
Taylor J. Smith

Contact Information

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		<i>Citizenship:</i>	Canadian

Research Interests

Primary interests in formal languages/automata theory (particularly in two dimensions), combinatorics on words (particularly in two dimensions), computability/complexity theory; secondary interests in analysis of algorithms, coding theory.

Education

<i>2017 – present</i>	Doctor of Philosophy, Queen's University Supervisor: Kai Salomaa
<i>2015 – 2017</i>	Master of Mathematics, University of Waterloo Supervisor: Jeffrey Shallit
<i>2011 – 2015</i>	Bachelor of Science (Honours), University of Western Ontario Supervisor: Helmut Jürgensen

Employment

<i>2017 – present</i>	School of Computing, Queen's University
	<i>2017 – present</i> Graduate Research Student
	<i>Jan. – Apr. 2019</i> Teaching Fellow
<i>2015 – 2017</i>	Cheriton School of Computer Science, University of Waterloo
	<i>May – Aug. 2017</i> Sessional Instructor
	<i>2015 – 2017</i> Graduate Research Student
<i>2014 – 2015</i>	Research Assistant, Department of Computer Science, University of Western Ontario

Publications

Publications in theoretical computer science customarily list authors alphabetically.

Peer-reviewed Journal Articles

- [J3] Taylor J. Smith and Kai Salomaa. [Decision problems and projection languages for restricted variants of two-dimensional automata](#). *Theoretical Computer Science*. To appear. Invited extended version of CIAA 2019 article.
- [J2] Da-Jung Cho, Yo-Sub Han, Kai Salomaa, and Taylor J. Smith. [Site-directed insertion: Language equations and decision problems](#). *Theoretical Computer Science*, 798:40–51, Dec. 2019. Invited extended version of DCFS 2018 article.
- [J1] Guilhem Gamard, Gwenaël Richomme, Jeffrey Shallit, and Taylor J. Smith. [Periodicity in rectangular arrays](#). *Information Processing Letters*, 118:58–63, Feb. 2017.

Peer-reviewed Conference Articles

- [C4] Taylor J. Smith and Kai Salomaa. [Concatenation operations and restricted variants of two-dimensional automata](#). In T. Bureš et al., editors, *Proceedings of the 47th International Conference on Current Trends in Theory and Practice of Computer Science (SOFSEM 2021)*, volume 12607 of *Lecture Notes in Computer Science*, pages 147–158, Bolzano-Bozen, Italy. Springer, Jan. 2021.
- [C3] Taylor J. Smith and Kai Salomaa. [Recognition and complexity results for projection languages of two-dimensional automata](#). In G. Jirásková and G. Pighizzini, editors, *Proceedings of the 22nd International Conference on Descriptive Complexity of Formal Systems (DCFS 2020)*, volume 12442 of *Lecture Notes in Computer Science*, pages 206–218, Vienna, Austria. Springer, Aug. 2020.
- [C2] Taylor J. Smith and Kai Salomaa. [Decision problems for restricted variants of two-dimensional automata](#). In M. Hospodár and G. Jirásková, editors, *Proceedings of the 24th International Conference on Implementation and Application of Automata (CIAA 2019)*, volume 11601 of *Lecture Notes in Computer Science*, pages 222–234, Košice, Slovakia. Springer, Jul. 2019.
- [C1] Da-Jung Cho, Yo-Sub Han, Kai Salomaa, and Taylor J. Smith. [Site-directed insertion: Decision problems, maximality and minimality](#). In S. Konstantinidis and G. Pighizzini, editors, *Proceedings of the 20th International Conference on Descriptive Complexity of Formal Systems (DCFS 2018)*, volume 10952 of *Lecture Notes in Computer Science*, pages 49–61, Halifax, Canada. Springer, Jul. 2018.

Technical Reports

- [R1] Taylor J. Smith. [Two-dimensional automata](#). Technical report 2019-637, School of Computing, Queen’s University, Kingston, Canada, Jan. 2019. 27pp.

Theses

- [T2] Taylor J. Smith. [Properties of two-dimensional words](#). Master’s thesis, University of Waterloo, 2017. vii+58pp.
- [T1] Taylor J. Smith. [A study of solid hypercodes](#). Bachelor’s thesis, University of Western Ontario, 2015. v+30pp.

Submitted Works

- [S1] Taylor J. Smith and Kai Salomaa. [Degrees of restriction for two-dimensional automata](#), May 2021. arXiv:2105.01179. To appear in *Proceedings of the 25th International Conference on Implementation and Application of Automata (CIAA 2021)*.

