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# Curriculum Vitae of Stavros Konstantinidis

August 2017

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## Abbreviations

SMU = Saint Mary's University, Halifax, Nova Scotia, Canada

UoL = University of Lethbridge, Lethbridge, Alberta, Canada

UWO = University of Western Ontario, London, Ontario, Canada

## 1 Contact Information

Office address: Department of Mathematics and Computing Science  
Saint Mary's University, Halifax, Nova Scotia, B3H 3C3  
FAX, e-mail: (902) 420 5035, s.konstantinidis@smu.ca  
URL address: <http://cs.smu.ca/~stavros/>

## 2 Post-Secondary Education

- Ph.D., Computer Science, UWO, (Sep. 92 – Mar. 96).  
*Title:* Error Correction and Decodability. *Advisor:* Prof. Dr. Helmut Jürgensen.
- M.Sc., Computer Science, UWO, (Sep. 90 – May 92).  
*Title:* Sampling for Triangulation. *Advisor:* Prof. Dr. Helmut Jürgensen.
- B.Sc., Mathematics, University of Athens, (Sep. 84 – Aug. 88).

## 3 Professional Experience

- *Professor:* Department of Mathematics and Computing Science, SMU (Sep. 09 – present).
- *Computing Science Co-ordinator:* Department of Mathematics and Computing Science, SMU (Jan. 12 – May 12).
- *Chairperson:* Department of Mathematics and Computing Science, SMU (Sep. 07 – Aug. 10).
- *Associate Professor:* Department of Mathematics and Computing Science, SMU (Sep. 01 – Aug. 09).
- *Computing Science Co-ordinator:* Department of Mathematics and Computing Science, SMU (Sep. 05 – Aug. 07).
- *Assistant Professor:* Department of Mathematics and Computing Science, SMU (Aug. 98 – Aug. 01).

- *Assistant Professor*: Department of Mathematics and Computer Science, UoL (Aug. 96 – Jun. 98).
- *Sessional Lecturer*: Department of Computer Science, UWO (Spring 96 and Fall 94).
- *Teaching Assistant*: Department of Computer Science, UWO (Sep. 91 – Apr. 96).
- *Research Assistant*: Department of Computer Science, UWO (Sep. 90 – Aug. 91).
- *Software Designer and Implementer*: Business Reconstruction Organization, Athens (Dec. 88 – Mar. 89).
- *Private Tutor in Mathematics*: Athens (Sep. 86 – Apr. 89).

## 4 Honours and Awards

- National committee chair: “Research Tools and Instruments Review Committee”, Section of Computer Science, Statistics and Mathematics, NSERC, Sep. 14 – Jan. 15.
- National committee chair: “Theoretical Computer Science” Section of the NSERC Computer Science Evaluation Group (EG 1507), Discovery Grants, Jun. 10 – Mar. 11.  
Also, national committee member: NSERC Computing and Information Sciences Grant Selection Committee (GSC 331)<sup>1</sup>, Aug. 08 – Feb. 11.
- Best paper award, 9th International Conference on the Implementation and Application of Automata (CIAA’04), July 22-24, 2004, Kingston, Ontario, Canada.
- Best paper score, 10th International Meeting on DNA-based computers (DNA 10), June 7-10, 2004, Milano, Italy.
- Nominated for the Governor General’s Gold Medal Award by the Department of Computer Science, UWO (Apr. 96).
- Ontario Differential Fee Waiver, UWO (Sep. 92 – Feb. 94).
- Ontario Differential Fee Waiver, UWO (May 90 – May 92).

## 5 Research/Scholarship

*Note: As customary in my field, names of co-authors of a publication appear in alphabetical order – with one or two exceptions. In the lists of my research contributions, names of co-authors whom I supervised are shown in **bold font**.*

### 5.1 Papers in refereed journals

1. L. Kari, S. Konstantinidis, **S. Kopecki**: Transducer Descriptions of DNA Code Properties and Undecidability of Antimorphic Problems. *Information and Computation*, accepted and to appear.

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<sup>1</sup>Renamed later as NSERC Computer Science Evaluation Group (EG 1507).

