

Personal Information

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Nationality: Iranian, Canadian.

Academic Employment

- **Assistant Professor**, July 2022 - present
Department of Electrical Engineering and Computer Science,
Lassonde School of Engineering, York University
- **Assistant Professor**, July 2017 - June 2022
Department of Computer Science, University of Manitoba
- **Post-doctoral Fellow**, September 2015 - June 2017
Computer Science and Artificial Intelligence Laboratory (CSAIL)
Massachusetts Institute of Technology (MIT)
Adviser: Charles E. Leiserson

Education

- **University of Waterloo**, Waterloo, Canada.
Ph.D. in Computer Science, Sept. 2008 - Sept. 2014
Thesis: Alternative Approaches for Analysis of Bin Packing and List Update Problems
Advisor: Alejandro (Alex) López-Ortiz
Thesis Committee:
David S. Johnson (Computer Science, Columbia University)
Jochen Könnemann (Combinatorics and Optimization, University of Waterloo)
J. Ian Munro (Computer Science, University of Waterloo)
Jonathan Buss (Computer Science, University of Waterloo).
Coursework:
Mathematical Foundations of Computer Networking (with S. Keshav), Topics in Data Structures (with J. Ian Munro), Online algorithms: Competitive analysis and beyond (with A. López-Ortiz), Graph Theoretic Algorithms (with T. Biedl), Numeric Computation for Financial Modelling (with Y. Li), Computational Techniques in Biological Sequence Analysis (with B. Ma), Topics in Distributed Information Systems (with K. Daudjee).
- **Concordia University**, Montreal, Canada.
M.Sc. in Computer Science, Sept. 2006 - Aug. 2008
Thesis: Broadcasting in Weighted-Vertex Graphs
Advisor: Hovhannes A. Harutyunyan
Coursework:
Discrete Mathematics of Paul Erdős (with V. Chvátal), Advanced Algorithm Design (with H. Harutyunyan), Computational Geometry (with T. Fevens), Statistical Natural Language Processing (with L. Kosseim)

- **University of Tehran**, Tehran, Iran.
B.Sc. in Computer Science, Sept. 2002 - Aug. 2006

Research Overview

I am broadly interested in theoretical computer science. A common theme in my research is the application of new theoretical techniques to develop practical algorithms. I have published 14 journal papers in venues such as *Algorithmica*, *ORL*, *DAM*, and *TOCS* and 46 conference papers in venues such as *AAAI*, *IJCAI*, *SPAA*, *DCC*, *ITCS*, *APoCS*, *ICDCS*, *CIKM*, *EDBT*, *STACS*, and *ICALP*.

My areas of interest include:

- Design and analysis of online algorithms
- Augmenting online algorithms with machine-learned predictions
- Beyond worst-case analysis of algorithms
- Data compression and compact data structures
- Graph optimization problems
- Big data applications of online and streaming algorithms (e.g., resource allocation in the Cloud and partitioning social networks)
- Blockchain technology and cryptocurrencies

Research Funding

- **MITACS Accelerate**, for research partnership with the **FLUIDEFI** Company, \$15,000, matched by the company (co-investigator), 2021 - 2022
- Institute for Information Sciences (**INS2I**) Research Project, Centre national de la recherche scientifique (**CNRS**), PIMS-Europe collaboration, €10,400 (co-investigator), 2021 - 2022
- Faculty of Science COVID19 Re-energization Fund, University of Manitoba (teaching relief fund), 2021
- Projets Exploratoires Premier Soutien (**PEPS**), Centre national de la recherche scientifique (**CNRS**), PIMS-Europe collaboration, €11,000 (co-investigator), 2019 - 2020
- Discovery Launch Supplement (**DGECR**), Natural Sciences and Engineering Research Council of Canada (**NSERC**), \$12,500 (principal investigator), 2018 - 2019
- Discovery Grant, Natural Sciences and Engineering Research Council of Canada (**NSERC**), \$140,000 (principal investigator), 2018 - 2023
- Faculty of Science Start-Up Award, University of Manitoba, \$45,000 (principal investigator), 2017

Awards and Honours

- Natural Sciences and Engineering Research Council of Canada Postdoctoral Fellowships Program (**NSERC PDF**) scholarship, 2015 - 2017.
- **NSERC Japan Society for the Promotion of Science Postdoctoral Fellowships (NSERC-JSPS)**, 2015 - 2017 (declined).
- University of Waterloo **Doctoral Thesis Completion Award**, 2014.
- **Derick Wood Memorial Graduate Scholarship**, 2013 - 2014.
- Ontario Graduate Scholarship (**OGS**), 2012 - 2013.
- University of Waterloo **President's Graduate Scholarship (PGS)**, 2012 - 2013.
- Natural Sciences and Engineering Research Council of Canada **Michael Smith Foreign Study Supplements (NSERC MSFSS)** scholarship, 2012.

