5x), Rutgers (2x), UIUC, TTI Chicago, Maryland, Mc Gill, Brown, Dartmouth, AT&T Research, Yahoo Research, TU Berlin, Charles University (2x), KTH, Warwick, MPI fur Informatik, LIAFA, Warsaw, Kiel, Aachen, Sapienza (2x), Ecole Polytechnique, Maastricht, IIT Delhi, TIFR.

Several invitation only talks at Dagstuhl (6x), Oberwolfach (3x), Shonan Center (2x), Simons symposiums (3x), Simons Institute (4x), Bellairs Workshop (3x), Banff Center (2x), Bertinoro (2x), Aussois (3x).

Grants as PI

1. **NWO**: VICI Grant “Continuous methods in discrete optimization”, 2018-2023. Amount € 1.38Mil.
2. **ERC**: ERC Consolidator grant “Algorithms for coping with uncertainty and intractability”, 2014-2019. Amount € 1.52Mil.
3. **NWO**: VIDI Grant “Convex Programming: new frontiers and new applications”. 2012-2017. Amount € 800k.

Grants as co-PI

1. **NWO**: TOP-C1 Grant “Approximation Algorithms, Quantum Information and Semidefinite Optimization”. 2014-2019. Amount € 600k. Joint with Monique Laurent (CWI) and Ronald de Wolf (CWI).
2. **NWO**: Free competition grant “Bridging Probabilistic and Competitive Analysis of Scheduling Policies”. Amount € 250k. Joint with Bert Zwart (CWI).
3. **GRF, Hong Kong**: “Competitive on-line scheduling algorithms for minimizing weighted flow time”. Joint with Ho-Leung Chan (CUHK). 2010 - 2013. Amount 792,000(HK\$).
4. **US-Israel BSF**: The k -Server Problem. Jointly with Joseph Naor (Technion), Niv Buchbinder (Tel Aviv) and Anupam Gupta (CMU). 2011-2015. Amount \$200,000. Declined after moving to Europe.

Professional Service

Editorship

- Associate editor for Journal of the ACM, JACM, 2016-current.
- Associate editor for Mathematics of Operations Research, MOR, 2013-current.
- Associate editor for SIAM Journal on Discrete Mathematics, SIDMA, 2012-2018.
- Associate editor for SIAM Journal on Computing, SICOMP, 2013-2018.

Program Chair

- European Symposium on Algorithms (Track A), ESA 2015.
- Models and Algorithms for Planning and Scheduling Problems, MAPSP 2013.

Program Committee Membership

- Foundations of Computer Science, FOCS 2012, 2014, 2018.
- Symposium on Theory of Computing, STOC 2009, 2014.
- Innovations in Theoretical Computer Science, ITCS 2016, 2020.
- Symposium on Discrete Algorithms, SODA 2012, 2020.
- Intl. Colloq. on Automata, Languages and Programming, ICALP 2011, 2014, 2018.
- International Workshop on Approximation Algorithms, Approx/Random 2007, 2009, 2013, 2017, 2019.
- Foundations of Software Technology and Theoretical Computer Science, FSTTCS 2009, 2012.
- Intl. Colloq. on Structural Information and Communication Complexity, SIROCCO 2012.
- Latin American Theoretical Informatics Symposium, LATIN 2012.
- Integer Programming and Combinatorial Optimization, IPCO 2011, 2017.
- International Computing and Combinatorics Conference, COCOON 2010
- Symposium on Parallel Architectures and Algorithms, SPAA 2009, 2017.
- Workshop on online and approximation algorithms, WAOA 2009, 2016.
- European Symposium on Algorithms, ESA 2006, 2015 (chair).

