Timothy Ng

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CITIZENSHIP: Canadian

Education

2017	**PhD**, Computing, Queen's University at Kingston
2013	**MSc**, Computer Science, University of Western Ontario
2011	**BMath**, Computer Science & Pure Mathematics, University of Waterloo

Appointments

2019–	**Assistant Instructional Professor** Department of Computer Science and the College, University of Chicago
2017–2019	**Postdoctoral Fellow** David R. Cheriton School of Computer Science, University of Waterloo

Research Interests

Automata theory, formal languages, descriptional complexity, combinatorics on words

Teaching

University of Chicago

- CMSC 14100: Introduction to Computer Science I (AU22)
- CMSC 15100: Introduction to Computer Science I (AU20, AU21)
- CMSC 27100: Discrete Mathematics (AU19)
- CMSC 27200: Theory of Algorithms (SP20, SP21, WI22)
- CMSC 28000: Introduction to Formal Languages (WI20, WI21, SP22, SP23)
- CAPP 30271: Mathematics for Computer Science and Data Analysis (WI23)
- MPCS 50103: Mathematics for Computer Science: Discrete Mathematics (WI20, WI21, WI22)
- MPCS 55001: Algorithms (SP20, SP21, SP22, SP23)

Other

- cs 245: Logic and Computation, University of Waterloo (sp19)
- cs 360: Introduction to the Theory of Computing, University of Waterloo (sp18)
- cisc 462: Computability and Complexity, Queen's University (w117)

Publications

REFEREED JOURNAL ARTICLES

1. F. Bellamoli, G. Franco, L. Kari, S. Lampis, T. Ng, and Z. Wang. Conjugate word blending: formal model and experimental implementation by XPCR. *Natural Computing* **20**(4), 647–658 (2021)

2. L. Kari and T. Ng. Descriptional Complexity of Semi-Simple Splicing. *International Journal of Foundations of Computer Science* **32**(06), 685–711 (2021)

3. Y.-S. Han, S.-K. Ko, T. Ng, and K. Salomaa. Consensus String Problem for Multiple Regular Languages. *Information and Computation* **279**, 104615 (2021)

4. Y.-S. Han, S.-K. Ko, T. Ng, and K. Salomaa. Closest Substring Problems for Regular Languages. *Theoretical Computer Science* **862**, 144–154 (2021)

5. S.K. Enaganti, L. Kari, T. Ng, and Z. Wang. Word Blending in Formal Languages. *Fundamenta Informaticæ* **171**(1–4), 151–173 (2020)

6. T. Ng, D. Rappaport, and K. Salomaa. State Complexity of Suffix Distance. *International Journal of Foundations of Computer Science* **30**(06&07), 203–214 (2019)

7. T. Ng, D. Rappaport, and K. Salomaa. State Complexity of Neighbourhoods and Approximate Pattern Matching. *International Journal of Foundations of Computer Science* **29**(02), 315–329 (2018)

8. D.-J. Cho, Y.-S. Han, T. Ng, and K. Salomaa. Outfix-Guided Insertion. *Theoretical Computer Science* **701**, 70–84 (2017)

9. D.-J. Cho, Y.-S. Han, T. Ng, and K. Salomaa. Pseudoknot-Generating Operation. *Theoretical Computer Science* **696**, 52–64 (2017)

10. T. Ng, D. Rappaport, and K. Salomaa. State Complexity of Prefix Distance of Subregular Languages. *Journal of Automata, Languages and Combinatorics* **22**(1–3), 169–188 (2017)

11. T. Ng, D. Rappaport, and K. Salomaa. State Complexity of Prefix Distance. *Theoretical Computer Science* **679**, 107–117 (2017)

12. Y.-S. Han, S.-K. Ko, T. Ng, and K. Salomaa. State Complexity of Insertion. *International Journal of Foundations of Computer Science* **27**(07), 863–878 (2016)

REFEREED CONFERENCE ARTICLES

1. L. Kari and T. Ng. Descriptional Complexity of Semi-Simple Splicing. In: *Developments in Language Theory (DLT 2020)*, LNCS 12086, 150–163 (2020)

2. T. Ng, P. Ochem, N. Rampersad, and J. Shallit. New results on pseudosquare avoidance. In: *WORDS 2019: Combinatorics on Words*, LNCS 11682, 264–274 (2019)

3. L. Kari and T. Ng. State Complexity of Simple Splicing. In: *Descriptional Complexity of Formal Systems (DCFS 2019)*, LNCS 11612, 197–209 (2019)

4. L. Kari and T. Ng. State Complexity of Pseudocatenation. In: *Language and Automata Theory and Applications (LATA 2019)*, LNCS 11417, 203–214 (2019)

5. Y.-S. Han, S.-K. Ko, T. Ng, and K. Salomaa. Closest Substring Problems for Regular Languages. In: *Developments in Language Theory (DLT 2018)*, LNCS 11088, 392–403 (2018)

