

CURRICULUM VITAE

Jeannette C.M. Janssen

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FIELD OF RESEARCH

Graph Theory: Graph Limits, Spatial networks, Analysis and Modeling of Large Networks

CURRENT POSITION

Professor, Department of Mathematics and Statistics, Dalhousie University

EDUCATION

Ph.D. Mathematics May 1993
Lehigh University, Bethlehem, Pennsylvania

Thesis title: “On Even and Odd Latin Squares”
Thesis advisor: Prof. E.F. Assmus, Jr.

M.Sc. Mathematics May 1988
Eindhoven University of Technology, Netherlands

Thesis title: “Decoding Linear Cyclic Codes Beyond the BCH-Bound”
Thesis advisor: Prof. H.C.A. van Tilborg

POSTDOCTORAL POSITIONS

Department of Computer Science, Concordia University, Montréal 1993–1995
Laboratoire de Combinatoire et d’Informatique Mathématique, UQAM 1993–1995
Department of Mathematics, Umeå University, Sweden 1993

ACADEMIC EXPERIENCE

Associate Professor, Dalhousie University 2004–2008
Assistant Professor, Dalhousie University 1998–2004
Assistant Professor, Acadia University 1997–1998
Lecturer/Research associate, London School of Economics 1995–1997
Lecturer, Universidad de Guanajuato, Mexico 1988–1990

ADMINISTRATIVE POSITIONS

- Chair, Department of Mathematics and Statistics, Dalhousie University (2016–2022)
- Chair of the Board, Atlantic Association for Research in the Mathematical Sciences (AARMS) (2016–2023)
- Chair, Activity Group on Discrete Mathematics, Society of Industrial and Applied Mathematics (SIAM) (2020–2022)
- Director, Atlantic Association for Research in the Mathematical Sciences (AARMS) (2011–2016)
- Principal Investigator (with Evangelos Milios) of the MITACS project “Modelling and Mining in Networked Information Spaces (2001–2011)

CURRENT GRANTS

Title:	<i>Modelling large networks using graphons</i>		
Funding period:	2024–2029		
Type:	NSERC Discovery grant		
Funding:	NSERC		\$ 41,000/ann.

STUDENT SUPERVISION

PhD students:

Sanaz Adel Alipour (CS, with N. Zincir-Heywood)	Exp. December 2026
<i>Graph-based classification of social media activity</i>	
Peter Collier	Exp. August 2027
<i>Diffusive processes on graphs</i>	
Kyle MacKeigan	August 2021
<i>An exploration of orthogonal colorings</i>	
Huda Chuangpishit	August 2016
<i>Geometric embeddings of graphs</i>	
Elham Roshanbin (with A. Bonato)	May 2016
<i>Burning a graph as a model of social contagion</i>	
Matt Hurshman	May 2012
<i>Graphlets in complex networks</i>	
Changping Wang	May 2010
<i>The copy model for complex networks</i>	
Hongyu Liu (CS, with E. Milios)	May 2007
<i>Using HMM to learn user browsing patterns for focused Web crawling</i>	

Post-doctoral Fellows:

Jordan Barrett	2024–2026
Chris Duffy	2015–2017
Israel Rocha	2015–2016
Mahya Ghandehari (with K. Taylor)	2010–10.1007/s00041-026-10291-x2012
Rogers Mathew	2011-2012
Rebecca Stones	2013–2014
Pawel Prałat	2006–2009

MSc students:

Melanie Gauthier (with P. Selinger)	May 2027 (Exp.)
Dylan Pearson (with N. Clarke)	December 2024
Razieh Shafiee (with T. Kolokolnikov)	August 2023
Peter Collier	May 2023
Timothy Salamon (with T. Kolokolnikov)	August 2022
Zhiyuan Zhang	May 2020
Rebecca Ryan	August 2019
Alan Zhengnan Shi	August 2017
Kyle MacKeigan	August 2017
Celeste Vautour	May 2014
Rory Wilson	April 2008
Matt Hurshman	Sept. 2007
Biao Chen (CS, with E. Milios)	July 2003
Adam Nickerson (CS, with E. Milios)	August 2003
Mark MacIsaac	May 2002
Jinghu Liu (CS, with E. Milios)	Jan. 2002
Yuan An (CS, with E. Milios)	July 2001
Kyle Schmeisser	December 2000
Wangzhong Lu (CS, with E. Milios)	July 2001
Mark Jarvis	December 2000
Megan Dewar	September 2000
Tania Wentzell	April 1999