Workshop Organization

- 6th SDP days, CWI Amsterdam, 2018, co-organized with Monique Laurent and Ronald de Wolf.
- Co-organizer for the semester long program, Bridging Continuous and Discrete Optimization, 2017, Simons Institute, Berkeley.
- Workshop on Optimization and Decision-Making Under Uncertainty, 2016, as part of the semester on Algorithms and Uncertainty, at Simons Institute, Berkeley.
- 5th SDP days, CWI Amsterdam, 2016, co-organized with Monique Laurent and Etienne de Klerk.
- Dagstuhl Workshop on Scheduling, 2016, co-organizing with Nicole Megow and Cliff Stein.
- Relaxations and Polyhedral Methods, Hausdorff Institute Bonn, 2015, co-organizing with Ola Svensson, David Williamson and Jens Vygen.
- Deterministic and Stochastic Scheduling, Eurandom Eindhoven, 2015, co-organizing with Sem Borst, Leen Stougie and Gerhard Woeginger.
- Online Algorithms and Learning, Lorentz Center, Leiden, 2014, co-organized with Avrim Blum, Peter Grunwald, Joseph Naor and Shal Shalev-Schwartz.
- Probability and Combinatorics: Stochastic activity month, Eurandom Eindhoven, 2014, co-organized with Jan Draisma, Remco van der Hofstad, Ross Kang and Tobias Muller.
- 4th SDP days, CWI Amsterdam, 2013, co-organized with Monique Laurent and Frank Vallentin.

Student Supervision

- PhD students: Shashwat Garg (2015-), Marek Elias (2014-2018) (now postdoc at EPFL), Greg Koumoutsos (2014-2018) (now postdoc at U. Bruxelles). Bart Kamphorst (2013-2018, co-advised with Bert Zwart), Jorn van der Pol (2013-2017, co-advised with Rudi Pendavingh and Remco v.d. Hofstad)(now postdoc at U. Waterloo).
- Masters thesis (at TU/e): Tom Slenders (2013), Bart Post (2013), Tim Oosterwijk (2013), Britt Mathijssen (2013, co-advised with Johan van Leeuwen), Annette Ficker (2013), Jorn van der Pol (2012, co-advised with Rudi Pendavingh), Reint den Toonder (2012),
- Mentor of summer interns (at IBM): Barna Saha 2011 (now faculty at U Mass. Amherst), Roy Schwartz, 2010 (now faculty at Technion), Ravishankar Krishnaswamy, 2009 (now at MSR India), Viswanath Nagarajan, 2008 (now faculty at U. Michigan), Niv Buchbinder 2007 (now faculty at Tel Aviv U), Ho-Leung Chan, 2006, Amir Epstein 2006 (now at IBM Research, Haifa).
Mentor of summer interns (at TU/e): Jason Li 2018 (grad student CMU), Deepanshu Kush 2017 (undergrad at IIT Mumbai), Nikhil Vyas 2016 (now grad student at MIT), Janardhan Kulkarni (2014)(now at MSR Redmond), Arindam Khan (2014)(now at IISc, Bangalore) Ashish Chiplunkar (2012)(now postdoc at EPFL), Sushmita Gupta (2012).
- Postdocs: Christian Coester (2019-), Jatin Batra (2018-), Makrand Sinha (2018-), Ilan Cohen (2018-2019), Thijs Laarhoeven (2017-2018), Laszlo Kozma (2017-2018) (now faculty at FU Berlin), Seeun William Umboh (2015-2018) (now faculty at Univ. of Sydney), Lukasz Jez (2015-2016) (now faculty at Wroclaw), Ruben v.d. Zwaan (2013-2014), Rohit Khandekar (2006-2008) (now at Knight Capital).

