Christian Konrad

Reader / Associate Professor, School of Computer Science
University of Bristol, United Kingdom

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Research interests

Design and analysis of algorithms for massive data sets in sequential and decentralised settings, particularly streaming and sublinear algorithms, query models, and communication complexity.

Academic appointments

Reader / Associate Professor in Computer Science — Aug 2025–present
School of Computer Science, University of Bristol, UK

Senior Lecturer in Computer Science — Aug 2022–Jul 2025
University of Bristol, UK

Lecturer in Computer Science — Apr 2018–Jul 2022
University of Bristol, UK

Research Fellow — Sep 2016–Mar 2018
University of Warwick, UK
Working with Artur Czumaj and Graham Cormode.

Postdoctoral Researcher — Sep 2013–Aug 2016
Reykjavik University, Iceland
Research group of Magnús M. Halldórsson.

Earlier research experiences

Research internship — May–Jul 2009
LRI, Université Paris-Sud, France
Working with Frédéric Magniez.

Research Engineer — Jun 2008–Apr 2009
INRIA, NACHOS team, Sophia Antipolis, France

Diploma-thesis internship — Sep 2007–Jun 2008
INRIA, NACHOS team, Sophia Antipolis, France
Scientific computing.

Research internship — Feb–Jun 2007
Siemens Corporate Research, Princeton, NJ, USA
Medical imaging.

Education

PhD in Computer Science Sep 2009–Aug 2013
LIAFA (now IRIF), Université Paris Diderot, France
Advisor: Frédéric Magniez. Thesis: “Computations on Massive Data Sets: Streaming Algorithms and Two-Party Communication” (degree awarded by Université Paris-Sud).

Diplom-Informatiker Univ. (equivalent to an MSc) Oct 2003–Jun 2008
Technical University of Munich, Germany
Computer Science, Mathematics minor.

Erasmus exchange student Aug 2005–Jan 2006
KTH Stockholm, Sweden

Languages

German (native); English (fluent); French (fluent).

Research

Research funding and fellowships

University Research Fellowship 2026/27
University of Bristol

EPSRC New Investigator Award Sep 2021–Aug 2024
Principal Investigator; £248,776
StreamDG: Streaming Processing of Massive Dynamic Graphs (EP/V010611/1).

General Research Fund, Hong Kong Jan 2021–Dec 2023
Co-investigator; approximately £80,000
Algorithmic Foundations of Distributed Large-Scale Graph Processing.

PhD supervision

Conor O’Sullivan 2024–present
PhD student, University of Bristol

Archie Walton 2024–present
PhD student, University of Bristol

Adithya Diddapur 2022–2026
Graduated, University of Bristol

Cezar-Mihail Alexandru 2021–2025
Graduated, University of Bristol

Kheeran Naidu 2020–2024
Graduated, University of Bristol

Postdoctoral researchers supervised

Chhaya Trehan 2022–Jan 2024
University of Bristol

Pavel Dvorak 2021–2022
University of Bristol

Summer research internships supervised

Conor O'Sullivan 2023
Third-year Theoretical Physics student

Imran Zamin Ali 2022
Second-year Computer Science student

Ollie Mamuda 2022
First-year Mathematics and Computer Science student

Lidiya binti Khalil 2019
Second-year Mathematics and Computer Science student

Further Awards and Distinctions

Best Newcomer Paper Award 2012
International Conference on Database Theory (ICDT)

Jean-Pierre Aguilar Excellence PhD Award 2009
Fondation CFM pour la recherche
Approximately €80,000.

Contrat Doctoral 2009
Université Paris-Sud
Approximately €60,000; declined.

Conference publications

[C46] Fault-Tolerant Distance Oracles Below the n f Barrier
Sanjeev Khanna, Christian Konrad, and Aaron Putterman
Symposium on Discrete Algorithms (SODA 2027). [link].

[C45] Unit Interval Selection in Random Order Streams
Cezar-Mihail Alexandru, Adithya Diddapur, Magnús M. Halldórsson, Christian Konrad, and Kheeran K. Naidu
43rd International Symposium on Theoretical Aspects of Computer Science (STACS 2026). [link].

[C44] Semi-Robust Communication Complexity of Maximum Matching
Gabriel Cipriani Huete, Adithya Diddapur, Pavel Dvorak, and Christian Konrad
Symposium on Simplicity in Algorithms (SOSA 2026). [link].