Honours/ summer research students:

Noah Wayne (2026*)	Victor Carpentier (2026*)	
Avery (Qixuan) Cao (2026)	Liam Bennett (2026)	Xiangtai Feng (2026)
Klaara Huima (2024)	Abdelaziz Elherbawy (2025)	Hoang Dao (2025)
Ethan Saunders (2023)	Nhi Ly (CS, 2023*)	Can Sozuer (2023*)
Yizhe Zhong (2023)	Caroline Barton (2022)	Jeevesh Juneja (2021)
Samuel Sousa (CS, 2019*)	Charlie Gerrie (2018*)	Adam Lucas (2018)
Zhiyuan Zhang (2018*)	Joshua Feldman (2016)	Ryan Cutcliffe (2016*)
Daniel Boudreau (2015)	Moir MacNeil (2015)	Santiago Guzman-Pro (2014)
Islay Wright (2014)	Joe Nip (CS, 2013*)	David Isenor (2013*)
Shreya Kedia (2012*)	Katrina Joyce (2012)	Jamie Ryan Kiros (2010)
Theresa Mader (2008)	Singer Wang (CS, 2002*)	Steven Gao (CS, 2002*)
Irina Hole* (CS, 2002)	Phil Maheux (2001)	Michael Lejeune (CS, 2001)
Alice MacLeod (2000)	James Stewart (1999)	Herre Wiersma (1999)

* : co-supervised

PUBLICATIONS

Journal papers

1. J. Janssen, N. Lin and A. Smith, Convergence Rates of Ordering, Testing and Estimation Procedures for Graphons With Fast Boundary Decay Rates, (submitted), arXiv preprint, 2026.
2. P. Collier and J. Janssen, The zero forcing number of twisted hypercubes, (submitted), arXiv preprint. arXiv:2505.01872, 2026.
3. M. Ghandehari, J. Janssen and S. Murphy, Unified Fourier transform on graphs sampled from stochastic block models J. Fourier Analysis and Applications 32:82, August 2026.
4. B. Cameron, J. Janssen, R. Mathew, Z. Zhang, An approximation algorithm for zero forcing, *Discr. Appl. Math* 383, pp.227-242, 2026.
5. G. Exoo, J. Janssen, T. Kolokolnikov, T. Salamon, Attainable bounds for algebraic connectivity and maximally-connected regular graphs, *J. Graph Theory* 107, pp.522-549, 2024.
6. M. Ghandehari, N. Kalyaniwalla and J. Janssen, A noncommutative approach to the graphon Fourier transform, *Applied and Computational Harmonic Analysis* 61, pp.101–131, 2021.
7. M. Ghandehari and J. Janssen Graph sequences sampled from Robinson graphons. *European J. Combinatorics* 116, 2024, 103859.
8. J. Janssen and A. Smith Reconstruction of Line-Embeddings of Graphons. *Electronic J. Statistics* 16 (1), pp. 331–407, 2022.