2. S. Konstantinidis, M. Mastnak: Embedding Rationally Independent Languages into Maximal Ones. *Journal of Automata, Languages and Combinatorics*, 21:4 (2016), 311-338.
3. R. Karamichalis, L. Kari, S. Konstantinidis, **S. Kopecki**, S. Solis-Reyes: (2016). Additive Methods for Genomic Signatures. *BMC Bioinformatics*, 17:313 (2016), 18 pages.
4. R. Karamichalis, L. Kari, S. Konstantinidis, **S. Kopecki**: (2015). An investigation into inter- and intragenomic variations of graphic genomic signatures. *BMC Bioinformatics* 16:246 (2015), 22 pages.
5. L. Kari, S. Konstantinidis, **S. Kopecki**: On the maximality of languages with combined types of code properties. *Theoretical Computer Science* 550 (2014), 79–89.
6. S. Konstantinidis, **N. Sântean**: Computing maximal Kleene closures that are embeddable in a given constrained DNA language<sup>2</sup>. *Natural Computing* 12:2 (2013), 211–222.
7. **K. Dudzinski**, S. Konstantinidis: Formal descriptions of code properties: decidability, complexity, implementation. *International Journal of Foundations of Computer Science* 23:1 (2012), 67–85.
8. S. Konstantinidis, **J. Young**:  $f$ -Words and binary solid codes. *Journal of Automata, Languages and Combinatorics* 15:3/4 (2010), 269–283.
9. S. Konstantinidis, P. Silva: Computing maximal error-detecting capabilities and distances of regular languages. *Fundamenta Informaticae* 101:4 (2010), 257–270.
10. S. Konstantinidis, N. Sântean, S. Yu: On implementing recognizable transductions. *Intern. Journal of Computer Mathematics* 87:2 (2010), 260–277.
11. J. Brzozowski, S. Konstantinidis: State-complexity hierarchies of uniform languages of alphabet-size length. *Theoretical Computer Science* 410:35 (2009), 3223–3235.
12. S. Konstantinidis, N. Sântean: On the Definition of Stochastic  $\lambda$ -Transducers. *Intern. Journal of Computer Mathematics* 86:8 (2009), 1300–1310.
13. C. Câmpeanu, S. Konstantinidis: State Complexity of the Subword Closure Operation with Applications to DNA Coding. *International Journal of Foundations of Computer Science* 19:5 (2008), 1099–1112.
14. S. Konstantinidis, P. Silva: Maximal Error-detecting Capabilities of Formal Languages. *Journal of Automata, Languages and Combinatorics* 13:1 (2008), 55–71.
15. S. Konstantinidis: Computing the Edit Distance of a Regular Language. *Information and Computation* 205 (2007), 1307-1316.
16. S. Konstantinidis, N. Sântean and S. Yu: Fuzzification of Rational and Recognizable Sets. *Fundamenta Informaticae* 76.4 (2007), 413-447.
17. S. Konstantinidis, N. Sântean and S. Yu: Representation and Uniformization of Algebraic Transductions. *Acta Informatica* 43.6 (2007), 395-417.

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<sup>2</sup>One of the five papers selected for journal publication from the proceedings of DNA 17, which took place in Caltech, Pasadena, California, Sept. 2011.

18. H. Jürgensen, S. Konstantinidis: (Near-)Inverses of Sequences. *Intern. Journal of Computer Mathematics* 83:2 (2006), 203–222.
19. L. Kari, E. Losseva, S. Konstantinidis, P. Sosík, G. Thierrin: A Formal Language Analysis of DNA Hairpin Structures. *Fundamenta Informaticae* 71 (2006), 453–475.
20. L. Kari, S. Konstantinidis, P. Sosík: Bond-free Languages: Formalizations, Maximality and Construction Methods. *International Journal of Foundations of Computer Science* 16 (2005), 1039–1070.
21. L. Kari, S. Konstantinidis, P. Sosík: Operations on Trajectories with Applications to Coding and Bioinformatics. *International Journal of Foundations of Computer Science* 16 (2005), 531–546.
22. L. Kari, S. Konstantinidis, P. Sosík: On properties of bond-free DNA languages. *Theoretical Computer Science* 334 (2005), 131–159.
23. L. Kari, S. Konstantinidis: Language Equations, Maximality and Error-detection. *Journal of Computer and System Sciences* 70 (2005), 157–178.
24. L. Kari, S. Konstantinidis: Descriptive Complexity of Error/Edit Systems. *Journal of Automata, Languages and Combinatorics* 9 (2004), 293–309.
25. H. Jürgensen, S. Konstantinidis, N. H. Lãm: Asymptotically optimal low-cost solid codes. *Journal of Automata, Languages and Combinatorics* 9:1 (2004), 81–102.
26. S. Konstantinidis, **S. Perron**, **L. A. Wilcox-O’Hearn**: On a Simple Method for Detecting Synchronization Errors in Coded Messages. *IEEE Transactions on Information Theory* 49 (2003), 1355–1363.
27. L. Kari, S. Konstantinidis, E. Losseva, G. Wozniak: Sticky-Free and Overhang-Free DNA Languages. *Acta Informatica* 40 (2003), 119–157.
28. **S. Hussini**, L. Kari, S. Konstantinidis: Coding Properties of DNA Languages. *Theoretical Computer Science* 290 (2003), 1557–1579.
29. S. Konstantinidis, **A. O’Hearn**: Error-Detecting Properties of Languages. *Theoretical Computer Science* 276 (2002), 355–375.
30. S. Konstantinidis: Transducers and the Properties of Error-Detection, Error-Correction and Finite-Delay Decodability. *Journal Of Universal Computer Science* 8 (2002), 278–291.
31. S. Konstantinidis: Relationships between Different Error-Correcting Capabilities of a Code. *IEEE Transactions on Information Theory* 47 (2001), 2065–2069.
32. S. Konstantinidis: An Algebra of Discrete Channels that Involve Combinations of Three Basic Error Types. *Information and Computation* 167 (2001), 120–131.
33. H. Jürgensen, M. Katsura, S. Konstantinidis: Maximal Solid Codes. *Journal of Automata, Languages and Combinatorics* 6 (2001), 25–50.
34. S. Konstantinidis: Structural Analysis of Error-Correcting Codes for Discrete Channels that Involve Combinations of Three Basic Error Types. *IEEE Transactions on Information Theory* 45 (1999), 60–77.