- Natural Sciences and Engineering Research Council of Canada Alexander Graham Bell Canada Graduate Scholarships (NSERC CGS - D3), 2009 - 2012.
- University of Waterloo President's Graduate Scholarship (PGS), 2009 - 2012.
- University of Waterloo Mathematics Graduate Experience Award, 2008 - 2012.
- University of Waterloo Graduate Entrance Scholarship, 2008 - 2009.
- First place in international U.S.Open competitions in soccer robots 3D-simulation league, together with University of Tehran UTUtd team, Atlanta , Georgia, 2005.
- 6th place in international RoboCup competitions in soccer robots 3D-simulation league, together with University of Tehran UTUtd team, Osaka, Japan, 2005.

Teaching Certificates

- **Kaufman Teaching Certificate Program (KTCP)**
MIT Teaching & Learning Lab, May - June 2016
KTCP is an interactive workshop intended for graduate students and postdocs interested in academic careers or developing skills to support their teaching at MIT.
See <http://t11.mit.edu/design/kaufman-teaching-certificate-program-ktcp> for details.
- **Certificate in University Teaching (CUT)**
Centre for Teaching Excellence at University of Waterloo, Sept. 2009 - Sept. 2014
The CUT program comprises a few courses and workshops and a research project that are completed in a span of six to nine terms, and prepares PhD students to be self-aware, critically-reflective teachers with both theoretical knowledge and practical skills that contribute to success in an academic career.
See <https://uwaterloo.ca/centre-for-teaching-excellence/support-graduate-students/certificate-university-teaching> for details.

Workshops: Course design, Understanding the learner, Dealing with classroom disruptions (successful classroom management), Critical thinking, Writing as a learning tool, Building credibility in a teaching environment, Writing a teaching dossier, and Research projects workshop

Final project title: *Efficient Use of Classroom Response Systems in Teaching Mathematics and Computer Science Courses.*

Teaching Experience

- **Graduate Courses:**
Topics in Algorithm: Graph Algorithms (Comp 4060/7720)
University of Manitoba, Winter 2022.

Topics in Algorithm: Online Algorithms (Comp 4060/7720)
University of Manitoba, Fall 2017, Fall 2018, Fall 2019, Fall 2020.
- **Undergraduate Courses:**
Advanced Analysis and Design of Algorithms (Comp 4420)
University of Manitoba, Winter 2020, Winter 2022.

Analysis of Algorithms & Data Structures (Comp 3170)
University of Manitoba, Winter 2018, Winter 2019, Winter 2020.

Data Structures and Algorithms (Comp 2140)

University of Manitoba, Winter 2019, Fall 2020, Fall 2021.

Data Structures and Data Management (CS 240)

University of Waterloo, Winter 2014, Spring 2015.

- **Guest Lecturer:**

Advanced Performance Engineering of Software Systems, lecture on *CilkSan Determinacy Race Detector*, Massachusetts Institute of Technology, Spring 2017

Online algorithms & Applications, lecture on *Competitiveness of Bin Packing and k-server algorithms*, University of Waterloo, Spring 2014.

- **Teaching Assistant:**

(all at University of Waterloo)

Algorithms (Fall 2009, Winter 2009, Spring 2011), Data Structures and Data Management (Winter 2009, Winter 2012, Fall 2013), Data Types and Structures (Fall 2008, Spring 2010), Introduction to Database Management (Spring 2009, Winter 2011), Computer Applications in Business (Spring 2009, Fall 2012), Advanced Algorithm Design and Analysis (Fall 2011)

Publications

Refereed Journal Papers:

- [J1] Shahin Kamali. “Compact Representation of Graphs with Bounded Bandwidth or Treedepth”. *Information and Computation*, volume 285, pp. 104867, 2022.
- [J2] Joan Boyar, Lene M. Favrholdt, Shahin Kamali, Kim S. Larsen. “Online Bin Covering with Advice”. *Algorithmica*, volume 83(3), pp. 795-821, 2021.
- [J3] Christoph Dürr and Shahin Kamali. “Randomized two-valued bounded delay online buffer management”. *Operations Research Letters (ORL)*, volume 49(2), pp. 246-249, 2021.
- [J4] Md Momin Al Aziz, Shahin Kamali, Noman Mohammed, and Xiaoqian Jiang. “Online Algorithms for Differentially Private Genome-wide Association Studies”. *ACM Transactions on Computing for Healthcare*, volume 2(2), pp. 13:1-13:27, 2021.
- [J5] Saulo dos Santos, Muskan Vinayak, Ruppa K. Thulasiram, Parimala Thulasiraman, and Shahin Kamali. “Validating pairwise transactions on cryptocurrencies: a novel heuristics and network simulation”. *Springer J. Banking and Financial Tech.*, volume 3(1), pp. 71-81, 2019.
- [J6] Shahin Kamali. “Compact Representation of Graphs of Small Clique-Width”. *Algorithmica*, volume 80(7), pp. 2106-2131, 2018.
- [J7] Spyros Angelopoulos, Christoph Dürr, Shahin Kamali, Marc Renault, and Adi Rosén. “Online Bin Packing with Advice of Small Size”. *Theory of Computing Systems (TOCS)*, volume 62(8), pp. 2006-2034, 2018.
- [J8] Milad Ghaznavi, Nashid Shahriar, Shahin Kamali, Reaz Ahmed, and Raouf Boutaba. “Distributed Function Chaining”. *IEEE Journal on Selected Areas in Communications (JSAC)*, [Special issue on Emerging Technologies in Software-Driven Communication], volume 35(11), pp. 2479-2489, 2017.
- [J9] Joan Boyar, Shahin Kamali, Kim S. Larsen, and Alejandro López-Ortiz. “On the List Update Problem with Advice”. *Information and Computation*, volume 253, pp. 411-423, 2017.