[C43] On the Assadi-Liu-Tarjan Auction Algorithm for Bipartite Matching: Simplification, Alternative Analysis, and Hard Instance
Christian Konrad, Kheeran K. Naidu, Archie Walton, and Eric Wang
European Symposium on Algorithms (track S, ESA 2026). [link].

[C42] Settling the Pass Complexity of Approximate Matchings in Dynamic Graph Streams
Sepehr Assadi, Soheil Behnezhad, Christian Konrad, Kheeran K. Naidu, and Janani Sundaresan
Proceedings of the 2025 ACM-SIAM Symposium on Discrete Algorithms (SODA 2025).
Invited to TALG special issue [link].

[C41] Streaming Maximal Matching with Bounded Deletions
Sanjeev Khanna, Christian Konrad, and Jacques Dark
Proceedings of the 52nd International Colloquium on Automata, Languages and Programming (ICALP 2025). [link].

[C40] Graph Reconstruction via MIS Queries
Christian Konrad, Conor O'Sullivan, and Victor Traistaru
16th Innovations in Theoretical Computer Science Conference (ITCS 2025). [link].

[C39] Constructing Long Paths in Graph Streams
Christian Konrad and Chhaya Trehan
Proceedings of the 33rd European Symposium on Algorithms (ESA 2025). [link].

[C38] Interval Selection in Sliding Windows
Cezar-Mihail Alexandru and Christian Konrad
Proceedings of the 32nd European Symposium on Algorithms (ESA 2024). [link].

[C37] O(log log n) Passes is Optimal for Semi-Streaming Maximal Independent Set
Sepehr Assadi, Christian Konrad, Kheeran K. Naidu, and Janani Sundaresan
56th ACM Symposium on Theory of Computing (STOC 2024).
Invited to SICOMP special issue [link].

[C36] Matchings in Low-Arboricity Graphs in the Dynamic Graph Stream Model
Christian Konrad, Andrew McGregor, Rik Sengupta, and Cuong Than
44th IARCS Annual Conference on Foundations of Software Technology and Theoretical Computer Science (FSTTCS 2024). [link].

[C35] An Unconditional Lower Bound for Two-Pass Streaming Algorithms for Maximum Matching Approximation
Christian Konrad and Kheeran K. Naidu
Proceedings of the 2024 ACM-SIAM Symposium on Discrete Algorithms (SODA 2024). [link].

[C34] Improved Weighted Matching in the Sliding Window Model
Cezar Alexandru, Pavel Dvorak, Christian Konrad, and Kheeran K. Naidu
40th International Symposium on Theoretical Aspects of Computer Science (STACS 2023). [link].

[C33] Interval Selection in Data Streams: Weighted Intervals and the Insertion-deletion Setting
Jacques Dark, Adithya Diddapur, and Christian Konrad
43rd IARCS Annual Conference on Foundations of Software Technology and Theoretical Computer Science (FSTTCS 2023). [link].

[C32] Set Cover in the One-pass Edge-arrival Streaming Model
Sanjeev Khanna, Christian Konrad, and Cezar-Mihail Alexandru
42nd ACM SIGMOD-SIGACT-SIGAI Symposium on Principles of Database Systems (PODS 2023). [link].

[C31] Maximum Matching via Maximal Matching Queries
Christian Konrad, Kheeran K. Naidu, and Arun Steward
40th International Symposium on Theoretical Aspects of Computer Science (STACS 2023). [link].

[C30] Optimal Bounds for Dominating Set in Graph Streams
Sanjeev Khanna and Christian Konrad
13th Innovations in Theoretical Computer Science Conference (ITCS 2022). [link].

[C29] Streaming Set Cover in Practice
Michael Barlow, Christian Konrad, and Charana Nandasena
Symposium on Algorithm Engineering and Experiments (ALENEX 2021). [link].

[C28] Frequent Elements with Witnesses in Data Streams
Christian Konrad
40th ACM SIGMOD-SIGACT-SIGAI Symposium on Principles of Database Systems (PODS 2021). [link].

[C27] On Two-pass Streaming Algorithms for Maximum Bipartite Matching
Christian Konrad and Kheeran K. Naidu
Proceedings of the 24th International Workshop on Approximation Algorithms for Combinatorial Optimization Problems (APPROX 2021). [link].

[C26] Optimal Lower Bounds for Matching and Vertex Cover in Dynamic Graph Streams
Jacques Dark and Christian Konrad
35th Computational Complexity Conference (CCC 2020). [link].

[C25] Constructing Large Matchings via Query Access to a Maximal Matching Oracle
Lidiya Binti Khalil and Christian Konrad
40th IARCS Annual Conference on Foundations of Software Technology and Theoretical Computer Science (FSTTCS 2020). [link].