## 5.2 Papers in proceedings of refereed conferences

1. S. Konstantinidis, N. Moreira, R. Reis: Generating Error Control Codes with Automata and Transducers. In H. Bordihn, R. Freund, B. Nagy, G. Vaszil (eds.): Proceedings of the 8th NCMA, Debrecen, Hungary, Aug, 29-30, 2016. Österreichische Computer Gesellschaft (OCG), vol. 321 (2016), pp. 211-226.
2. S. Konstantinidis, **C. Meijer**, N. Moreira, R. Reis: In Y.-S. Han, K. Salomaa (eds.): Proceedings of the 21st CIAA, Seoul, Republic of Korea, July 19–22, 2016. LNCS, vol. 9705 (2016), pp. 189201, Springer.
3. L. Kari, S. Konstantinidis, **S. Kopecki**. Transducer Descriptions of DNA Code Properties and Undecidability of Antimorphic Problems. In J. Shallit and A. Okhotin: 17th DCFS, Waterloo, Ont., Canada, June 25-27, 2015. LNCS, vol. 9118 (2015), pp. 141–152, Springer.
4. S. Konstantinidis, **J. Young**: Deciding the density type of a given regular language. In J. Holub and J. Zdarek (eds): *Proceedings of the Prague Stringology Conference*, September 2013, pp. 21–34.
5. S. Konstantinidis, **N. Sântean**: Computing maximal Kleene closures that are embeddable in a given constrained DNA language. In: Proceedings of “17th International Conference on DNA Computing and Molecular Programming, California Institute of Technology, Sep. 19-23, 2011”. Lecture Notes in Computer Science 6937 (2011), pp 115–129.
6. J. Brzozowski, S. Konstantinidis: State-Complexity Hierarchies of Uniform Languages of Alphabet-Size Length. In: Proceedings of “10th International Workshop on Descriptive Complexity of Formal Systems Charlottetown, Canada, July 16-18, 2008, pp 97-108.
7. **B. Cui**, S. Konstantinidis: DNA Coding using the Subword Closure Operation. In: Proceedings of “13th DNA Computing Meeting, University of Memphis, June 2007”. Lecture Notes in Computer Science 4848 (2008), 284–289, Springer.
8. S. Konstantinidis: Computing the Levenshtein distance of a regular language. In: Proceedings of “IEEE Information Theory Workshop on Coding and Complexity, Rotorua, New Zealand, Aug. 29 - Sep. 1, 2005,” pp 113–116.
9. L. Kari, S. Konstantinidis, P. Sosík: Hairpin Structures in DNA Words. In: Proceedings of “11th International Meeting on DNA-based computers (DNA 11), London, Canada, June 6-9, 2005.” Lecture Notes in Computer Science 3892 (2006), 158–170, Springer.
10. L. Kari, S. Konstantinidis, P. Sosík, G. Thierrin: On Hairpin-Free Words and Languages. In: Proceedings of “Developments in Language Theory 2005, 9th International Conference, DLT 2005, Palermo, Italy, July 4-8, 2005.” Lecture Notes in Computer Science 3572 (2005), 296–307, Springer.
11. L. Kari, S. Konstantinidis, P. Sosík: Preventing Undesirable Bonds between DNA Codewords. In: Proceedings of “10th International Meeting on DNA-based computers (DNA 10), Milano, Italy, June 7-10, 2004.” Lecture Notes in Computer Science 3384 (2005), 182–191, Springer.
12. L. Kari, S. Konstantinidis, P. Sosík: Bond-free Languages: Formalizations, Maximality and Construction Methods. In: Proceedings of “10th International Meeting on DNA-based computers (DNA 10), Milano, Italy, June 7-10, 2004.” Lecture Notes in Computer Science 3384 (2005), 169-181, Springer.

13. L. Kari, S. Konstantinidis, P. Sosík: Substitutions, Trajectories and Noisy Channels. In: Proceedings of “9th International Conference on the Implementation and Application of Automata (CIAA’04), Kingston, Ontario, July 22-24, 2004.” Lecture Notes in Computer Science 3317 (2004), 202–212, Springer.
14. L. Kari, S. Konstantinidis: Descriptive Complexity of Error/Edit Systems. In: Proceedings of “Descriptive Complexity of Formal Systems, London, Canada, Aug. 2002,” pp 133–147.
15. **S. Hussini**, L. Kari, S. Konstantinidis: Coding Properties of DNA Languages. In: Proceedings of “7th International Workshop on DNA-Based Computers, Tampa, Florida, USA, June 10-13, 2001.” Lecture Notes in Computer Science 2340 (2002), 57–69, Springer.
16. S. Konstantinidis: Error-Detecting Properties of Languages. In: Proceedings of “3rd International Colloquium on Words, Languages & Combinatorics, Kyoto, Japan, 14 - 18 March 2000.” World Scientific, 2003, 240–252.
17. S. Konstantinidis: Relationships between Different Error-Correcting Capabilities of a Code. In: Proceedings of “IEEE Information Theory Workshop, Killarney, Ireland, June 1998,” pp 122–123.
18. H. Jürgensen, S. Konstantinidis: Error Correction for Channels with Substitutions, Insertions, and Deletions. In: Proceedings of “4th Canadian Workshop on Information Theory: Information Theory and Applications 2, 1995.” Lecture Notes in Computer Science 1133 (1996), 149–163, Springer.
19. H. Jürgensen, S. Konstantinidis: Variable-length Codes for Error Correction. In: Proceedings of “22nd International Colloquium on Automata, Languages and Programming, Szeged, Hungary, July 1995,” Lecture Notes in Computer Science 944 (1995), 581–592, Springer.
20. H. Jürgensen, S. Konstantinidis: The Hierarchy of Codes. In: “Fundamentals of Computation Theory, 9th International Conference”. Lecture Notes in Computer Science 710 (1993), 50–68, Springer.