9. A. Bonato, J. Janssen and A. Quas, Geometric Random Graphs and Rado Sets of Continuous Functions, *Discrete Analysis* 2021:3, 21 pp.
10. J. Janssen and K. MacKeigan. Orthogonal colourings of Cayley graphs. *Discrete Mathematics* 343 (11), 2020.
11. M. Ghandehari and J. Janssen, An optimization parameter for seriation of noisy data *SIAM J. Discrete Math.* 33(2), pp.712–730, 2019.
12. A. Bonato, J. Janssen and A. Quas. Geometric random graphs and Rado sets in sequence spaces. *European J. Combinatorics* 79, pp. 1–14, 2019.
13. I. Rocha, J. Janssen, N. Kalyaniwalla, Recovering the Structure of Random Linear Graphs. *Linear Algebra and its Applications* 557, 234–264, 2018.
14. C. Duffy and J. Janssen. The Spread of Cooperative Strategies on Grids with Random Asynchronous Updating. *Internet Mathematics*. 1(1), 2017.
15. K. MacKeigan and J. Janssen, Total colouring of some Cartesian and direct product graphs, *Contributions to Discrete Math.* 15(1), pp. 67–71, 2018.
16. S. Bessy, A. Bonato, J. Janssen, D. Rautenbach, and E. Roshanbin. Bounds on the Burning Number. *Discrete Applied Mathematics* 235, 16–22, 2017.
17. S. Bessy, A. Bonato, J. Janssen, D. Rautenbach, and E. Roshanbin. Burning a Graph is Hard. *Discrete Applied Mathematics* 232, 73–87, 2017.
18. J. Janssen and A. Mehrabian. Rumours spread slowly in a small world spatial network. *SIAM J. Discrete Math.* 31(4), 2414–2428, 2017.
19. H Chuangpishit, M Ghandehari, and J Janssen. Uniform linear embeddings of graphons. *European J. Combinatorics* 61, 47–68, 2017.
20. J. Janssen, R. Yassawi, and A. Quas. Bratteli diagrams where almost all orders are imperfect. *Proc. AMS* 145(2), 721–735, 2016.
21. A. Bonato, J. Janssen, and E. Roshanbin. How to burn a graph. *Internet Mathematics*, 12(1-2):85–100, 2016.
22. J. Janssen, P. Pralat, and R. Wilson. Non-uniform distribution of nodes in the spatial preferential attachment model. *Internet Mathematics*, 12(1-2):121–144, 2016.
23. H. Chuangpishit, M. Ghandehari, M. Hurshman, J. Janssen, and N. Kalyaniwalla. Linear embeddings of graphs and graph limits. *Journal of Combinatorial Theory, Series B*, 113:162–184, 2015.
24. M. Hurshman and J Janssen. On the continuity of graph parameters. *Discrete Applied Math.*, 181:123–129, 2015.

25. J. Janssen, R. Mathew, and D. Rajendraprasad. Partial list colouring of certain graphs. *Electronic Journal of Combinatorics*, 22(3), 2015.
26. J. Janssen and C. Vautour. Finding safe strategies for competitive diffusion on trees. *Internet Mathematics*, 11(3):232–252, 2015.
27. J. Janssen, P. Pralat, and R. Wilson. Geometric graph properties of the spatial preferred attachment model. *Advances in Applied Mathematics*, 50(2):243–267, 2013.
28. A. Bonato, J. Janssen, and P. Pralat. Geometric protean graphs. *Internet Mathematics*, 8(1-2):2–28, 2012.
29. J. Janssen, P. Pralat, "Rank-based attachment leads to power law graphs", *SIAM Journal of Discrete Math* **24**:420–440, 2010.
30. J. Janssen, P. Pralat, "Protean graphs with a variety of ranking schemes", *Theoretical Computer Science* **410**(52), 2009, pp. 5491–5504.
31. A. Bonato, J. Janssen, C. Wang, "The n -ordered graphs; a new graph class", *J. Graph Theory* **60** (2009), pp. 204–218.
32. A. Bonato, J. Janssen, "Infinite limits and adjacency properties of a generalized copying model", *Internet Mathematics* **4** (2009), pp. 199–223.
33. W. Aiello, A. Bonato, C. Cooper, J. Janssen, P. Pralat, "A spatial web graph model with local influence regions", *Internet Mathematics* **5** (2009), No. 1–2, pp. 175–196.
34. W. Lu, J. Janssen, E. Milios, N. Japkowicz and Y. Zhang, "Node similarity in the citation graph", *Knowledge and Information Systems (KAIS)*, vol. 11, no.1, January 2007, pp. 105–129.
35. H. Liu, J. Janssen, E. Milios, "Using HMM to learn user browsing patterns for focused Web crawling", *Journal of Data Knowledge and Engineering*, vol. 59, issue 2, 2006, pp. 270–291 (MITACS, NSERC).
36. S. Fitzpatrick, J. Janssen, R. Nowakowski, "Fractional Isometric Path Number", *Australasian journal of Combinatorics* 34 (2006).
37. G. Appa, D. Magos, I. Mourtos, J.C.M. Janssen, "On the orthogonal Latin squares polytope", *Discrete Math.* 306 (2), 2006, pp. 171–187.
38. J. Janssen, T. Wentzell and S. Fitzpatrick, "Lower Bounds from Tile Covers for the Channel Assignment Problem", *SIAM J. Discr. Math.*, vol. 18, no. 4, 2005, pp.679–696.
39. A. Bonato and J. Janssen, "Infinite limits of copying models for the web graph", *Internet Mathematics*, **1**, No. 2 (2004), pp. 103–213.