- [J10] Hovhannes A. Harutyunyan and Shahin Kamali. “Efficient Broadcast Trees for Weighted Vertices”. *Discrete Applied Mathematics*, volume 216, pp. 598-608, 2017.
- [J11] Sushmita Gupta, Shahin Kamali, and Alejandro López-Ortiz. “On Advice Complexity of the k -server Problem under Sparse Metrics”. *Theory of Computing Systems (TOCS)*, volume 59(3), pp. 476-499, 2016.
- [J12] Joan Boyar, Shahin Kamali, Kim S. Larsen, and Alejandro López-Ortiz. “Online Bin Packing with Advice”. *Algorithmica*, volume 74(1), pp. 507-527, 2016.
- [J13] Reza Dorrigiv, Robert Fraser, Meng He, Shahin Kamali, Akitoshi Kawamura, Alejandro López-Ortiz. “On Minimum and Maximum-Weight Minimum Spanning Trees with Neighborhoods”. *Theory of Computing Systems (TOCS)*, volume 16(2), pp. 22-250, 2015.
- [J14] Arash Farzan and Shahin Kamali. “Compact Navigation and Distance Oracles for Graphs with Small Treewidth”. *Algorithmica*, volume 69(1), pp. 92-116, 2014.

Refereed Conference Papers:

- [C1] Spyros Angelopoulos, Shahin Kamali, and Kimia Shadkani. “Online Bin Packing with Predictions”. to appear in Proceedings of the *the 31st International Joint Conference on Artificial Intelligence (IJCAI)*, 2022.
- [C2] Spyros Angelopoulos, Shahin Kamali, and Dehou Zhang. “Online Search With Best-Price and Query-Based Predictions”. to appear in Proceedings of the *the 36th AAAI Conference on Artificial Intelligence (AAAI)*, 2022.
- [C3] Shahin Kamali, Pooya Nikbakht, and Arezoo Sajadpour . “A Randomized Algorithm for Non-crossing Matching of Online Points”. Proceedings of the *34th Canadian Conference on Computational Geometry (CCCG)*, 2022.
- [C4] Shahin Kamali and Pooya Nikbakht. “Online Square Packing with Rotation”. Proceedings of the *34th Canadian Conference on Computational Geometry (CCCG)*, 2022.
- [C5] Shahin Kamali and Helen Xu. “Beyond Worst-case Analysis of Multicore Caching Strategies”. Proceedings of the *the SIAM-ACM Symposium on Algorithmic Principles of Computer Systems (APoCS)*, pp. 1-15, 2021.
- [C6] Spyros Angelopoulos and Shahin Kamali . “Contract Scheduling With Predictions”. Proceedings of the *the 35th AAAI Conference on Artificial Intelligence (AAAI)*, pp. 11726-11733, 2021.
- [C7] Shahin Kamali. “Compact Polyominoes (brief announcement)”. Proceedings of the *Data Compression Conference (DCC)*, pp. 346, 2021.
- [C8] Shahin Kamali and Pooya Nikbakht. “On the Fault-Tolerant Online Bin Packing Problem”. to appear in Proceedings of the *the 6th International Workshop on Algorithmic Aspects of Cloud Computing (ALGO CLOUD)*[part of ALGO], 2021.
- [C9] Shahin Kamali and Helen Xu. “Multicore Paging Algorithms Cannot Be Competitive (brief announcement)”. Proceedings of the *32nd ACM Symposium on Parallelism in Algorithms and Architectures (SPAA)*, pp. 547-549, 2020.
- [C10] Shahin Kamali. “Compact Representation of Graphs with Small Bandwidth and Treedepth”. Proceedings of the *Data Compression Conference (DCC)*, pp. 233-242, 2020. (Invited to Information and Computation special issue for DCC’20)
- [C11] Saulo dos Santos, Shahin Kamali, and Ruppia K. Thulasiram. “Candidate Set Formation Policy for Mining Pools”. Proceedings of the *the 4th IEEE International Conference on Blockchain (Blockchain)*, pp. 415-420, 2020.