### 5.3 Editor of books, proceedings, journal issues

1. S. Konstantinidis, N. Moreira, R. Reis, J. Shallit: The Role of Theory in Computer Science, Essays dedicated to Janusz Brzozowski. World Scientific [2017](#).
2. S. Konstantinidis: Implementation and Application of Automata. *Theoretical Computer Science* 578, Special Issue. Elsevier [2015](#).
3. S. Konstantinidis: Implementation and application of automata, Proceedings of the 18th International Conference, CIAA 2013, Halifax, NS, Canada, July 16–19. *Lecture Notes in Computer Science* 7982. Springer, Berlin Heidelberg, [2013](#).

### 5.4 Chapters or papers in edited collections

1. L. Kari, S. Konstantinidis, P. Sosík: Substitution on Trajectories. In J. Karhumäki, H. Maurer, G. Paun, G. Rozenberg (eds): Theory is Forever: Essays dedicated to Arto Salomaa on the occasion of his 70th birthday. Lecture Notes in Computer Science 3113, 145–158. Springer, Heidelberg, 2013.

2. H. Jürgensen, S. Konstantinidis: Codes. In G. Rozenberg, A. Salomaa (eds): Handbook of Formal Languages, vol. I, 511–607. Springer-Verlag, Berlin, 1997.

## 5.5 Invited talks

- Jul. 17: Descriptive Complexity of Formal Systems (DCFS 2017), University of Milano. Title: On formal descriptions of code properties – see Subsection 5.6[1].
- Jul. 12: Western University, London, Ontario. Title: I-LaSer: Independent Language Server.
- Jul. 10: Descriptive Complexity of Formal Systems (DCFS 2010), University of Saskatchewan. Title: On formal descriptions of code properties – see Subsection 5.6[4].
- Sep. 07: Weekly Seminar Series, Jodrey School of Computer Science, Acadia University. Title: Computing distances and error detecting capabilities of regular languages.
- Jun. 07: Technical talk of the day for the retirement ceremony of Prof. Dr. H. Jürgensen, Dept. Informatics, University of Potsdam, Germany, (June 26, 2007). Title: Overview of solid codes.
- Sep. 06: Session on Semigroups and Languages, Tomar, Portugal – see Subsection 5.6[6]
- Aug. 06: Algorithms and Complexity Group, Computer Science department, University of Waterloo. Title: Computing distances and error detecting capabilities of regular languages.
- Sep. 03: Session on Communication Theory, Coding Theory and Molecular Biology (IEEE), Cancun, Mexico – see Subsection 5.6[9].
- Feb. 02: Preparatory Meeting on General Theory of Information Transfer, Bielefeld, Germany – see Subsection 5.6[11]. I received a second invitation to continue my participation in this project in the summer of 2003. Unfortunately, this opportunity did not materialize due to my wife’s illness.
- Dec. 01: Seminar Series, department of Mathematics, Acadia University, Canada. Title: Formal Languages and Coding Theory.
- Feb. 01: Seminar Series, School of Computing, Queen’s University, Canada. Title: Coding properties of DNA languages.

## 5.6 Other papers, abstracts, or presentations in conferences (non-refereed or semi-refereed)

1. S. Konstantinidis. Applications of Transducers in Independent Languages, Word Distances, Codes. In G. Pighizzini and C. Câmpeanu (eds.): 19th DCFS, Milano, Italy, July 3-5, 2017. LNCS, vol. 10316 (2017), pp. 1–18, Springer.
2. S. Konstantinidis, **C. Meijer**: I-LaSer: Independent Language Server. In: Software demo session, 18th International Conference on the Implementation and Application of Automata (CIAA), Halifax, Canada, July 16-19, 2013. Newer version of the software presented in CIAA 2012.

3. S. Konstantinidis, **M. Yang**: I-LaSer: Independent Language Server. In: Software demo session, 17th International Conference on the Implementation and Application of Automata (CIAA), Porto, Portugal, July 17-20, 2012.
4. **K. Dudzinski**, S. Konstantinidis: On formal descriptions of code properties. Invited talk at the 2010 Descriptive Complexity of Formal Systems, University of Saskatchewan, July 2010, Saskatoon, Canada.
5. C. Câmpeanu, S. Konstantinidis: On the State Complexity of the Subword Closure Operation. Presented at the 3rd ATINER International Conference on Computer Science and Information Systems, 23-24 July 2007, Athens, Greece.
6. S. Konstantinidis: Maximal error-detecting capabilities of formal languages. In: Proceedings of SCRA 2006 - FIM XIII, Tomar, Portugal, Sep. 1-4, 2006, pg 61 (abstract). Invited lecture in the session on Semigroups and Languages.
7. S. Konstantinidis: What is a maximal error detecting capability of a formal language? In: Proceedings of "10th WSEAS International Conference on Computers, Vouliagmeni, Greece, July 13-15, 2006." WSEAS Transactions on Mathematics 5 (2006), pp 1015–1020.
8. L. Kari, S. Konstantinidis, **S. Perron**, G. Wozniak, **J. Xu**: Computing the Hamming Distance of a Regular Language in Quadratic Time. In: Proceedings of "8th WSEAS International Conference on Computers, Vouliagmeni, Greece, July 12-15, 2004." WSEAS Transactions on Information Science & Applications 1 (2004), pp 445–449. Also presented in: Halifax Graph Theory Day, SMU, June 16, 2004.
9. L. Kari, S. Konstantinidis: Static and Dynamic Properties of DNA Languages. In: Proceedings of "25th IEEE International Conference of the Engineering in Medicine and Biology Society, Cancun, Mexico, Sep. 2003," pp 3846–3849. Invited lecture in the session on Communication Theory, Coding Theory and Molecular Biology.
10. S. Konstantinidis: Some Remarks on Regular Factorizations. In: Proceedings of "6th WSEAS International Conference on Computers, Rethymnon, Greece, Jul. 2002." WSEAS Transactions on Communications 1 (2002), pp 167–172.
11. S. Konstantinidis: General Models of Discrete Channels and the Properties of Error-Detection and Error-Correction. In: General Theory of Information Transfer (preparatory meeting), University of Bielefeld, Germany, Feb. 2002. Invited.
12. S. Konstantinidis, **L. A. O’Hearn**: Error-Detection with Finite Delay. In: Workshop on Codes and Related Structures, London, Canada, 31 Jul 2000.
13. H. Jürgensen, M. Katsura, S. Konstantinidis: Maximal Solid Codes. In: 9th International Conference on Automata and Formal Languages, Vasszecsény, Hungary, Aug. 1999.
14. H. Jürgensen, S. Konstantinidis: Synchronization in the Presence of Noise. In: DIMACS Workshop on Codes and Trees: Algorithmic and Information Theoretic Approaches, Rutgers University, Oct. 1998.