Thesis Committees (excluding own students):

- PhD Committees: Sander Gribling, 2019, Tilburg (advisor: Monique Laurent), Sven Polak, 2019, UvA (advisor: Lex Schrijver), Astrid Pieterse, 2019, TU/e (advisor: Bart Jansen), Guru Guruganesh, 2018, CMU (advisor: Anupam Gupta), Mehran Mehr, 2018, TU/e (advisor: Mark de Berg), Martijn van Ee, 2017, VU (advisor: Leen Stougie), Salvatore Ingala, 2017, IDSIA (advisor: Farizio Grandoni), Christos Kalaitzis, 2017, EPFL (advisor: Ola Svensson), Ilan Reuven Cohen, 2016, Tel Aviv (advisor:

Yossi Azar), Lukas Polacek, 2015, KTH (licentiate, advisor: Johan Hastad), Rob Eggermont, 2015, TU/e (advisor: Jan Draisma), Yael Fleischmann, 2015, TU/e (advisor: Hans Cuypers), Shahar Chen, 2015, Technion (advisor: Joseph Naor), Marc Renault, 2014, Paris (advisor: Adi Rosen), Dimitris Letsios, 2014, Paris, (advisor: Evripides Bampis), Marcel Roeloffzen, 2013, TU/e (advisor: Mark de Berg), Dirk Gerrits, 2013, TU/e (advisor: Mark de Berg), Matthijs Bomhoff, 2013, U. Twente (advisor: Marc Uetz), Lars Praedel, 2012, Kiel (advisor: Klaus Jansen), Cyriel Rutten, 2012, Maastricht (advisor: Tjark Vredeveld), Kevin Verbeek, 2012, TU/e (advisor: Bettina Speckmann), Murat Firat, 2012, TU/e (advisor: Cor Hurkens), Amirali Khosravi, 2011, TU/e (advisor: Mark de Berg), Ravishankar Krishnaswamy, 2011, CMU (advisor: Anupam Gupta), Sungjin Im, 2010, UIUC, (advisor: Chandra Chekuri), Mathilde Hurand, 2008, Ecole Polytechnique (advisor: Christoph Durr).

- Masters Committees: Qi Xiao, 2016 TU/e (Advisor: Kevin Buchin), Joost Kruijff, 2014, TU/e (advisor: Cor Hurkens), Mereke van Garderen, 2013, TU/e (advisor: Bettina Speckmann), Thomas Meyfroyt, 2013, TU/e (advisor: Onno Boxma), Bauke Conijn, 2013, TU/e (advisor: Wim Nuijten), Ton Godtschalk, 2012, TU/e (advisor: Sem Borst), Yuk Hei Chan, 2009, Chinese Univ. of Hong Kong (advisor: Lap Chi Lau).

Teaching

Undergraduate/Masters courses: Linear algebra, basic mathematics, calculus, graphs and algorithms, approximation algorithms.

Graduate courses: Advanced semidefinite programming, algorithms beyond worst case, randomized algorithms, algorithms and uncertainty (Berkeley, Fall 2016).

Full list: Refereed Conference Publications

- [1] New Notions and Constructions of Sparsification for Graphs and Hypergraphs. Nikhil Bansal, Ola Svensson, Luca Trevisan, *Foundations of Computer Science, FOCS 2019*.
- [2] On a generalization of randomized and iterated rounding. Nikhil Bansal, *Symposium on Theory of Computing, STOC 2019*, 1125-1135.
- [3] On the discrepancy of random low degree set systems. Nikhil Bansal, Raghu Meka, *Symposium on Discrete Algorithms, SODA 2019*, 2257-2564.
- [4] The gram-schmidt walk: a cure for the Banaszczyk blues. Nikhil Bansal, Daniel Dadush, Shashwat Garg, Shachar Lovett, *Symposium on Theory of Computing, STOC 2018*, 587-597.
- [5] Nested Convex Bodies are Chaseable. Nikhil Bansal, Martin Bohm, Marek Elis, Grigorios Koumoutsos, Seeun William Umboh, *Symposium on Discrete Algorithms, SODA 2018*, 1253-1260
- [6] Competitive Algorithms for Generalized k -Server in Uniform Metrics. Nikhil Bansal, Marek Elis, Grigorios Koumoutsos, Jesper Nederlof, *Symposium on Discrete Algorithms, SODA 2018*, 992-1001.
- [7] Packing Sporadic Real-Time Tasks on Identical Multiprocessor Systems. Jian-Jia Chen, Nikhil Bansal, Samarjit Chakraborty, Georg von der Bruggen, *Intl. symposium on Algorithms and Computation, ISAAC 2018*, 71:1-71:14
- [8] Weighted k -Server Bounds via Combinatorial Dichotomies. Nikhil Bansal, Marek Elias, Grigorios Koumoutsos, *Foundations of Computer Science, FOCS 2017*, 493–504.
- [9] Algorithmic Discrepancy Beyond Partial Coloring. Nikhil Bansal, Shashwat Garg, *Symposium on Theory of Computing, STOC 2017*, 914–926.
- [10] Faster Space-Efficient Algorithms for Subset Sum, k -Sum and Related Problems. Nikhil Bansal, Shashwat Garg, Jesper Nederlof, Nikhil Vyas, *Symposium on Theory of Computing, STOC 2017*, 198–209.