[C24] Independent Sets in Vertex-Arrival Streams
Graham Cormode, Jacques Dark, and Christian Konrad
Proceedings of the 46th International Colloquium on Automata, Languages and Programming (ICALP 2019). [link].

[C23] The Complexity of Symmetry Breaking in Massive Graphs
Christian Konrad, Sriram Pemmaraju, Talal Riaz, and Peter Robinson
Proceedings of the 33rd International Conference on Distributed Computing (DISC 2019). [link].

[C22] Distributed Minimum Vertex Coloring and Maximum Independent Set in Chordal Graphs
Christian Konrad and Victor Zamaraev
44th International Symposium on Mathematical Foundations of Computer Science (MFCS 2019). [link].

[C21] Approximating the Caro-Wei Bound for Independent Sets in Graph Streams
Graham Cormode, Jacques Dark, and Christian Konrad
5th International Symposium on Combinatorial Optimization (ISCO 2018). [link].

[C20] Detecting cliques in CONGEST networks
Artur Czumaj and Christian Konrad
Proceedings of the 32nd International Conference on Distributed Computing (DISC 2018). [link].

[C19] Improved Massively Parallel Computation Algorithms for MIS, Matching, and Vertex Cover
Mohsen Ghaffari, Themis Gouleakis, Christian Konrad, Slobodan Mitrovic, and Ronnit Rubinfeld
Symposium on Principles of Distributed Computing (PODC 2018). [link].

[C18] A Simple Augmentation Method for Matchings with Applications to Streaming Algorithms
Christian Konrad
43rd International Symposium on Mathematical Foundations of Computer Science (MFCS 2018). [link].

[C17] Preemptively Guessing the Center
Christian Konrad and Tigran Tonoyan
5th International Symposium on Combinatorial Optimization (ISCO 2018). [link].

[C16] Brief Announcement: Distributed Minimum Vertex Coloring and Maximum Independent Set in Chordal Graphs
Christian Konrad and Victor Zamaraev
Symposium on Principles of Distributed Computing (PODC 2018). [link].

[C15] Improved Distributed Algorithms for Coloring Interval Graphs with Application to Multicoloring Trees
Magnús M. Halldórsson and Christian Konrad
24th International Colloquium on Structural Information and Communication Complexity (SIROCCO 2017).
Invited to TCS special issue [link].

[C14] Brief Announcement: Local Independent Set Approximation
Marijke H.L. Bodlaender, Magnús M. Halldórsson, Christian Konrad, and Fabian Kuhn
Proceedings of the 2016 ACM Symposium on Principles of Distributed Computing (PODC 2016). [link].

[C13] The Densest k-Subhypergraph Problem
Eden Chlamtàč, Michael Dinitz, Christian Konrad, Guy Kortsarz, and George Rabanca
Proceedings of the 19th International Workshop on Approximation Algorithms for Combinatorial Optimization Problems (APPROX 2016). [link].

[C12] On the Power of Advice and Randomization for Online Bipartite Matching
Christoph Dürr, Christian Konrad, and Marc Renault
Proceedings of the 24th European Symposium on Algorithms (ESA 2016). [link].

[C11] Streaming Partitioning of Sequences and Trees
Christian Konrad
Proceedings of the 19th International Conference on Database Theory (ICDT 2016). [link].

[C10] Radio Aggregation Scheduling
Rajiv Gandhi, Magnús M. Halldórsson, Hoon Ho, Christian Konrad, and Guy Kortsarz
Proceedings of the 11th International Symposium on Algorithms and Experiements for Wireless Sensor Networks (ALGOSENSORS 2015).
Invited to TCS special issue [link].

[C9] Distributed Large Independent Sets in One Round On Bounded-independence Graphs
Magnús M. Halldórsson and Christian Konrad
Proceedings of the 29th International Conference on Distributed Computing (DISC 2015). [link].

[C8] Limitations of Current Wireless Scheduling Algorithms
Magnús M. Halldórsson, Christian Konrad, and Tigran Tonoyan
Proceedings of the 11th International Symposium on Algorithms and Experiements for Wireless Sensor Networks (ALGOSENSORS 2015).
Invited to TCS special issue [link].

[C7] Maximum Matching in Turnstile Streams
Christian Konrad
Proceedings of the 23rd European Symposium on Algorithms (ESA 2015). [link].