## 5.7 Other non-refereed publications

1. L. Kari, S. Konstantinidis, **S. Kopecki**, **M. Yang**: An efficient algorithm for computing the edit distance of a regular language via input-altering transducers. CoRR abs/1406.1041 (2014).
2. L. Kari, S. Konstantinidis, **S. Perron**, G. Wozniak, **J. Xu**: Finite-state error/edit-systems and difference-measures for languages and words. Technical report 2003-01, Department of Mathematics and Computing Science, Saint Mary's University, Canada.
3. I have published several other Technical Reports in various Universities (Western Ontario, Lethbridge, SMU, Potsdam, Waterloo). I chose not to list them here as they have appeared in other (normally refereed) fora.

## 5.8 Research Grants

- Apr. 2017. *Foundational and Computational Aspects of Independent Formal Languages*: NSERC Discovery Development Grant (individual). Amount:  $2 \times \$10,000 = \$20,000$  (two years).
- Apr. 2012. *Independent Formal Languages—structure, algorithms, complexity, implementation*: NSERC Discovery Grant (individual). Amount:  $5 \times \$27,920 = \$139,600$  (five years).
- Apr. 2007. *Theory and applications of automata and codes*: NSERC Discovery Grant (individual). Amount:  $5 \times \$20,000 = \$100,000$  (five years).
- Apr. 2003. *Automata, codes and error models*: NSERC Discovery Grant (individual). Amount:  $4 \times \$18,000 = \$72,000$  (four years).
- Mar. 2001. *Reliable DNA Computing*: SMU Senate Research Grant. Amount: \$1,800 (one year).
- Mar. 2000. *Error-Detecting Properties of Languages*: SMU Senate Research Grant. Amount: \$4,000 (one year).
- Jun. 1999. *Multi-Disciplinary High Performance Computing*: CFI Equipment Grant. Project leader: Dr. David Clarke, SMU. Amount: \$185,790.
- Apr. 1999. *Aspects of Decodability and Synchronizability of Codes*: NSERC Research Grant (individual). Amount:  $4 \times \$12,600 = \$50,400$  (four years).
- Mar. 1999. *Experimental Analysis of Synchronizable Codes*: SMU Senate Research Grant. Amount: \$3,031 (one year).
- Jan. 1998. *Distance-Based Conditions for Error Correcting Codes and Methods for their Constructions*: University of Lethbridge Research Fund. Amount: \$4,500 (1.5 years).

## 6 Teaching and Supervision of HQP

### 6.1 List of Courses Taught

1. *Theoretical Foundations of Computing Science*, CSCI 2307: Winters 2017–2012, 2010–2008; SMU.
2. *Managing and Programming Databases*, MCDA 5540 (graduate course): Falls 2016, 2015.

3. *Database Systems*, CSCI 3461 (formerly csc461): Falls 2016, 2014, 2012, 2005, 2003–1998, Winter 2008; SMU.
4. *Theory of Computation*, CSCI 3451 (formerly csc451): Winters 2016, 2014, 2012, 2002, 2001, Fall 2013; SMU
5. *Cryptography*, CSCI 4423: Falls 2015, 2013, Winter 2012; SMU.
6. *Coding and Information Theory*, CSCI 3826: Falls 2014, 2012; SMU.
7. *Intermediate Programming and Problem Solving*, CSCI 1227: (formerly csc227), Winters 2007, 2003; SMU.
8. *File Structures*, CSCI 3462 (formerly csc462): Winters 2009, 2002–1999, Fall 2006; SMU.
9. *Graduate Seminar*, APS600.0 (graduate course): Fall 2003, Winter 2003; SMU.
10. *Digital Logic and Assembly Level Machine Organization*, csc327: Falls 2002–1998; SMU.
11. *Computer Architecture*, csc328: Winters 2001–1999; SMU.
12. *Formal Logics with Applications in Computing Science*, csc492: Fall 1998; SMU.
13. *Systems Programming*, cs2690: Spring 1998; UoL
14. *Introduction to Computer Science*, cs1000A: Spring 1998, Fall 1997; UoL
15. *Data Structures and Algorithms*, cs3620: Springs 1998, 1997; UoL
16. *Introduction to Database Systems*, cs3660: Spring 1997; UoL
17. *Artificial Intelligence*, cs3750: Falls 1997, 1996; UoL
18. *Introduction to a Programming Language*, cs1620: Summer Session I 1997, Spring 1997, Fall 1996; UoL
19. *Programming Concepts for Numerical Computing*, cs320b: Spring 1996; UWO.
20. *Survey of Data Base Management*, cs319a: Fall 1994; UWO.