- [11] The (h, k) -Server Problem on Bounded Depth Trees. Nikhil Bansal, Marek Elias, Lukasz Jez, Grigorios Koumoutsos, *Symposium on Discrete Algorithms, SODA 2017*, pages 1022-1037.
- [12] LP-Based Robust Algorithms for Noisy Minor-Free and Bounded Treewidth Graphs. Nikhil Bansal, Daniel Reichman, Seeun William Umboh, *Symposium on Discrete Algorithms, SODA 2017*, pages 1964-1979.
- [13] Algorithm for Komlos Conjecture: Matching Banaszczyk's bound. Nikhil Bansal, Daniel Dadush and Shashwat Garg, *Foundations of Computer Science, FOCS 2016*, pages 788-799. Invited to SICOMP special issue.
- [14] Lift and Round to improve weighted completion time on unrelated machines. Nikhil Bansal, Aravind Srinivasan and Ola Svensson, *Symposium on Theory of Computing, STOC 2016*, pages 156-167. Invited to SICOMP special issue.
- [15] Approximation-Friendly Discrepancy Rounding. Nikhil Bansal and Viswanath Nagarajan, *Integer Programming and Combinatorial Optimization, IPCO 2016*, pages 375-386.
- [16] Improved Approximation for Vector Bin Packing. Nikhil Bansal, Marek Elias and Arindam Khan, *Symposium on Discrete Algorithms, SODA 2016*, pages 1561-1579.
- [17] On the Lovasz theta function for independent sets. Nikhil Bansal, Anupam Gupta and Guru Guruganesh. *Symposium on Theory of Computing, STOC 2015*, pages 193-200. Invited to SICOMP special issue.
- [18] Minimizing flow-time on unrelated machines. Nikhil Bansal and Janardhan Kulkarni, *Symposium on Theory of Computing, STOC 2015* pages 851-860.
- [19] Tight Bounds for Double Coverage Against Weak Adversaries. Nikhil Bansal, Marek Elias, Lukasz Jez, Greg Koumoutsos and Kirk Pruhs, *WAOA 2015*, pages 47-58. Invited to special issue in Theory of Computing Systems.
- [20] A 2-Competitive Algorithm For Online Convex Optimization With Switching Costs. Nikhil Bansal, Anupam Gupta, Ravishankar Krishnaswamy, Kirk Pruhs, Kevin Schewior and Cliff Stein, *APPROX 2015*, pages 96-109.
- [21] Minimizing maximum flow-time on related machines. Nikhil Bansal and Bouke Cloostermans, *APPROX 2015*, pages 85-95. Invited to special issue in Theory of Computing.
- [22] Approximating independent set in sparse graphs. Nikhil Bansal, *Symposium on Discrete Algorithms, SODA 2015*, pages 1-8.
- [23] On the adaptivity gap of stochastic orienteering. Nikhil Bansal and Viswanath Nagarajan, *Integer Programming and Combinatorial Optimization, IPCO 2014*, pages 114-125. Invited to special issue in Mathematical Programming.
- [24] Almost tight bounds for Vector Scheduling. Nikhil Bansal, Tjark Vredeveld and Ruben van der Zwaan, *LATIN 2014*, pages 45-59. Invited to special issue in Algorithmica.
- [25] Approximating real-time scheduling on identical machines. Nikhil Bansal, Cyriel Rutten, Suzanne van der Ster, Tjark Vredeveld and Ruben van der Zwaan, *LATIN 2014*, pages 550-561.
- [26] Improved Approximation Algorithm for Two-Dimensional Bin Packing. Nikhil Bansal and Arindam Khan, *Symposium on Discrete Algorithms, SODA 2014*, pages 13-25.
- [27] Better Algorithms and Hardness for Broadcast Scheduling via a Discrepancy Approach. Nikhil Bansal, Moses Charikar, Ravishankar Krishnaswamy and Shi Li, *Symposium on Discrete Algorithms, SODA 2014*, pages 55-71.
- [28] On the number of matroids. Nikhil Bansal, Rudi Pendavingh and Jorn van der Pol. *Symposium on Discrete Algorithms, SODA 2013*, pages 675-694.
- [29] Weighted Geometric Set Multi-cover via Quasi-uniform Sampling. Nikhil Bansal and Kirk Pruhs, *European Symposium on Algorithms, ESA 2012*, pages 145-156.
- [30] Tight time-space tradeoff for mutual exclusion. Nikhil Bansal, Vibhor Bhatt, Prasad Jayanti and Ranganath Kondapally, *Symposium on Theory of Computing, STOC 2012*, pages 971-982.