- [C12] Shahin kamali and Pooya Nikbakht. “Cutting Stock with Rotation: Packing Square Items into Square Bins”. Proceedings of the *14th International Conference on Combinatorial Optimization and Applications (COCOA)*, pp. 530-544, 2020.
- [C13] Prosenjit Bose, Paz Carmi, Stephane Durocher, Shahin Kamali, and Arezoo Sajadpour . “Non-crossing matching of online points”. Proceedings of the *32nd Canadian Conference on Computational Geometry (CCCG)*, 2020.
- [C14] Shahin Kamali, Avery Miller, and Kenny Zhang. “Burning Two Worlds: Algorithms for Burning Dense and Tree-like Graphs”. Proceedings of the *46th International Conference on Current Trends in Theory and Practice of Computer Science (SOFSEM)*, pp. 113-124, 2020.
- [C15] Spyros Angelopoulos, Christoph Dürr, Shendan Jin, Shahin Kamali, and Marc P. Renault. “Online Computation with Untrusted Advice”. Proceedings of the *11th Innovations in Theoretical Computer Science (ITCS)*, pp. 52:1-52:15, 2020.
- [C16] Saulo dos Santos, Chukwuka Chukwuocha, Shahin Kamali, and Ruppia K. Thulasiram. “An Efficient Miner Strategy for Selecting Cryptocurrency Transactions”. Proceedings of the *3rd International Conference on Blockchain (Blockchain)*, pp. 116-123, 2019.
- [C17] Arezoo Abdollahi, Neil D. B. Bruce, Shahin Kamali, and Rezaul Karim. “Lossless Image Compression Using List Update Algorithms”. Proceedings of the *26th International Symposium on String Processing and Information Retrieval (SPIRE)*, pp. 16-34, 2019.
- [C18] Joan Boyar, Lene M. Favrholdt, Shahin Kamali, and Kim S. Larsen. “Online Bin Covering with Advice”. Proceedings of the *16th Algorithms and Data Structures Symposium (WADS)*, pp. 225-238, 2019. (Invited to Algorithmica special issue for WADS’19)
- [C19] Anthony Bonato and Shahin Kamali. “Approximation Algorithms for Graph Burning”. Proceedings of the *15th conference on Theory and Applications of Models of Computation (TAMC)*, pp. 74-92, 2019.
- [C20] Joseph Mate, Khuzaima Daudjee, and Shahin Kamali. “Robust Multi-tenant Server Consolidation in the Cloud for Data Analytics Workloads”. Proceedings of the *37th International Conference on Distributed Computing Systems (ICDCS)*, pp. 2111-2118, 2017.
- [C21] Shahin Kamali. “Compact Navigation Oracles for Graphs with Bounded Cliquewidth”. Proceedings of the *Data Compression Conference (DCC)*, pp. 566-576, 2016. (Invited to Algorithmica special issue for DCC’16)
- [C22] Shahin Kamali and Alejandro López-Ortiz. “An All-Around Near-Optimal Solution for the Classic Bin Packing Problem”. Proceedings of the *26th International Symposium on Algorithms and Computation (ISAAC)*, pp. 727-739, 2015.
- [C23] Shahin Kamali. “Efficient Bin Packing Algorithms for Resource Provisioning in the Cloud”. Proceedings of the *1st International Workshop on Algorithmic Aspects of Cloud Computing (ALGO CLOUD)*[part of ALGO], pp. 84-98, 2015.
- [C24] Fabio Petroni, Leonardo Querzoni, Khuzaima Daudjee, Shahin Kamali, and Giorgio Iacoboni. “HDRF: Stream-Based Partitioning for Power-Law Graphs”. Proceedings of the *24th ACM International Conference on Information and Knowledge Management (CIKM)*, pp. 243-252, 2015.
- [C25] Shahin Kamali, Alejandro López-Ortiz, and Zahed Rahmati. “Online Packing of Equilateral Triangles”. Proceedings of the *27th Canadian Conference on Computational Geometry (CCCG)*, 2015.
- [C26] Spyros Angelopoulos, Christoph Dürr, Shahin Kamali, Marc Renault, and Adi Rosén. “Online Bin Packing with Advice of Small Size”. Proceedings of the *14th Algorithms and Data Structures Symposium (WADS)*, pp. 40-53, 2015.