[C6] The Minimum Vulnerability Problem on Graphs
Yusuke Aoki, Bjarni V. Halldórsson, Magnús M. Halldórsson, Takehiro Ito, Christian Konrad, and Xiao Zhou
Proceedings of the 8th Annual International Conference on Combinatorial Optimization and Applications (COCOA 2014).
Invited to JOCO special issue [link].

[C5] Robust Set Reconciliation
Di Chen, Christian Konrad, Ke Yi, Wei Yu, and Qin Zhang
Proceedings of the ACM International Conference on Management of Data (SIGMOD 2014). [link].

[C4] Distributed Algorithms for Coloring Interval Graphs
Magnús M. Halldórsson and Christian Konrad
Proceedings of the 28th International Conference on Distributed Computing (DISC 2014). [link].

[C3] Approximating Semi-Matchings in Streaming and in Two-Party Communication
Christian Konrad and Adi Rosén
Proceedings of the 40th International Colloquium on Automata, Languages and Programming (ICALP 2013). [link].

[C2] Validating XML Documents in the Streaming Model with External Memory
Christian Konrad and Frédéric Magniez
Proceedings of the 15th International Conference on Database Theory (ICDT 2012).
Best Newcomer Paper Award, invited to TODS special issue [link].

[C1] Maximum Matching in Semi-Streaming with Few Passes
Christian Konrad, Frédéric Magniez, and Claire Mathieu
Proceedings of the 15th International Workshop on Approximation Algorithms for Combinatorial Optimization Problems (APPROX 2012). [link].

Journal publications

[J14] Settling the Pass Complexity of Approximate Matchings in Dynamic Graph Streams
Sepehr Assadi, Soheil Behnezhad, Christian Konrad, Kheeran K. Naidu, and Janani Sundaresan
Journal of the ACM (2026). [link].

[J13] Guessing Fractions of Online Sequences
Christian Konrad and Tigran Tonoyan
Discrete Applied Mathematics (2022). [link].

[J12] Distributed Minimum Vertex Coloring and Maximum Independent Set in Chordal Graphs
Christian Konrad and Victor Zamaraev
Theoretical Computer Science (2022). [link].

[J11] Detecting cliques in CONGEST networks
Artur Czumaj and Christian Konrad
Distributed Computing (2020). [link].

[J10] Radio Aggregation Scheduling
Rajiv Gandhi, Magnús M. Halldórsson, Hoon Ho, Christian Konrad, and Guy Kortsarz
Theoretical Computer Science (2020). [link].

[J9] Improved Distributed Algorithms for Coloring Interval Graphs with Application to Multicoloring Trees
Magnús M. Halldórsson and Christian Konrad
Theoretical Computer Science (2020). [link].

[J8] Limitations of Current Wireless Scheduling Algorithms
Magnús M. Halldórsson, Christian Konrad, and Tigran Tonoyan
Theoretical Computer Science (2020). [link].

[J7] The Densest k-Subhypergraph Problem
Eden Chlamtàč, Michael Dinitz, Christian Konrad, Guy Kortsarz, and George Rabanca
SIAM Journal of Discrete Mathematics (SIDMA 2018). [link].

[J6] The triangle scheduling problem
Christoph Dürr, Zdeněk Hanzálek, Christian Konrad, Yasmina Seddik, René Sitters, Óscar C. Vásquez, and Gerhard Woeginger
Journal of Scheduling (2018). [link].

[J5] Computing Large Independent Sets in a Single Round
Magnús M. Halldórsson and Christian Konrad
Distributed Computing (2018). [link].

[J4] The Minimum Vulnerability Problem on Specific Graph Classes
Yusuke Aoki, Bjarni V. Halldórsson, Magnús M. Halldórsson, Takehiro Ito, Christian Konrad, and Xiao Zhou
Journal of Combinatorial Optimization (JOCO 2016). [link].

[J3] Approximating Semi-Matchings in Streaming and in Two-Party Communication
Christian Konrad and Adi Rosén
ACM Transactions on Algorithms (TALG 2016). [link].

[J2] Validating XML Documents in the Streaming Model with External Memory
Christian Konrad and Frédéric Magniez
ACM Transactions on Database Systems (TODS 2013). (invited papers issue) [link].

[J1] Two-constraint domain decomposition with Space Filling Curves
Christian Konrad
Parallel Computing (2011). [link].

Other published writing and posters

[O2] Report on SIROCCO 2017
Christian Konrad
ACM SIGACT News (Volume 48, 2017). [link].

[O1] Distributed Maximum Independent Set and Minimum Vertex Coloring
Marijke H.L. Bodlaender, Magnús M. Halldórsson, and Christian Konrad
29th International Conference on Distributed Computing (DISC 2015).