- [31] Multicast Routing for Energy Minimization Using Speed Scaling. Nikhil Bansal, Anupam Gupta, Ravishankar Krishnaswamy, Viswanath Nagarajan, Kirk Pruhs and Cliff Stein, *First Mediterranean Conference on Algorithms, MedAlg 2012*, pages 37-51.
- [32] A Polylogarithmic-Competitive Algorithm for the k -Server Problem. Nikhil Bansal, Niv Buchbinder, Alexander Madry and Joseph (Seffi) Naor, *Foundations of Computer Science, FOCS 2011*, pages 267-276.
Co-winner of the best paper award at FOCS 2011. Invited to JACM.
- [33] Min-Max Graph Partitioning and Small-Set Expansion. Nikhil Bansal, Uriel Feige, Robert Krauthgamer, Konstantin Makarychev, Viswanath Nagarajan, Joseph (Seffi) Naor and Roy Schwartz, *Foundations of Computer Science, FOCS 2011*, pages 17-26. Invited to SICOMP special issue for FOCS 11.
- [34] Deterministic Discrepancy Minimization. Nikhil Bansal and Joel Spencer, *European Symposium on Algorithms, ESA 2011*, pages 408-420.
Winner of the best paper award at ESA 2011. Invited to Algorithmica special issue.
- [35] On Capacitated Set Cover Problems, Nikhil Bansal, Ravishankar Krishnaswamy and Barna Saha, *Approximation Algorithms for Combinatorial Optimization, APPROX 2011*, pages 38-49.
- [36] Minimum Congestion Mapping in a Cloud. Nikhil Bansal, Kang-Won Lee, Viswanath Nagarajan and Murtaza Zafer, *Principles of Distributed Computing, PODC 2011*, pages 267–276.
- [37] Constructive Algorithms for Discrepancy Minimization. Nikhil Bansal, *Foundations of Computer Science, FOCS 2010*, pages 3–10.
Co-winner of the IBM Research 2010 best paper award. Invited to SICOMP special issue for FOCS 2010.
- [38] The Geometry of Scheduling. Nikhil Bansal and Kirk Pruhs, *Foundations of Computer Science, FOCS 2010*, pages 407–414.
- [39] When LP is the cure for your matching woes. Nikhil Bansal, Anupam Gupta, Jian Li, Julian Mestre, Viswanath Nagarajan and Atri Rudra. *European Symposium on Algorithms, ESA 2010*, pages 218–229.
Co-winner of the best paper award at ESA 2010. Invited to Algorithmica special issue.
- [40] Inapproximability of Hypergraph Vertex Cover and Applications to Scheduling Problems. Nikhil Bansal and Subhash Khot, *Intl. Colloquium on Automata, Languages and Programming, ICALP 2010*, pages 250–261.
- [41] Metrical Task Systems and k -server problem on HSTs. Nikhil Bansal, Niv Buchbinder and Seffi Naor, *Intl. Colloquium on Automata, Languages and Programming, ICALP 2010*, pages 287–298.
- [42] Better Scalable Algorithms for Broadcast Scheduling. Nikhil Bansal, Ravishankar Krishnaswamy and Viswanath Nagarajan *Intl. Colloquium on Automata, Languages and Programming, ICALP 2010*, pages 324–335.
- [43] Approximation Algorithms for Diversified Search Ranking. Nikhil Bansal, Kamal Jain, Anna Kazeykina and Joseph Naor, *Intl. Colloquium on Automata, Languages and Programming, ICALP 2010*, pages 273–284.
- [44] On k -Column Sparse Packing Programs. Nikhil Bansal, Nitish Korula, Viswanath Nagarajan and Aravind Srinivasan, *Integer Programming and Combinatorial Optimization, IPCO 2010*, pages 369–382.
- [45] On Generalizations of Network Design Problems with Degree Bounds. Nikhil Bansal, Rohit Khandekar, Jochen Konemann, Viswanath Nagarajan, and Britta Peis, *Integer Programming and Combinatorial Optimization, IPCO 2010*, pages 110–123.
- [46] Towards the Randomized k -Server Conjecture: A Primal-Dual Approach. Nikhil Bansal, Niv Buchbinder and Seffi Naor, in *Symposium on Discrete Algorithms, SODA 2010*, pages 40–55.
- [47] A Constant Factor Approximation Algorithm for Generalized Min-Sum Set Cover. Nikhil Bansal, Anupam Gupta and Ravishankar Krishnaswamy, *Symposium on Discrete Algorithms, SODA 2010*, pages 1539–1545.