6. S.K. Enaganti, L. Kari, T. Ng, and Z. Wang. Word blending in formal languages: The Brangelina effect. In: *Unconventional Computation and Natural Computation (UCNC 2018)*, LNCS 10867, 72–85 (2018)

7. T. Ng, D. Rappaport, and K. Salomaa. Relative Prefix Distance Between Languages. In: *Developments in Language Theory (DLT 2017)*, LNCS 10396, 284–295 (2017)

8. T. Ng, D. Rappaport, and K. Salomaa. State Complexity of Suffix Distance. In: *Descriptional Complexity of Formal Systems (DCFS 2017)*, LNCS 10316, 287–289 (2017)

9. Y.-S. Han, S.-K. Ko, T. Ng, and K. Salomaa. Consensus String Problem for Multiple Regular Languages. In: *Language and Automata Theory and Applications (LATA 2017)*, LNCS 10168, 196–207 (2017)

10. D.-J. Cho, Y.-S. Han, T. Ng, and K. Salomaa. Outfix-Guided Insertion. In: *Developments in Language Theory (DLT 2016)*, LNCS 9840, 102–113 (2016)

11. T. Ng. Prefix Distance Between Regular Languages. In: *Implementation and Applications of Automata (CIAA 2016)*, LNCS 9705, 224–235 (2016)

12. T. Ng, D. Rappaport, and K. Salomaa. State Complexity of Prefix Distance of Sub-regular Languages. In: *Descriptional Complexity of Formal Systems (DCFS 2016)*, LNCS 9777, 192–204 (2016)

13. D.-J. Cho, Y.-S. Han, T. Ng, and K. Salomaa. Pseudoknot-Generating Operation. In: *SOFSEM 2016: Theory and Practice of Computer Science*, LNCS 9587, 241–252 (2016)

14. T. Ng, D. Rappaport, and K. Salomaa. State Complexity of Prefix Distance. In: *Implementation and Applications of Automata (CIAA 2015)*, LNCS 9223, 238–249 (2015)

15. T. Ng, D. Rappaport, and K. Salomaa. State Complexity of Neighbourhoods and Approximate Pattern Matching. In: *Developments in Language Theory (DLT 2015)*, LNCS 9168, 389–400 (2015)

16. T. Ng, D. Rappaport, and K. Salomaa. Quasi-distances and Weighted Finite Automata. In: *Descriptional Complexity of Formal Systems (DCFS 2015)*, LNCS 9118, 209–219 (2015)

1. T. Ng, D. Rappaport, and K. Salomaa. Descriptive Complexity of Error Detection. In: *Emergent Computation: A Festschrift for Selim G. Akl*. Springer, 101–119 (2017)

2. T. Ng, D. Rappaport, and K. Salomaa. Quasi-Distances and Weighted Finite Automata. In: *The Role of Theory in Computer Science: Essays Dedicated to Janusz Brzozowski*. World Scientific, 135–151 (2017)

THESES

1. T. Ng. Distances Between Languages: Algorithms and Descriptional Complexity. PhD thesis, Queen's University at Kingston, Kingston, Canada (2017)

2. T. Ng. NFA reduction via hypergraph vertex cover approximation. MSc thesis, The University of Western Ontario, London, Canada (2013)

Awards & Honours

2018	Cheriton School of Computer Science Top Instructors, Spring 2018 *(Departmental)*
2016	Ontario Graduate Scholarship – $15000 *(Provincial)*
2013–2015	R. Samuel McLaughlin Fellowship – $10000 per year *(Institutional)*
2012	Queen Elizabeth II Graduate Scholarship in Science and Technology – $15000 *(Provincial)*

Professional Activities

2021	Program Committee, 23rd International Conference on Descriptional Complexity of Formal Systems (DCFS 2021)
2018	Program Committee, 22nd International Conference on Developments in Language Theory (DLT 2018)
2016	Graduate Committee, School of Computing, Queen's University
2016	Councillor, Society of Graduate and Professional Students, Queen's University
2015	Organizing Committee, 27th Canadian Conference on Computational Geometry (CCCG 2015)

JOURNAL REFEREEING

- Discrete Mathematics & Theoretical Computer Science
- Fundamenta Informaticæ
- Information and Computation
- International Journal of Foundations of Computer Science
- Journal of Computational Biology
- Natural Computing
- Theoretical Computer Science

- Algebraic Informatics (CAI) 2019
- Implementation and Application of Automata (CIAA) 2014, 2015, 2016, 2017
- Computability in Europe (CIE) 2017, 2018
- Descriptional Complexity of Formal Systems (DCFS) 2014, 2015, 2017, 2022, 2023
- Developments in Language Theory (DLT) 2020
- Language and Automata Theory and Applications (LATA) 2016, 2017
- Symposium on Theoretical Aspects of Computer Science (STACS) 2021
- Unconventional Computation and Natural Computation (UCNC) 2018, 2019

PROFESSIONAL MEMBERSHIPS

2020–   ACM Special Interest Group on Computer Science Education (SIGCSE)