Theses

[T2] Computations on Massive Data Sets: Streaming Algorithms and Two-Party Communication
Christian Konrad
PhD thesis (2013). [link].

[T1] Aspects of parallelization for the resolution of the coupled Maxwell/Vlasov equations
Christian Konrad
Diploma thesis (2008). [link].

Manuscripts

Robust Lower Bounds for Graph Problems in the Blackboard Model of Communication
With Peter Robinson and Viktor Zamaraev.

MIS in the Congested Clique Model in $O(\log\log\Delta)$ Rounds

Programme committees

STACS 2027
International Symposium on Theoretical Aspects of Computer Science

STOC 2026
ACM Symposium on Theory of Computing

SWAT 2026
Scandinavian Symposium on Algorithm Theory

STACS 2020
International Symposium on Theoretical Aspects of Computer Science

ICALP (Track A) 2020
International Colloquium on Automata, Languages and Programming

Conference/Workshop organisation

Organiser, two-day joint Bristol workshop 2024
Algorithms and Complexity, Programming Languages and Cryptography research groups

Communication Chair, PODC 2019
ACM Symposium on Principles of Distributed Computing

Organising Committee, SWAT 2016
Scandinavian Symposium and Workshops on Algorithm Theory

Grant and external academic reviewing

Grant proposal reviewer 2026
Leverhulme Trust, UK

Habilitation reviewer 2026
Charles University, Czech Republic

External PhD examiner 2026
Martin Costa, University of Warwick, UK

Grant proposal reviewer 2025
Israel Science Foundation (ISF)

Grant proposal reviewer 2024
Leverhulme Trust, UK

PhD defence committee member 2024
Zach Langley, Rutgers University, USA

External promotion reviewer 2024
Academia Sinica, Taiwan

External promotion reviewer 2024
San Diego State University, USA

Grant proposal reviewer 2023
Agence nationale de la recherche (ANR), France

Grant proposal reviewer 2019
Israel Science Foundation (ISF)

Peer-review activities

SODA; ITCS.	2026
SODA; ICALP (four reviews).	2025
APPROX; ESA; ITCS; STOC; Theoretical Computer Science; ACM Transactions on Algorithms (TALG).	2024
SODA; SEA.	2023
ITCS; STACS; IPCO; ESA (two reviews); Theoretical Computer Science.	2022
SODA (two reviews); SOSA; CPM; PODC; ICALP; Theory of Computing Systems; MFCS; DISC (two reviews); OPODIS.	2021
SODA; ITCS; SoCG; STACS (two reviews); Journal of the ACM; ICALP (three reviews); APPROX; ESA; DISC; FSTTCS.	2020
SODA (two reviews); SoCG; ICALP; FOCS; ESA (three reviews); DISC (two reviews).	2019
SODA (three reviews); PODC; ICALP; SIROCCO; The Computer Journal; Theory of Computing Systems.	2018
SODA; STOC (two reviews); Algorithmica; ICALP (two reviews); PODC (two reviews); FOCS; ISAAC; Transactions on Parallel Computing; Transactions on Algorithms.	2017
Electronic Journal of Combinatorics; Acta Cybernetica; SODA (three reviews); SPAA (four reviews); APPROX; ESA (two reviews); SIROCCO.	2016
Acta Cybernetica; Algorithmica; ICALP (three reviews); TAMC; ESA.	2015
SIAM Journal on Computing (SICOMP); SIAM Journal on Discrete Mathematics (SIDMA); SODA; STOC; STACS; SWAT (two reviews).	2014
ICALP; PODS; SODA; STACS.	2013
ICALP; STACS.	2012

Invited workshop and colloquium talks

The Semi-Robust Communication Complexity of Maximum Matching May 2026
Workshop on Foundations of Distributed and Parallel Graph Algorithms
Warwick Venice Centre, Venice, Italy.

The Semi-Robust Communication Complexity of Maximum Matching Feb 2026
Streaming Workshop
University of Cologne, Cologne, Germany.

Streaming Algorithms, Communication Complexity, and Maximum Matching Dec 2024
London Mathematical Society Computer Science Colloquium
London, UK.

Streaming, Communication Complexity, Matchings and MIS Nov 2024
Algorithms for Massive Graphs Workshop at DISC 2024
Virtual presentation.

Settling the Pass Complexity of Approximate Matchings in Dynamic Graph Streams Sep 2024
Algorithms and Complexity Workshop
University of Warwick, UK.