- [48] A Structural Lemma in 2-Dimensional Packing, and its Implications on Approximability. Nikhil Bansal, Alberto Caprara, Klaus Jansen, Lars Prædel, Maxim Sviridenko, in *Intl. Symposium on Algorithms and Computation, ISAAC 2009*.
- [49] Regularity Lemmas and Combinatorial Algorithms. Nikhil Bansal and Ryan Williams, in *Foundations of Computer Science, FOCS 2009*, pages 745–754.
- [50] Optimal Long Code Test with One Free Bit. Nikhil Bansal and Subhash Khot, in *Foundations of Computer Science, FOCS 2009*, pages 453–462.
- [51] Improved Bounds for Speed Scaling in Devices Obeying the Cube-Root Rule. Nikhil Bansal, Ho-Leung Chan, Kirk Pruhs, Dmitriy Rogozhnikov-Katz, in *Intl. Colloquium on Automata, Languages and Programming, ICALP 2009*, pages 144-155.
- [52] Job Admission and Resource Allocation in Distributed Streaming Systems. Joel Wolf, Nikhil Bansal, Kirsten Hildrum, Sujay Parekh, Deepak Rajan, Rohit Wagle, Kun-Lung Wu, in *Job Scheduling Strategies for Parallel Processing, JSSPP 2009*, pages 169-189.
- [53] Weighted flow time does not admit $O(1)$ competitive algorithms. Nikhil Bansal, Ho-Leung Chan, in *Symposium on Discrete Algorithms, SODA 2009*, pages 1238-1244.
- [54] Speed Scaling with an arbitrary power function. Nikhil Bansal, Ho-Leung Chan, Kirk Pruhs, in *Symposium on Discrete Algorithms, SODA 2009*, pages 693-701.
- [55] A logarithmic approximation for unsplittable flow on line graphs. Nikhil Bansal, Zachary Friggstad, Rohit Khandekar, Mohammad R. Salavatipour, in *Symposium on Discrete Algorithms, SODA 2009*, pages 702-709 .
- [56] Randomized competitive algorithms for generalized caching. Nikhil Bansal, Niv Buchbinder, Joseph Naor, in *Symposium on Theory of Computing, STOC 2008*, pages 235–244.
- [57] Additive guarantees for degree bounded directed network design. Nikhil Bansal, Rohit Khandekar, Viswanath Nagarajan, in *Symposium on Theory of Computing, STOC 2008*, pages 769–778.
- [58] Classical approximation schemes for the ground-state energy of quantum and classical Ising spin glasses on planar graphs. Nikhil Bansal, Sergey Bravyi and Barbara Terhal, in *Quantum Information Processing, QIP 2008*.