- [C27] Daniel Nicoara, Shahin Kamali, Khuzaima Daudjee, and Lei Chen. “Hermes: Dynamic Partitioning for Distributed Social Network Graph Databases”. Proceedings of the *18th International Conference on Extending Database Technology (EDBT)*, pp. 25-36, 2015.
- [C28] Shahin Kamali and Alejandro López-Ortiz. “Efficient Online Strategies for Renting Servers in the Cloud”. Proceedings of the *41st Conference on Current Trends in Theory and Practice of Computer Science (SOFSEM)*, pp. 277-288, 2015.
- [C29] Shahin Kamali and Alejandro López-Ortiz. “Almost Online Square Packing”. Proceedings of the *26th Canadian Conference on Computational Geometry (CCCG)*, 2014.
- [C30] Khuzaima Daudjee, Shahin Kamali, and Alejandro López-Ortiz. “Online Fault-Tolerant Server Consolidation Problem”. Proceedings of the *26th ACM Symposium on Parallelism in Algorithms and Architectures (SPAA)*, pp. 12-21, 2014.
- [C31] Shahin Kamali and Alejandro López-Ortiz. “Better Compression through Better List Update Algorithms”. Proceedings of the *24th Data Compression Conference (DCC)*, pp. 372-381, 2014.
- [C32] Joan Boyar, Shahin Kamali, Kim S. Larsen, and Alejandro López-Ortiz. “Online Bin Packing with Advice”. Proceedings of the *31st International Symposium on Theoretical Aspects of Computer Science (STACS)*, pp. 174-186, 2014.
- [C33] Joan Boyar, Shahin Kamali, Kim S. Larsen, and Alejandro López-Ortiz. “On the List Update Problem with Advice”. Proceedings of the *8th International Conference on Language and Automata Theory and Applications (LATA)*, pp. 210-221, 2014. (Invited to Elsevier Information and Computation special issue for LATA’14)
- [C34] Shahin Kamali and Alejandro López-Ortiz. “A Survey of Algorithms and Models for List Update”. Proceedings of the *Conference on Space Efficient Data Structures, Streams and Algorithms (in Honor of J. Ian Munro) (IanFest)*, pp. 251-266, 2013.
- [C35] Sushmita Gupta, Shahin Kamali, and Alejandro López-Ortiz. “On Advice Complexity of the k -server Problem under Sparse Metrics”. Proceedings of the *20th International Colloquium on Structural Information and Communication Complexity (SIROCCO)*, pp. 55-67, 2013.
- [C36] Bairong Lei, Ivan Surya, Shahin Kamali, and Khuzaima Daudjee. “Data Partitioning for Video-on-Demand Services”. Proceedings of the *12th International Symposium on Network Computing and Applications (NCA)*, pp. 49-54, 2013.
- [C37] Shahin Kamali, Susana Ladra, Alejandro López-Ortiz, and Diego Seco. “Context-Based Algorithms for the List-Update Problem under Alternative Cost Models”. Proceedings of the *23rd Data Compression Conference (DCC)*, pp. 361-370, 2013.
- [C38] Francisco Claude, Reza Dorrigiv, Shahin Kamali, Alejandro López-Ortiz, Paweł Prałat, Jazmín Romero, Alejandro Salinger, and Diego Seco. “Broadcasting in Conflict Aware Multi-Channel Networks”. Proceedings of the *7th International Workshop on Algorithms and Computation (WALCOM)*, pp. 158-169, 2013.
- [C39] Reza Dorrigiv, Robert Fraser, Meng He, Shahin Kamali, Akitoshi Kawamura, Alejandro López-Ortiz, and Diego Seco. “On Minimum and Maximum-Weight Minimum Spanning Trees with Neighborhoods”. Proceedings of the *10th Workshop on Approximation and Online Algorithms (WAOA)*, pp. 93-106, 2012. (Invited to Theory of Computing System special issue for WAOA’12)
- [C40] Shahin Kamali, Pedram Ghodsnia, and Khuzaima Daudjee. “Dynamic Data Allocation with Replication in Distributed Systems”. Proceedings of the *30th International Performance Computing and Communications Conference (IPCCC)*, pp. 1-8, 2011.

- [C41] Arash Farzan and Shahin Kamali. “Compact Navigation and Distance Oracles for Graphs with Small Treewidth”. Proceedings of the *38th International Colloquium on Automata, Languages and Programming (ICALP)*, pp. 268-280, 2011.
- [C42] Hovhannes A. Harutyunyan and Shahin Kamali. “Optimum Broadcasting in Complete Weighted-Vertex Graphs”. Proceedings of the *36th International Conference on Current Trends in Theory and Practice of Computer Science (SOFSEM)*, pp. 489-502, 2010.
- [C43] Hovhannes A. Harutyunyan and Shahin Kamali. “Efficient Broadcasting in Networks with Weighted Nodes”. Proceedings of the *14th International Conference on Parallel and Distributed Systems (ICPADS)*, pp. 879-884, 2008.
- [C44] Hovhannes A. Harutyunyan and Shahin Kamali. “Broadcasting in Weighted-Vertex Graphs”. Proceedings of the *6th International Symposium on Parallel and Distributed Processing with Applications (ISPA)*, pp. 301-307, 2008.
- [C45] Hovhannes A. Harutyunyan, Shahin Kamali, and Talin Moradian. “Multi-Shared-Trees Based Multicasting in Mesh-Connected Networks”. Proceedings of the *12th International Conference on parallel and distributed processing Techniques and Applications (PDPTA)*, pp. 178-182, 2008.
- [C46] HesamAddin Torabi Dashti, Nima Aghaeepour, Sahar Asadi, Meysam Bastani, Zahra Delafkar, Fatemeh Disfani, Serveh Ghaderi, Shahin Kamali, Sepideh Pashami, and Alireza Siahpirani. “Dynamic Positioning Based on Voronoi Cells (DPVC)”. Proceedings of the *9th Robot World Cup International Symposium (RoboCup)*, pp. 219-229, 2005.