Maximal Matching in Bounded-Deletion Streams Aug 2024
Sublinear Graph Simplification Workshop
Berkeley, CA, USA.

Set Cover and Maximum Matching in Data Streams Jun 2023
Liverpool Algorithms Days
Liverpool, UK.

Algorithmic Theory for Big Data Jul 2022
Software Technologies Workshop
Clevedon Hall, UK.

Randomized Greedy Matching in the Age of Massive Data Sets Sep 2019
AlgoUK (invited speaker)
University of Warwick, UK.

Distributed Minimum Vertex Coloring Approximation Mar 2018
Workshop on Data Summarization
University of Warwick, UK.

Streaming Algorithms for Independent Sets Jun 2017
Shonan Workshop on Processing Big Data Streams
Shonan Village, Japan.

Streaming XML Mar 2016
Nexus of Information and Computation Theories: Inference Problems Theme
Paris, France.

On the Order of Graph Streams Aug 2012
International Symposium on Mathematical Programming
Berlin, Germany.

Matching in Randomly Ordered Streams Jul 2012
TU Dortmund Workshop on Algorithms for Data Streams
Dortmund, Germany.

Language and Graph Problems in the Streaming Model May 2012
French–Israeli Workshop on Foundations of Computer Science
Paris, France.

Selected workshop presentations

Budget Error Correcting under Earth-Mover-Distance Nov 2012
French Complexity and Algorithms Workgroup (CoA)
Paris, France.

Semi-Streaming Algorithms for Maximum Bipartite Matching with Few Passes Nov 2011
French Graphs and Algorithms Workgroup
Lyon, France.

Conference presentations

Streaming Maximal Matching with Bounded Deletions
ICALP, Aarhus, Denmark. May 2025

Optimal Bounds for Dominating Set in Graph Streams
ITCS, Virtual conference. Jan 2022

Frequent Elements with Witnesses in Data Streams
PODS, Virtual conference. Jun 2021

Constructing Large Matchings via Query Access to a Maximal Matching Oracle
FSTTCS, Virtual conference. Dec 2020

The Complexity of Symmetry Breaking in Massive Graphs
DISC, Budapest, Hungary. Oct 2019

Distributed Minimum Vertex Coloring and Maximum Independent Set in Chordal Graphs
MFCS, Aachen, Germany. Aug 2019

Detecting Cliques in CONGEST Networks
DISC, New Orleans, USA. Oct 2018

A Simple Augmentation Method for Matchings with Applications to Streaming Algorithms
MFCS, Liverpool, UK. Aug 2018

Brief Announcement: Distributed Minimum Vertex Coloring and Maximum Independent Set in Chordal Graphs
PODC, Egham, UK. Jul 2018

Preemptively Guessing the Center
ISCO, Marrakesh, Morocco. Apr 2018

Improved Distributed Algorithms for Coloring Interval Graphs with Application to Multicoloring Trees
SIROCCO, Porquerolles, France. Jun 2017

On the Power of Advice and Randomization for Online Bipartite Matching
ESA, Aarhus, Denmark. Aug 2016

Streaming Partitioning of Sequences and Trees
ICDT, Bordeaux, France. Mar 2016

Distributed Large Independent Sets on Bounded-Independence Graphs
DISC, Tokyo, Japan. Oct 2015

Radio Aggregation Scheduling
ALGOSENSORS, Patras, Greece. Sep 2015

Maximum Matching in Turnstile Streams
ESA, Patras, Greece. Sep 2015

Distributed Algorithms for Coloring Interval Graphs
DISC, Austin, TX, USA. Oct 2014

Robust Set Reconciliation
SIGMOD, Snowbird, UT, USA. Jun 2014

Approximating Semi-Matchings in Streaming and in Two-Party Communication
ICALP, Riga, Latvia. Jul 2013

Maximum Matching in Semi-Streaming with Few Passes
APPROX/RANDOM, MIT, Cambridge, MA, USA. Aug 2012

The Streaming Complexity of Validating XML Documents
ICDT, Berlin, Germany. Mar 2012

Research-group and seminar talks

University of Birmingham, UK — Theory of Computation Group Seminar 2024

Université Paris Cité, France — IRIF Algorithms Seminar 2024

University of Oxford, UK — Algorithms and Complexity Theory Seminar 2024

University of Sheffield, UK — Algorithms Group Seminar 2023

University of Massachusetts, USA — Theory Seminar 2023

Durham University / University of Liverpool, UK — Joint Durham–Liverpool Theory Seminar (virtual) 2022