40. Y. An, J. Janssen, E. Milios, “Characterizing the citation graph of computer science literature”. *Knowledge and Inf. Systems (KAIS)* **6**, No. 4 (November 2004).
41. S. Gravier, J. Janssen, K. Kilakos and S. Klein, “Graph covers using t -colourable vertex sets”, *Discrete Math.* **278** 1–3 (2004) pp. 61–80.
42. S. Fitzpatrick, J. Janssen, R. Nowakowski, “Distributive channel assignment algorithms for cellular networks with constraints”, *Discrete Applied Math.* **143** (2004), No. 1–3, pp. 84–91.
43. J. Janssen, M. MacIsaac and K. Schmeisser, “Channel Assignment for Digital Broadcasting: Some Bounds and Algorithms.” *Congressus Numerantium* **157** (2002), pp. 159–171.
44. J.C.M. Janssen, “A Partial Solution of a Partial List Colouring Problem”, *Congressus Numerantium* 152 (2001), pp. 75–79.
45. J. Janssen and L. Narayanan, “Approximation Algorithms for the Channel Assignment Problem”, *Theoretical Computer Science A* 262/1–2 (2001), pp. 649–667.
46. J. Janssen, D. Krizanc, L. Narayanan and S. Shende, “Distributed Online Frequency Assignment in Cellular Networks”, *J. Algorithms* 36 (2000), pp. 119–151.
47. J. Janssen and K. Kilakos, “Adaptive Multicolouring”, *Combinatorica* 20 (2000), no. 1, pp. 87–102.
48. J. Janssen and K. Kilakos, “Bounded Stable Sets: Polytopes and Colourings”, *SIAM J. Discr. Math.* 12 (1999), no. 2, pp. 262–275.
49. R. Häggkvist and J.C.M. Janssen, “New Bounds on the List-Chromatic Index of the Complete Graph and Other Simple Graphs”, *Combinatorics, Probability and Computing*, Vol. 6, No. 3, September 1997, pp. 273–295.
50. J.C.M. Janssen, “The Dinitz Problem solved for Rectangles”, *Bulletin AMS Research Ann.*, Vol. 29, No. 2, Oct. 1993, pp. 243–249.

Papers in refereed conference proceedings

51. S. Adelpour, J. Janssen, R. Orji, N. Zincir-Heywood. “Lightweight Early-Warning Bot Detection on X (Twitter): Temporal Patterns and Entropy Insights” *49th IEEE Int. Conf. Computers, Software, and Applications (COMPSAC 2025)*, Toronto, July 2025.
52. K. Beck, M. Ghandehari, J. Janssen, N. Kalyaniwalla. Signal processing on large networks with group symmetries *Poster at 2023 workshop of Graph Signal Processing (GSP23)*, Oxford, June 12–14, 2023. arXiv preprint arXiv:2303.17065.