Manuscripts Submitted:

- [1] Paul Bastide, Marthe Bonamy, Anthony Bonato, Pierre Charbit, Shahin Kamali, Théo Pierron, and Mikael Rabie. “Closer to the burning number conjecture”, 2022.
- [2] Spyros Angelopoulos, Diogo Arsénio, and Shahin Kamali. “Searching on the Line with Untrusted and Noisy Advice”, 2022.

Other Manuscripts:

- [1] Shahin Kamali and Charles E. Leiserson. “On Competitiveness of Online Algorithms for Dynamic Storage Allocation”, 2022.
- [2] Anthony Bonato and Shahin Kamali. “An improved bound on the burning number of graphs”. arXiv:2110.01087, 2021.
- [3] Stephane Durocher and Shahin Kamali (editors). “Special Issue for Selected Articles from the 30th Canadian Conference on Computational Geometry”, *Computational Geometry: Theory and Applications*, volume 90, 2020.
- [4] Stephane Durocher and Shahin Kamali (editors). “Proceedings of the 30th Canadian Conference on Computational Geometry”, (*CCCG*), volume 90, 2020.
- [5] Shahin Kamali, “Online List Update”, *Encyclopedia of Algorithms*, pp. 1448-1451, 2016.
- [6] HesamAddin Torabi Dashti, Shahin Kamali, and Nima Aghaeepour, “Positioning in Robots Soccer” (book chapter), *Robotic Soccer, I-Tech Education and Publishing*, 2007.

Academic Experience

- Visiting Researcher, Nov. 2019
Laboratoire d'Informatique de Paris 6 (LIP6), Pierre-and-Marie-Curie University (Paris 6)
(Under the support of the CNRS PEPS Fund)
Hosts: Christoph Dürr and Spyros Angelopoulos
- Visiting Researcher, March 2015
Carnegie Mellon's School of Computer Science
Hosts: Anupam Gupta
- Visiting Researcher, Sept. 2014 - Dec. 2014
The Research Institute on the Foundations of Computer Science (LIAFA), University Paris Diderot (Paris 7),
(Under the support of the France-Canada Research Fund)
Laboratoire d'Informatique de Paris 6 (LIP6), Pierre-and-Marie-Curie University (Paris 6)
Hosts: Adi Rósen, Christoph Dürr, and Spyros Angelopoulos
- Research Assistant, Sept. 2008 - July 2015
Algorithms and Complexity Research Group (Oct. 2009 - Sept. 2014)
Database Group (Sept. 2008 - Oct. 2009)
School of Computer Science, University of Waterloo
Adviser: Alejandro L'opez-Ortiz
- Visiting Researcher, Marc. 2012 - July 2012
Department of Mathematics and Computer Science (IMADA),
University of Southern Denmark
(Under the support of NSERC Michael Smith award)
Hosts: Joan Boyar, and Kim S. Larsen
- Research Assistant, Jan. 2003 - Aug. 2005
University of Tehran United (UTUtd) Undergraduate Robotic Research Group, Department of
Computer Science, University of Tehran.

Supervision of Highly Qualified Students

Graduate:

- Saulo dos Santos, PhD (in progress), 2019 – present
(co-supervised by Ruppa (Tulsi) Thulasiram)
- Pouria ZamaniNezhad, MSc (in progress), 2021 - present
- Mohammadmasoud Shabanijou, MSc, 2019 - 2022
Thesis: *Improved Algorithms for Burning Graph Families*
- Dehou Zhang, MSc, 2019 - 2021
Thesis: *Online Algorithm with Predictions for Trading Problems*
- ZahraSadat (Arezoo) Sajadpour, MSc, 2019 - 2021
Thesis: "Non-crossing matching of online points"

- Pooya Nikbakht, MSc, 2019 - 2021
Thesis: *Applications and extensions of the bin packing problem*
- Kimia Shadkami, MSc, 2019 - 2021
- Sameer Naib, MSc, 2018 - 2020
Thesis: *Alternative settings and models of the certain news network problem*

Undergraduate:

- Jay Khakhariya, 2020
(recipient of Faculty of Science Undergraduate Student Research Award)
- Meet Vaghasiya, 2020
- Diarra Mbacke (Honours Project), 2019
- Sean Egan (Honours Project), 2019

Thesis committee membership:

- **Present:** Zhuoran Sun (since 2021), Kaari Landry (since 2020), Jason Mai (since 2020).
- **Past:** Alex Penner (2020 - 2021), Mahya Maftouni (2020 - 2022), Tadepalli Sarada Kiranmayee (2020 - 2021), Yongzhen Ren (2019 - 2021), Roya Lotfi (2020 - 2020), Md Yeakub Hassan (2019 - 2020), Khatereh Davoudi (2019 - 2020), Manmohit Singh (2019 - 2020), Arsal Asif (2019 - 2019), Arezoo Abdollahi (2019 - 2019), Mohammed Moosa Naqvi (2018 - 2019).