Université Paris Diderot, France — IRIF Theory Seminar (virtual) 2021

Rutgers University / DIMACS, USA — Theory Seminar (virtual) 2020

University of Bristol, UK — Computer Science Group Seminar 2019

Durham University, UK — Algorithms and Complexity Group 2018

University of Bristol, UK — Combinatorics Seminar 2018

University of Oxford, UK — Algorithms and Complexity Theory Seminar 2018

University of Warwick, UK — DIMAP 2016
Reykjavik University, Iceland — ICE-TCS 2016
Université Paris Diderot, France — IRIF 2016
Inria Sophia Antipolis, France — Coati Group 2016
Reykjavik University, Iceland — ICE-TCS 2015
Reykjavik University, Iceland — ICE-TCS 2014
University of Padova, Italy 2014
University of Edinburgh, UK — Laboratory for Foundations of Computer Science 2012
Aarhus University, Denmark — MADALGO 2012
Brown University, USA 2011
University of Waterloo, Canada 2011
ENS Cachan, France — Dahu Group 2011
Université Paris Diderot, France — LIAFA 2011

Research visits

University of Birmingham, UK (2 days) Nov 2024
Host: Sagnik Mukhopadhyay
University of Pennsylvania, USA (1 week) Jun 2024
Host: Sanjeev Khanna
Université Paris Cité, France (1 week) Mar 2024
Hosts: Adi Rosen and Claire Mathieu
University of Pennsylvania, USA (1 week) Nov 2023
Host: Sanjeev Khanna
University of Massachusetts, USA (1 week) Nov 2023
Host: Andrew McGregor
University of Pennsylvania, USA (1 week) Nov 2022
Host: Sanjeev Khanna
Durham University, UK (1 week) Jan 2018
Host: Victor Zamaraev
Inria Sophia Antipolis, Team Coati, France (1 week) Mar 2016
Host: David Coudert
Université Pierre et Marie Curie, Paris (2 weeks) Nov 2015
Host: Christoph Dürr
Université Pierre et Marie Curie, Paris (2 weeks) Dec 2014
Host: Christoph Dürr
University of Padova, Italy (1 week) Sep 2014
Host: Francesco Silvestri
MADALGO and CTIC, Aarhus University, Denmark (2 weeks) May 2012
Hosts: Qin Zhang and Wei Yu
University of Waterloo, Canada (3 months) Feb, Mar, May 2011
Visiting PhD student working with Ashwin Nayak.
Brown University, Providence, RI, USA (1 month) Apr 2011
Host: Claire Mathieu

Outreach

Algorithmic Theory for Big Data Apr 2021
Mathematical Society (Matrix), Bristol
Outreach talk.

Teaching and administration

Academic leadership and administration

Head, Algorithms and Complexity research group 2021–present
University of Bristol

Programme Director, Joint Honours Mathematics and Computer Science 2023–present
University of Bristol

Head of Year 4 2019–2022
University of Bristol

External examining

External examiner, MSc Computer Science degree programmes 2025–present
University of Liverpool, UK

Teaching experience

University Research Fellowship year 2026/27
University of Bristol · No teaching duties this academic year.

COMS10018 — Object-Oriented Programming and Algorithms 2025/26
University of Bristol · Teaching the Algorithms component (first year).

COMS10018 — Object-Oriented Programming and Algorithms 2024/25
University of Bristol · Teaching the Algorithms component (first year); unit director in 2024/25 CV.

COMS10017 — Object-Oriented Programming and Algorithms I 2023/24
University of Bristol · Algorithms I (first year); unit director.

COMS10017 — Object-Oriented Programming and Algorithms I 2022/23
University of Bristol · Algorithms I (first year); unit director.

COMS10017 — Object-Oriented Programming and Algorithms I 2021/22
University of Bristol · Algorithms I (first year); unit director.

COMSM0068 — Advanced Topics in Theoretical Computer Science 2021/22
University of Bristol · Second half of unit; duties shared with Raphaël Clifford.

COMS10017 — Algorithms 2020/21
University of Bristol · Unit director.

COMSM0068 — Advanced Topics in Theoretical Computer Science 2020/21
University of Bristol · Duties shared with Raphaël Clifford.

COMS10007 — Algorithms 2019/20
University of Bristol · Unit director.

COMS31900 — Advanced Algorithms 2019/20
University of Bristol · Duties shared with Raphaël Clifford.

COMS10007 — Algorithms 2018/19
University of Bristol · Unit director.

Graph Theory Jan–May 2015
Reykjavik University, Iceland · Lecturer.