## 6.2 Supervision of HQP

1. *Sep 15 to present*: Mohammad Tarique Abdullah, MSc student.
2. *May 17 to Aug 17*: Matthew Rafuse, undergraduate student, “Adding DNA properties in the SMU formal Language Server”. Matthew was awarded an NSERC Undergraduate Summer Research Award in April of 2017.
3. *May 16 to Sep 16*: Abisola Adeniran, graduate projects “Merging BibTex files” and “Adding the Construction Problem in the SMU formal Language Server”.
4. *May 14 to Apr 16*: Ben Goodspeed, “Formal Methods for Secure Software Construction.” MSc thesis, Dept. Math. & Computing Sci., SMU.
5. *Apr 13 to Mar 15*: Dr Steffen Kopecki, post-doctoral fellow; co-supervised with Dr Lila Kari of Western University, London, Ontario.

6. *May 12 to Jun 14*: Casey Meijer, undergraduate student. Made improvements in the SMU formal Language Server, did software demo in CIAA 2013, co-authored a paper with me and colleagues (proceedings of CIAA 2016).
7. *Sep. 10 to Dec. 12*: Meng Yang, “Application and Implementation of Transducer Tools in Answering Certain Questions About Regular Languages.” MSc thesis, Dept. Math. & Computing Sci., SMU.
8. *Sep. 09 to Aug. 12*: Joshua Young, “A Comparative Study of Automated Reviewer Assignment Methods.” MSc thesis, Dept. Math. & Computing Sci., SMU. Joshua won an NSERC **PGS**.
9. *Aug. 11 to Dec. 11*: Dr Micah McCurdy, post-doctoral fellow; co-supervised with Dr Margaret Beattie of Mt Alison and Dr Mitja Mastnak of SMU.
10. *Sep. 06 to Dec. 11*: Alifasi Daka, “Computing Error-Detecting Capabilities of Regular Languages” MSc thesis, Dept. Math. & Computing Sci., SMU.
11. *Sep. 08 to Jun. 11*: Krystian Dudzinski, “A system for describing and deciding properties of regular languages using input altering transducers.” MSc thesis, Dept. Math. & Computing Sci., SMU.
12. *Jul. 09 to Dec. 09*: Dr Nicolae Santean, post-doctoral fellow.
13. *May 08 to Aug. 08*: Joshua Young, undergraduate student of the department of Math. & Computing Sci., SMU. Project involving maximal solid codes. Joshua received a “Faculty of Science Research Award” for the summer of 2008 (equivalent to an NSERC USRA).
14. *Sep. 07 to Oct. 08*: Juan Rao, worked under my supervision towards her MSc thesis in Applied Science on the implementation of algorithms for deciding various code related properties. Unfortunately she had to withdraw for personal reasons.
15. *Oct. 05 to Apr. 07*: Stuart Crosby, top undergraduate student of the department of Math. & Computing Sci., SMU. Assisted in various open problems related to my research on error detection. Although we did not make a breakthrough, Stuart contributed a lot in pointing out directions that are not promising, or could be promising, in attempting to solve these problems.
16. *Sep. 05 to Aug. 07*: Bo Cui, “Encoding methods for DNA languages defined via the subword closure operation.” MSc thesis, Dept. Math. & Computing Sci., SMU. See also paper 5.2[7].
17. *Sep. 01 to Apr. 04*: Jing Xu, “Formalizations Of Error Models With Applications To Spelling Error Correction.” MSc thesis, Dept. Math. & Computing Sci., SMU. See also papers 5.7[2] and 5.2[8].
18. *May to Nov. 03*: Sayeed Shafi, undergraduate student of the department of Math. & Computing Sci., SMU. Worked on a project involving databases and web programming.
19. *Feb. 03 to Jun. 03*: Stuart Crosby, top undergraduate student of the department of Math. & Computing Sci., SMU. Worked on a project involving the problem of sorting large arrays of numbers.

20. *Sep. 01 to May 02*: Salah Houssini, “DNA Computation.” BSc. Honours thesis, Dept. Math. & Computing Sci., SMU.
21. *Sep. 01 to Mar. 02*: Steven Perron, worked on a part time basis on error-detection and difference measures for languages and words – see papers 5.7[2] and 5.2[8].
22. *May 01 to Aug. 01*: Steven Perron, undergraduate student of Computing Science at SMU. Steven was awarded an NSERC Undergraduate Research Award in April of 2001. Worked on synchronizing patterns for efficient decoding of messages in the presence of errors of various types – see paper 5.1[26].
23. *May 01 to Aug. 01*: Abhishek Bothra, undergraduate student of the department of Math. & Computing Sci., SMU. Worked on the dependence of communication protocols on various code properties.
24. *Jul. 01 to Aug. 01*: Amber O’Hearn. Continued to work on error-detection – see paper 5.1[26].
25. *Sep. 00 to Apr. 01*: Roger Zhang, undergraduate student of the department of Math. & Computing Sci., SMU. Worked on the implementation of algorithms for computing maximal finite codes.
26. *Sep. 00 to Apr. 01*: Salah Hussini, undergraduate student of the department of Math. & Computing Sci., SMU, majoring in Biology and Computing Science. Assisted me in understanding biological concepts in connection with errors in DNA computing – see paper 5.1[28].
27. *May 00 to Aug. 00*: Amber O’Hearn, undergraduate student of the department of Math. & Computing Sci., SMU. Amber was awarded an NSERC Undergraduate Research Award in April of 2000. Worked on the concept of error-detection – see papers 5.1[29] and 5.6[12].
28. *May 99 to Aug. 99*: Ziad Al-Sharif, undergraduate student of the department of Math. & Computing Sci., SMU. Ziad was awarded an NSERC Undergraduate Research Award in April of 1999. Worked on the implementation of a small scale software for the experimental construction of various synchronization-error correcting codes.
29. *May 98 to Jul. 98*: John Johansen, undergraduate student of Computer Science at UoL. John Johansen’s name was in the Dean’s List (UoL) in 1997 and 1998.