Leadership & Communication**Selected workshops & courses**

- Workshop on *Responding to students' mental health distress*, offered by the Centre for Advancement of Teaching and Learning, University of Manitoba, Feb. 2020
- Faculty of Science Improve workshop (offered by Jeri and Roger Dube), Sept. 2019
- Workshop on *Leadership skills for engineering and science faculty* (audited)
MIT Professional Education (offered by Charles E. Leiserson and Chuck McVinnay), June 2016
- Postdoc Leadership Workshop, MIT Department of Electrical Engineering and Computer Science, Jan. 2016
- Introduction to StandUp class, ImprovBoston, February - March 2017
- Communication lessons by Dana Jay Bein, sponsored by Charles E. Leiserson, September 2016 - January 2017

Press

- *These Researchers Make Stand-Up Part of the Routine*, The Chronicle of Higher Education (2019)
- *Creating postdoc connections*, The Department of Electrical Engineering and Computer Science pilots new ways to build leadership and teamwork skills for its postdocs, MIT News (2016)

Service**Conference Organization**

- Cochair and co-organizer of the 5th Iranian Conference on Computation Geometry (ICCG 2022).

- Cochair and co-organizer of the 30th Canadian Conference on Computation Geometry (CCCG 2018).

Program Committee Membership

- The 14th International Workshop on Cyberspace Security and Artificial Intelligence (CAI 2022).
- Workshop on Models and Algorithms for Planning and Scheduling (MAPSP 2022).
- The 5th IEEE International Conference on Blockchain (IEEE Blockchain 2022).
- The 5th IEEE Conference on Dependable and Secure Computing (IEEE DSC 2022).
- The 34th Canadian Conference on Computation Geometry (CCCG 2022).
- The 17th Algorithms and Data Structures Symposium (WADS), 2021.
- The 4th IEEE International Conference on Blockchain (Blockchain 2021).
- The 13th International Workshop on Cyberspace Security and Artificial Intelligence (CAI 2021).
- The 4th Iranian Conference on Computational Geometry (ICCG), 2021.
- World Wide Web (WWW) PhD Symposium, 2018.
- 1st Iranian Conference on Computational Geometry (ICCG), 2018.
- World Wide Web (WWW) PhD Symposium, 2017.
- The International Conference on Soft Computing and its Engineering (IcSoftComp), 2017.

University of Manitoba

- Department of Computer Science Awards Committee, 2019 - 2022
- Department of Computer Science Undergraduate Curriculum Committee, 2019 - 2022
- Faculty of Science Promotion Committee, 2019
- Department of Computer Science Graduate Student Committee, 2017 - 2021

Grant Review

MITACS (2020,2021).

Journal Review

Algorithmica'22, CDM'21, Algorithmica'21, CDM'22, IPL'21, TCS'21, TKDE'20, TCS'19, Computing Surveys'17, JCSS'15, JCO'15, IPL'14, DAM'14, JDA'14, TOCS'13
Mathematical Reviews, 2018 - 2021

Conference Review

ESA'22, MFCS'22, STACS'21, FSTTCS'21, ISAAC'21, IWOCA'21, DCC'21, ICALP'20, CCCG'20, FUN'20, ICCG'20, ISAAC'20, TTCS'20, STACS'20, WALCOM'20, SODA'19, DISC'19, ICALP'19, ICCKE'17, SPAA'17, SWAT'16, ICDE'16), IPDPS'16, ESA'15, CCCG'15, PODC'15, SPAA'15, SOCG'15, ICDE'15, SIGMOD'14, WAOA'14, ALENEX'13, EuroCG'13

Miscellaneous Service

- Member of the Postdoc Visiting Committee, MIT Electrical Engineering & Computer Science (EECS) department, 2016-17.
- Organizer of Algorithms and Complexity (A&C) seminars, School of computer Science, University of Waterloo, Aug. 2013 - Sept. 2014.

- Member of the Local organizing committee for the conference on Space Efficient Data Structures, Streams and Algorithms (IanFest 2013).
- Member of the Local organizing committee for the 25th Canadian Conference on Computational Geometry (CCCG 2013).