Presentations and Seminars

Conference Presentations

- [Concatenation operations and restricted variants of two-dimensional automata](#). Presented at *International Conference on Current Trends in Theory and Practice of Computer Science (SOFSEM 2021)*, Bolzano-Bozen, Italy (virtual conference), Jan. 2021.
- [Decision problems for restricted variants of two-dimensional automata](#). Presented at *International Conference on Implementation and Application of Automata (CIAA 2019)*, Košice, Slovakia, Jul. 2019.
- [Site-directed insertion: Decision problems, maximality and minimality](#). Presented at *International Conference on Descriptive Complexity of Formal Systems (DCFS 2018)*, Halifax, Canada, Jul. 2018.

Conference Presentations (with no corresponding article)

- [Extending the Lyndon-Schützenberger theorem](#). Presented at *Southern Ontario Graduate Mathematics and Statistics Conference (SOGMSC 2016)*, Guelph, Canada, Jun. 2016.
- [Solid hypercodes](#). Presented at *University of Western Ontario Research in Computer Science (UWORCS 2015)*, London, Canada, Apr. 2015.

Department Seminars

- [Some results on words in two dimensions](#). Presented at *Queen’s University Formal Languages & Automata Theory seminar*, Kingston, Canada, Oct. 2017.
- [Periodicity in rectangular arrays](#). Presented at *University of Waterloo Algorithms & Complexity seminar*, Waterloo, Canada, Apr. 2016.

Teaching

For more details, please see my [Teaching Portfolio](#).

Instructor

Winter 2019 CISC 203: Discrete Mathematics for Computing II (49 students, rated 4.7/5.0)
 Spring 2017 CS 240: Data Structures and Data Management (340 students, rated 4.3/5.0)

Teaching Assistant

Queen’s University CISC 203: Discrete Mathematics for Computing II (2×)
 CISC/CMPE 223: Software Specifications (3×)
 CISC 462: Computability and Complexity (2×)

University of Waterloo CS 234: Data Types and Structures (2×)
 CS 240: Data Structures and Data Management (2×)
 CS 462/662: Formal Languages and Parsing (1×)

Professional Development

2020 Certificate in Professional Development in University Teaching and Learning
 Centre for Teaching and Learning, Queen’s University

2018 Certificate in Professional Development
 School of Graduate Studies, Queen’s University

2016 Fundamentals of University Teaching Program
 Centre for Teaching Excellence, University of Waterloo

Service**Committees**

2020 Graduate Committee, School of Computing, Queen’s University

2017 – 2020 School of Computing Council, Queen’s University

2016 – 2017 Graduate Studies Committee, Faculty of Mathematics, University of Waterloo

2014 – 2015 Curriculum Committee, Department of Computer Science, University of Western Ontario

Conferences and Seminars

- 2018 Program Committee Chair, Queen’s Computing Student Research Conference (CSearch)
 2017 Judge, Western Student Research Conference (WSRC)
 2015 – 2017 Organizer, Algorithms and Complexity Open Problems Seminar, University of Waterloo
 2015 Organizing Committee Chair, Western Computer Science Academic Colloquium

Professional Memberships

- 2016 – present Student Member, Association for Computing Machinery (ACM)
 2016 – present Student Member, Institute of Electrical and Electronics Engineers (IEEE)

Refereeing and Reviewing

- Referee *Information and Computation*
Mathematical Reviews
- External reviewer Conference on Implementation and Application of Automata (CIAA)
 Developments in Language Theory (DLT)
 Current Trends in Theory and Practice of Computer Science (SOFSEM)
 Symposium on Theoretical Aspects of Computer Science (STACS)

Miscellaneous

- 2020 – present Graduate Studies Ambassador/Mentor, Queen’s School of Graduate Studies
 2019 – 2020 President, Queen’s Graduate Computing Society
 2017 – 2020 Department Representative, Queen’s Society of Graduate and Professional Students
 2017 – 2019 Vice President (University Affairs), Queen’s Graduate Computing Society

Honours and Awards

- 2020 Ian A. Macleod Award, School of Computing, Queen’s University (C\$650)
 2020 TA/TF Excellence Award, Queen’s Society of Graduate & Professional Students
 2019 Sheng Yu Award for Best Paper, CIAA 2019 (€250)
 2018 Excellence in Teaching Assistance Award, School of Computing, Queen’s University
 2017 – 2021 Ontario Graduate Scholarship (C\$15 000/year)
 2017 – 2021 Queen’s Graduate Award, Queen’s University (C\$3 000/year)
 2017 Associate Member, Sigma Xi Scientific Research Honour Society
 2015 – 2017 Graduate Student Award, Faculty of Mathematics, University of Waterloo (C\$3 000/year)
 2015 Szilard Award in Theoretical Computer Science, University of Western Ontario (C\$1 000)
 2015 First place in session, UWORCS 2015

Other Information

- Erdős number* 2 (via Jeffrey Shallit)
- Personal interests* Board games and chess; recreational running and cycling; language learning (particularly French); piano and music theory. Curator of the [Montréal 1976 Olympic Collection](#).