### 6.3 Supervision of Directed Studies (reading courses)

1. *Database systems*, CSC3461: Winter 2013, Fall 2006; SMU.
2. *Some Algorithmic Tools on Automata and Transducers*, CSC6691 (graduate level): Fall 2010; SMU.
3. *Codes for DNA Computing*, CSC6691 (graduate level): Fall 2005; SMU.
4. *Formal Logics*, MAT490.2A: Summer Session I 2003; SMU.
5. *Spelling Correction*, CSC6T1.2 (graduate level): Summer Session II 2002; SMU.
6. *Decoding*, CSC499.2: Summer Session II 2002; SMU.
7. *Error Detection*, CSC491.1: Summer Session I 2001; SMU.

8. *Introduction to Partial Information Logic*, CS4990: Summer Session III 1997; UoL
9. *Object-Oriented Programming using Java*, CS3990: Summer Session I 1997; UoL

## 7 Service

### 7.1 University

1. Co-ordinator of the graduate students in the department of Mathematics and Computing Sci., SMU (Sep. 14 – present).
2. Faculty Union Liaison of the department of Mathematics and Computing Sci., SMU (Sep. 14 – Aug. 16).
3. Hiring Committee, department of Mathematics and Computing Science, SMU (2016).
4. Technician Committee, department of Mathematics and Computing Science, SMU (2016).
5. Technical Report Series officer, department of Mathematics and Computing Science, SMU (Sep. 99 – Sep. 15).
6. MSc thesis defence chair; department of Mathematics and Computing Science (Aug. 15).
7. MSc thesis defence chair; department of Finance, Computing and Information Systems thesis (Apr. 14).
8. MSc thesis defence chair; department of Geology thesis (Apr. 14).
9. *Computing Science Co-ordinator*: department of Mathematics and Computing Science, SMU (Jan. 12 – May 12).
10. Faculty Union Liaison of the department of Mathematics and Computing Sci., SMU (Year 2011/12).
11. Chair of the Search Committee, department of Mathematics and Computing Science, SMU (Fall 2011).
12. *Chairperson*: department of Mathematics and Computing Science, SMU (Sep. 07 – Aug. 10).
13. *Computing Science Co-ordinator*: department of Mathematics and Computing Science, SMU (Sep. 05 – Aug. 07).
14. Co-ordinator of the graduate students in the department of Math. and Computing Sci., SMU (Sep. 02 – Dec. 03).
15. Member of the MSc in Applied Science Program Committee, SMU (Apr. 02 – Dec. 03).
16. Chair of the Search Committee, department of Mathematics and Computing Science, SMU (May 02 – Sep. 02).
17. Seminar Series co-ordinator, department of Mathematics and Computing Science, SMU (Sep. 99 – Dec. 02).
18. SMU representative in the Computer Science APICS Committee, SMU (Sep. 98 – Aug. 01).

19. Organizer of the Math & CS Student Research Colloquium: a one day event where summer research students of the department of Mathematics and Computing Science, SMU, presented their work (Aug. 01).
20. Search Committee, department of Mathematics and Computing Science, SMU (May 01 – Jun. 01).
21. Chair of the Search Committee, department of Mathematics and Computing Science, SMU (Jan. 00 – Apr. 00).
22. Library representative, department of Mathematics and Computing Science, SMU (Sep. 99 – Aug. 00).
23. Computing Science Curriculum Review Committee, department of Mathematics and Computing Science, SMU (Oct. 98 – Aug. 99).
24. Search Committee, department of Mathematics and Computing Science, SMU (May 1999).
25. Curriculum Committee, department of Mathematics and Computer Science, UoL (Oct. 97 – Jun. 98).
26. Independent Study Review Committee, department of Mathematics and Computer Science, UoL (Oct 97 – Jun. 98).
27. Student Representative in the Promotion and Tenure Committee, department of Computer Science, UWO (Jul. 95 – Jun. 96).
28. Student Representative in the Graduate Executive Committee and Graduate Committee, department of Computer Science, UWO (Sep. 94 – Jun. 95).

## 7.2 Profession

1. *National committee chair*: “Research Tools and Instruments Review Committee”, Section of Computer Science, Statistics and Mathematics, NSERC, Sep. 14 – Jan. 15.
2. *Chair of the Organizing and Program Committees* of the 2013 international conference on the implementation and application of automata, Halifax, July 2013.
3. *National committee chair*: “Theoretical Computer Science” Section of the NSERC Computer Science Evaluation Group (EG 1507), Jun. 10 – Mar. 11.
4. *National committee member*: NSERC Computing and Information Sciences Grant Selection Committee (GSC 331)<sup>3</sup>, Aug. 08 – Feb. 11.
5. *Member of the Program Committee of Conferences*:  
 Confer. on the Implementation and Application of Automata, Jul. 2014, Giessen, Germany.  
 Descriptive Complexity of Formal Systems, July 2013, London, Ontario.  
 Confer. on the Implementation and Application of Automata, Jul. 2013, Halifax, NS.  
 Confer. on the Implementation and Application of Automata, Jul. 2012, Porto, Portugal.  
 Confer. on the Implementation and Application of Automata, Jul. 2011, Milan, Italy.  
 Confer. on the Implementation and Application of Automata, Aug. 2010, Manitoba, Canada.