53. J. Janssen and Z. Zhang. Uniform Embeddings for Robinson Similarity Matrices. In *Workshop for Algorithms and Data Structures (WADS21)*, Springer LNCS, 2021.
54. C. Duffy and J. Janssen. Strongly n-e.c. Graphs and Independent Distinguishing Labellings. In *Int'l Workshop on Algorithms and Models for the Web-Graph (WAW'19)*, Springer LNCS, pp. 44–56, 2019.
55. J. Feldman and J. Janssen. High Degree Vertices and Spread of Infections in Spatially Modelled Social Networks. In *Int'l Workshop on Algorithms and Models for the Web-Graph (WAW'17)*, pages 60–74. Springer LNCS 10519, 2017.
56. C. Duffy and J. Janssen. The spread of cooperative strategies on grids with random asynchronous updating. In *Int'l Workshop on Algorithms and Models for the Web-Graph (WAW'16)*, pages 153–164. Springer LNCS, 2016.
57. A. Sajadi, E.E. Milios, V. Kešelj, and J.C.M Janssen. Domain-specific semantic relatedness from wikipedia structure: A case study in biomedical text. In *International Conference on Intelligent Text Processing and Computational Linguistics*, pp. 347–360. Springer International Publishing, 2015.
58. H. Chuangpishit, M. Ghandehari and J. Janssen Uniform linear embeddings of spatial random graphs In: *Electronic Notes in Discrete Mathematics, proc. EuroComb.* 2015.
59. J. Janssen and A. Mehrabian. Rumours spread slowly in a small world spatial network. In *International Workshop on Algorithms and Models for the Web-Graph*, pp. 107–118. Springer LNCS, 2015.
60. A. Bonato, J. Janssen, and E. Roshanbin. Burning a graph as a model of social contagion. In *International Workshop on Algorithms and Models for the Web-Graph*, pp. 13–22. Springer International Publishing, 2014.
61. A. Bonato, J. Janssen, and E. Roshanbin. Burning a graph as a model of social contagion. In *International Workshop on Algorithms and Models for the Web-Graph*, pp. 13–22. Springer LNCS, 2014.
62. J. Janssen, P. Prałat, and R. Wilson. Asymmetric distribution of nodes in the spatial preferred attachment model. In *International Workshop on Algorithms and Models for the Web-Graph*, pp. 1–13. Springer LNCS, 2013.
63. A. Bonato and J. Janssen. Infinite random geometric graphs from the hexagonal metric. In *International Workshop on Combinatorial Algorithms*, pp. 6–19. Springer Berlin Heidelberg, 2012.
64. A. Bonato, J. Janssen, P. Prałat. The geo-protean model for on-line social networks. *Proc. Workshop on Algorithms and Models for the Web graph (WAW 2010)*, R. Kumar and D. Sivakumar, eds. , Springer LNCS, 2010.

65. J. Janssen. Spatial models for virtual networks. Invited paper, *Proc. Computability in Europe (CiE)*, Ferreira et al., eds, Springer LNCS, 2010.
66. X. Wan, E. Milios, N. Kalyaniwalla, J. Janssen Link-based event detection in email communication networks. *Proc. 2009 ACM symposium on Applied Computing*, pp. 1506–1510, 2009
67. X. Wan, N. Kalyaniwalla, J. Janssen, and E. Milios. Capturing causality in communications graphs. *In DIMACS/DyDan workshop on computational methods for dynamics interaction*, 2007.
68. J. Healy, J. Janssen and W. Aiello. Characterization of graphs using degree cores. *In: Algorithms and Models for the Web-Graph (WAW 2006)*, Springer LNCS 4936, 2006.

Book chapters and volumes edited

69. A. Bonato and J. Janssen. Infinite random graphs and properties of metrics. *In Recent trends in combinatorics*, volume 159, pages 257–273. Springer, 2016.
70. J. Janssen Spatial models for virtual networks, invited paper, *In: Computability in Europe*, Ferreira et al., eds, Springer LNCS (2010).
71. J. Janssen Channel Assignment and Graph labelling, *In: Handbook of Wireless Networks and Mobile Computing* pp. 95–117, Wiley, 2002.
72. A. Bonato, J. Janssen, (eds.), “Proceedings of the 8th Workshop On Algorithms And Models For The Web-Graph (WAW’12)”, Springer LNCS, 2012.
73. J. Janssen, P. Pralat (eds.), “Proceedings of the 4th Workshop on Combinatorial and Algorithmic Aspects of Networking (CAAN’07)”, Springer LNCS, 2007.
74. W. Aiello, A. Broder, J. Janssen, E. Milios (eds.), “Proceedings of the 4th Workshop On Algorithms And Models For The Web-Graph (WAW’06)”, Springer LNCS, 2007.