- [59] SODA: An Optimizing Scheduler for Large-Scale Stream-Based Distributed Computer Systems. Joel Wolf, Nikhil Bansal, Kirsten Hildrum, Sujay Parekh, Deepak Rajan, Rohit Wagle, Kun-Lung Wu, in *ACM/IFIP/USENIX Middleware Conference, 2008*.
- [60] Towards Optimal Resource Allocation in Partial-Fault Tolerant Applications. Nikhil Bansal, Ranjita Bhagwan, Navendu Jain, Yoonho Park, Deepak Turaga, Chitra Venkatramani, in *IEEE INFOCOM 2008*, pages 1319–1327.
- [61] Average Rate Speed Scaling. Nikhil Bansal, David P. Bunde, Ho-Leung Chan, Kirk Pruhs, in *Latin American Theoretical Informatics, LATIN 2008*, pages 240–251.
- [62] Speed Scaling with a Solar Cell. Nikhil Bansal, Ho-Leung Chan, Kirk Pruhs, in *Algorithmic Aspects in Information and Management, AAIM 2008*, pages 15–26.
- [63] Scheduling for Speed Bounded Processors. Nikhil Bansal, Ho-Leung Chan, Tak Wah Lam, Lap-Kei Lee, in *Intl. Colloquium on Automata, Languages and Programming, ICALP 2008*, pages 409–420.
- [64] A primal-dual randomized algorithm for weighted paging. Nikhil Bansal, Niv Buchbinder and Joseph (Seffi) Naor, in *Foundations of Computer Science, FOCS 2007*, pages 507–517.
Co-winner of the IBM Research 2007 best paper award. Invited to SICOMP special issue.
- [65] Non-Preemptive min-sum scheduling with resource augmentation. Nikhil Bansal, Ho-Leung Chan, Rohit Khandekar, Kirk Pruhs, Baruch Schieber and Cliff Stein, in *Foundations of Computer Science, FOCS 2007*, pages 614–624.
- [66] An $O(\log^2 k)$ competitive algorithm for metric bipartite matching, Nikhil Bansal, Niv Buchbinder, Anupam Gupta and Joseph (Seffi) Naor, in *European Symposium on Algorithms, ESA 2007*, pages 522–533.

- [67] Competitive algorithms for due date scheduling, Nikhil Bansal, Ho-Leung Chan, Kirk Pruhs, in *Intl. Colloquium on Automata, Languages and Programming, ICALP 2007*, pages 28–39.
- [68] Robust Reductions from Ranking to Classification, Maria-Florina Balcan, Nikhil Bansal, Alina Beygelzimer, Don Coppersmith, John Langford and Gregory B. Sorkin, in *Conference on Learning Theory, COLT 2007*, pages 604–619.
- [69] Dynamic Pricing for Impatient Bidders, Nikhil Bansal, Ning Chen, Neva Cherniavsky, Atri Rudra, Baruch Schieber and Maxim Sviridenko, in *Symposium on Discrete Algorithms, SODA 2007*, pages 726–735.
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