Talks

- *Graph Burning*
Graph Searching in Canada (GRASCan) Summer School, Jul. 2022 (scheduled)
- *Online Algorithms: A Journey from Theory to Practice.*
Paris LIP6 Seminar, May 2022.
- *A Review of the Graph Burning Problem.*
the 10th Workshop on GRAPh Searching, Theory and Applications GRASTA, May 2022.
- *Online Algorithms with Predictions.*
MIT Supertech seminar, Nov. 2021.
- *Algorithms for Burning Graph Families.*
Combinatorics Seminar, University of Manitoba, Dept. of Mathematics, Oct. 2021,
Graph Searching in Canada (GRASCan), Aug. 2021.
- *Online Bin Packing with Predictions.*
Bin Packing Seminar Series, Apr. 2021.
- *Advice in the context of some geometric problems.*
Online Algorithms with Advice and Related Models (OLAWA@MFCS), Aug. 2020.
- *Lossless Image Compression Using List Update Algorithms.*
International Symposium on String Processing and Information Retrieval (SPIRE), Oct. 2019.
- *On complexity of burning and broadcasting problems.*
Graph Searching in Canada (GRASCan), Aug. 2019.
- *Online bin Covering with Advice.*
Algorithms and Data Structures Symposium (WADS), Aug. 2019.
- *Approximation algorithms for burning graphs.*
Canadian Mathematical Society Meeting in Regina, (CMS Summer Meeting), Jun. 2019.
- *A Review of Telephone Broadcast Problem.*
University of Manitoba, Dept. of Mathematics Combinatorics Seminar, Nov. 2018.
- *Online Bin Covering with Advice.*
Modern OnLine algorithms (A satellite workshop of ICALP 2018) (MOLI), Jul. 2018.
- *Online k-server Problem: Recent Developments and Applications.*
University of Manitoba, Dept. of Mathematics Combinatorics Seminar, Dec. 2017.
- *Compact Navigation Oracles for Graphs with Bounded Clique-Width.*
Data Compression Conference (DCC), Mar. 2016.
- *List Update Problem and Compression: a Review.*
MIT SuperTech Seminar, Nov. 2016

- *Online Bin Packing: Recent Developments and Applications.*
MIT SuperTech Seminar, Oct. 2016
- *All-Around Near-Optimal Solutions for the Online Bin Packing Problem.*
International Symposium on Algorithms and Computation (ISAAC), Dec. 2015.
- *Practical applications of online bin packing*
Workshop on New Techniques in Online Algorithms (ANR-NeTOC) , Nov. 2015.
- *Efficient Bin Packing Algorithms for Resource Provisioning in the Cloud.*
International Workshop on Algorithmic Aspects of Cloud Computing (ALGO CLOUD) at ALGO, Sept. 2015.
- *Online Packing of Equilateral Triangles.*
Canadian Conference on Computational Geometry (CCCG), Aug. 2015.
- *Online Bin Packing with Advice of Small Size.*
Algorithms and Data Structures Symposium (WADS), Aug. 2015.
- *Hermes: Dynamic Partitioning for Distributed Social Network Graph Databases.*
International Conference on Extending Database Technology (EDBT), Mar. 2015.
- *Online Bin Packing Problem: Alternative Analysis Methods and New Applications.*
ACO seminar, Carnegie Mellon University, Mar. 2015.
- *Efficient Online Strategies for Renting Servers in the Cloud.*
International Conference on Current Trends in Theory and Practice of Computer Science (SOFSEM), Jan. 2015.
- *Online Bin Packing Algorithms for Resource Allocation in the Cloud.*
Laboratoire d'Informatique Algorithmique: Fondements et Applications (LIAFA), Université Paris Diderot - Paris 7, Oct. 2014.
- *Online Bin Packing Problem: Recent Developments and Applications.*
Laboratoire d'Informatique de Paris 6 (LIP6), Pierre-and-Marie-Curie University, Oct. 2014.
- *Almost Online Square Packing.*
Canadian Conference on Computational Geometry (CCCG), Aug. 2014.
- *Online Fault-Tolerant Server Consolidation Problem.*
ACM Symposium on Parallelism in Algorithms and Architectures (SPAA), Jun. 2014.
- *Better Compression through Better List Update Algorithms.*
Data Compression Conference (DCC), Apr. 2014.
- *Online Bin Packing with Advice.*
International Symposium on Theoretical Aspects of Computer Science (STACS), Mar. 2014.
- *On the List Update Problem with Advice.*
International Conference on Language and Automata Theory and Applications (LATA), Mar. 2014.
- *Online Bin Packing Problem: Recent Developments and Advice Complexity.*
Algorithms and Complexity Seminar, University of Waterloo, Aug. 2013.
- *Data Partitioning for Video-on-Demand Services.*
International Symposium on Network Computing and Applications (NCA), Aug. 2013.

- *k-Server Problem: Recent Developments and Advice Complexity.*
Algorithms and Complexity Seminar, University of Waterloo, Jul. 2013.
- *On Advice Complexity of the k-server Problem under Sparse Metrics.*
International Colloquium on Structural Information and Communication Complexity (SIROCCO), Jul. 2013.
- *Broadcasting in Conflict Aware Multi-Channel Networks.*
International Workshop on Algorithms and Computation (WALCOM), Feb. 2013.
- *Compact Navigation and Distance Oracles for Graphs with Small Treewidth.*
International Colloquium on Automata, Languages and Programming (ICALP), Jul. 2011.
- *Dynamic Data Allocation with Replication in Distributed Systems.*
International Performance Computing and Communications Conference (IPCCC), Nov. 2011.