Organization of Conferences and Seminars

- Organizer, Atlantic Graph Theory Seminar, 2022–present.
- Co-Organizer, with Mahya Ghandehari, of a minisymposium on Community Detection and Seriation on Complex Networks, at the SIAM conference on the Mathematics of Data Science (MDS20), moved online, June 2020.
- Co-Organizer, with Mahya Ghandehari, of a minisymposium on spatial graphs, SIAM Conference on Discrete Math., Denver, June 2018.
- Co-Organizer, with Jason Brown, of a special session on Games on Graphs, at the Eastern Sectional meeting of the AMS, October 2014.

- Local Organizer, with Richard Nowakowski, of the SIAM Meeting on Discrete Mathematics (DM12), Halifax, June 2012.
- Co-organizer, with Anthony Bonato, of a session on complex networks at the Canadian Meeting on Discrete and Algorithmic Mathematics (CanaDAM 2009), May 2009.
- Program Committee Chair of the workshop on Combinatorial and Algorithmic Aspects of Networking (CAAN 2007), Dalhousie University, August 2007.
- Principal organizer of the MITACS winterschool on Modelling and Mining of Networked Information spaces, and the Workshop on Algorithms and Models of the Web graph (WAW 2006), BIRS, Banff, November 2006.

Recent Talks (2017–2026)

“Recovery of spatial vertex features in noisy SPA model graphs”, Invited talk in the session on Probabilistic Methods and Random Graphs, at the 10th Cracow Conference on Graph Theory, Cracow, Poland, 22–26 September 2025.

“Signal processing on graphs using graphons”, invited talk in session “Dynamical Systems on Graphs”, SIAM Annual meeting 2025, Montreal, July 2025.

“Graph signal processing using a graphon model”, contributed talk, East Coast Combinatorics Conference, Wolfville, Nova Scotia, April 2023.

“The Fourier transform for convergent graph sequences”, Discrete Mathematics seminar, McGill University, December 2022.

“The Fourier transform for convergent graph sequences”, Discrete Mathematics seminar, University of Delaware, November 2022.

“Reconstructing the linear order of a locally connected random graph”, in minisymposium on Graph theory and machine learning, SIAM Conf. Discrete Math., virtual, June 2021.

“Graphons as blueprints for spatial random graphs”, Western-Fields seminar series on Networks, Random Graphs, and Neuroscience, virtual, December 2020.

“Quantifying linearly embedded structure in large graphs”, departmental colloquium, virtual, Open University, UK, November 2020.

“An approximation algorithm for the zero forcing problem”, Atlantic Graph Theory Seminar, virtual, March 2020.

“Reconstructing the linear order of a locally connected random graph”, session on Modern trends in graph theory, CMS Summer meeting, virtual, June 2020.

“An approximation algorithm for the zero forcing problem”, invited talk in session on Movement and symmetry in graphs, CanaDAM, virtual, May 2020.

“Estimating affinity between vertices in complex networks”, minisymposium on community detection and seriation in complex networks, SIAM Conf. on Mathematics of Data Science, virtual, May 2020.

“Quantifying linearly embedded structure in large graphs”, Analysis, Applied Mathematics and Physics (AAMP) seminar, Dalhousie University, February 2020.

“Recognizing and untangling large graphs with spatial structure”, Seminar, Department of Computer Science, IIT Hyderabad, India, December 2019.

“Recognizing and untangling large graphs with spatial structure”, Analysis seminar, University of Delaware, March 2019.

“Recognizing graphs formed by a spatial random process”, seminar, CWI, Amsterdam, January 2019.

“Recognizing and untangling large graphs with spatial structure”, seminar, Euranom, Technical University Eindhoven, January 2019.

“Infinite Random Geometric Graphs”, in session on Interplay between Analysis and Combinatorics, AMS Eastern Sectional meeting, Nashville, September 2018.

“Infinite random geometric graphs”, in minisymposium on spatial graphs, SIAM Conference on Discrete Math., Denver, June 2018.

“Recognizing graphs formed by spatial random processes”, session on Discrete Random Structures, AMS South Eastern meeting, April 2018.

“Recognizing and untangling large graphs with spatial structure”, Keynote lecture, WAW, Fields Institute, April 2017.

“The virtual space hidden behind a social network”, Keynote lecture, Canadian Undergraduate Mathematics Conference, Montreal, July 2017.