Teaching Assistant (demi-ATER), 96 hours/year Sep 2012–Jul 2013
Université Paris Diderot, France · Advanced OOP; C++ programming; finite automata; software engineering.

Teaching Assistant (Moniteur), 64 hours/year 2011/12
LRI, Université Paris-Sud, France · Algorithms/C; compilers and virtual machines.

Teaching Assistant (Moniteur), 64 hours/year 2010/11
LRI, Université Paris-Sud, France · Algorithms/C; object-oriented programming.

Teaching Assistant (Moniteur), 64 hours/year 2009/10
LRI, Université Paris-Sud, France · Imperative programming; compilers and virtual machines.

Undergraduate and master's thesis supervision

2026/27

Elevation-Aware Route Planning
Thomas Matvere · BSc Mathematics and Computer Science

Semi-Robust Communication Complexity of Maximum Matching
Matvii Ustich · BSc Mathematics and Computer Science

Sliding-Window Algorithms for Maximum Matching in Practice
Tom Lam · BSc Computer Science

2025/26

Asymmetric Palette Sparsification – In Practice
Ashby Thorpe · BSc Mathematics and Computer Science

Auction-Based Matching Algorithms
David Wusu · BSc Computer Science

Developing an AI teach-back Learning System
Maniza Singh · MSc Computer Science Conversion

The Limits of Predictions for Online Bipartite Matching
Zhuolun Li · MSc Computer Science Conversion

Implementation and Experimental Evaluation of ℓ_0-Sampling for Dynamic Streaming Analytics
Jinni Li · MSc Computer Science Conversion

2024/25

Asymmetric Palette Sparsification for $(\Delta + 1)$-Colouring in the Streaming Model
Omnia Ali · MSc Computer Science Conversion

An Evaluation of a State-of-the-Art Semi-Streaming Algorithm for Approximate Maximum Matchings in General Graphs
Phillip Daniel · BSc Computer Science

Finding Hard Instances for Robust Matching in the One-Way Two-Party Communication Model
Gabriel Cipriani Huete · BSc Mathematics and Computer Science

Iterative Flow-Augmented Matching — A Novel Maximum Matching Algorithm for Bipartite Graphs
Eric Wang · BSc Mathematics and Computer Science

Weighted Sum Optimisation for Identifying Optimal Matchings in UK Kidney Exchanges
Lamb Chen · BSc Computer Science

2022/23

Maximum Independent Set via Maximal Independent Queries
Victor Traistaru · MEng Computer Science

2021/22

Branch-and-Bound Approach for Set Cover
Ben Bancroft · MEng Mathematics and Computer Science

Evaluation of One-Pass Edge-Arrival Algorithms for Minimum Dominating Set and Set Cover
Alex Carpenter · MEng Mathematics and Computer Science

Streaming Algorithms for Maximum Independent Sets
Samuel Chimbwandira · BSc Mathematics and Computer Science

Edge-Degree-Constraint-Subgraphs and Their Applications
Aidan Hancock · BSc Mathematics and Computer Science

Auction Algorithm for Bipartite Graph Matching Problem
Ivan Qin · MEng Mathematics and Computer Science

Construction of Large Matchings via an Edge-Query Oracle
Arun Steward · MEng Mathematics and Computer Science

2020/21

Distributed Algorithms for Bounded Tree-Length Graphs
Adithya Diddapur · MEng Mathematics and Computer Science

Streaming Graph Colouring in Practice
Emil Centiu · BSc Computer Science

2019/20

Beyond Greedy: Set Cover Approximations in Practice
Razvan David · BSc Computer Science

Constructing Large Matchings by Querying Maximal Matchings
Lidiya binti Khalil · BSc Mathematics and Computer Science

Streaming Set-Cover Algorithms
Michael Barlow · MEng Computer Science

Streaming Algorithms for ℓ_0-Sampling
Omar Barman · MEng Mathematics and Computer Science

Star Detection in Data Streams
Dom Hutchinson · Third-year MEng Mathematics and Computer Science

2018/19

Algorithms for Online Checkpointing
Michael Sheehan · MEng Mathematics and Computer Science

Implementation and Evaluation of an LP-Based Multi-Pass Streaming Algorithm for the Maximum Matching Problem
Aatina Punjabi · MEng Computer Science

The Set-Cover Problem in the Semi-Streaming Model
Charana Nandasena · MEng Computer Science

How Many of Your Friends Are Friends With Each Other?
Kaijie Wang · MSc Advanced Computing

Super Fast Algorithms for Massive Graphs
Amar Hussain · MSc Computer Science