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<sup>3</sup>Renamed later as NSERC Computer Science Evaluation Group (EG 1507).

Descriptive Complexity of Formal Systems, July 2008, PEI, Canada.  
Language Theory in Biocomputing, August 2007, Kingston, Canada.

6. *Referee for the journals:*

Acta Scientiarum Mathematicarum (1998).  
Computers and Mathematics with Applications (2001).  
Discrete Applied Mathematics (2005, 2006)  
Fundamenta Informatica (2004, 2006).  
IEEE Transactions on Information Technology in Biomedicine (2005).  
IEEE Transactions on Information Theory (2013).  
Information and Computation (2016, 2017).  
International Journal of Computer Mathematics (2007, 2009).  
International Journal of Foundations of Computer Science (2007, 2008, 2014, 2016).  
Journal of Automata Languages and Combinatorics (2002, 2004, 2009).  
Natural Computing (2009).  
Theoretical Computer Science (2001, 2002, 2005, 2006, 2008, 2010, 2016).  
Theoretical Informatics and Applications (2013).

7. *Referee for conferences:*

Descriptive Complexity of Formal Systems 2008, 2012, 2014.  
LATA 2008.  
Discrete Mathematics and Theoretical Computer Science 2003.  
Developments in Language Theory 2015, 2012, 2002.  
IEEE Communications Letters 1999.

8. *Assessor for:*

Research proposal (academic), Czech Science Foundation (2013).  
NSERC discovery grant applications (2003, 2007, 2008, 2012, 2014, 2015).  
Mathematical Reviews (2002, 2003, 2004, 2005, 2006, 2007, 2008).  
Promotion to Professor of a faculty member in Greece (2014)  
Promotion to Professor of a faculty member in Atlantic Canada (2013)  
Promotion to Professor of a faculty member in Ontario (2011).  
Promotion to Professor of a faculty member in Ontario (2011).  
Promotion to Professor of a faculty member in Ontario (2010).  
Promotion and Tenure case of a faculty member in Ontario (2007).

9. *External examiner of theses:*

Timothy Ng, 2017 (PhD Thesis, Queen's University).  
Ivon Amorim, 2016 (PhD Thesis, University of Porto).  
Liangliang (Steven) Tu, 2010 (MSc Thesis, Computer Science, Acadia).  
Kan Zhao, 2007 (MSc Thesis, Computer Science, Acadia).

10. *Reader of theses and/or member of supervisory committees:*

Fatima Dow, 2017 (MSc APSC Thesis, Computing Science, SMU).  
Gilroy Gordon, 2017 (MSc Thesis, Computing and Data Analytics, SMU).  
Zachary MacDonald (Honours Thesis, Computing Science, SMU).  
Adrian Ellis, 2014 (MSc APSC Thesis, Computing Science, SMU).  
Rui Ding 2007 (MSc APSC Thesis, Finance, Infor. Systems and Management, SMU)  
Guang Xue 2005 (MSc APSC Thesis, Geography, SMU)  
Zhengyan Sun 2005 (MSc APSC Thesis, Computing Science, SMU)

### 7.3 Community

1. I have been a main cantor in the Saint George Greek Orthodox church of Halifax.
2. Problem contributor: Computer Programming Competition, Science Atlantic, Oct 2014.  
Problem title: Can you find the secret keys?
3. Problem contributor: Computer Programming Competition, Science Atlantic, Oct 2013.  
Problem title: Efficient codes.
4. Problem contributor: Computer Programming Competition, Science Atlantic, Oct 2012.  
Problem title: The HBS language.
5. Problem contributor: Computer Programming Competition, Science Atlantic, Oct 2011.  
Problem title: Pattern matching.
6. Mentor of a bright student at the Gorsebrook Junior High School: Jan. 11 – Jun. 11
7. Mentor of a bright student at the Gorsebrook Junior High School: Sep. 10 – Jun. 11
8. Talk in the summer Math Camp of Dalhousie University, July 2009. Title: “Unsolvable Computer Problems”.
9. I was a co-organizer of the Mini Math & Computing Conference for Sacred Heart Students (May 15, 2006, SMU)
10. Member of the By-laws committee of the Greek Orthodox Community of Saint George, Halifax (Dec 04 – Jan 07).
11. President of the PTA (Parent-Teacher Association) of the Greek school of the Greek Orthodox Community of Saint George, Halifax (Sep. 03 – Aug. 04).
12. During the months May–August of 1997 I developed a small scale software, SEGCALC, for Dr. Ivan Townshend, Department of Geography, UoL . SEGCALC (SEGregation index CALCulator) processes geographical data and calculates 19 segregation indices which are of interest to those working on quantitative methods of geography. We used SEGCALC on the 1991 census age data and GIS derived spatial data to measure age segregation in 25 Canadian metropolitan areas. The interpretation of these measurements was presented by Dr. Townshend in two conferences:
  1. Townshend, I; Konstantinidis, S.; and Walker, R. “What Dimensions of Residential Segregation? Metropolitan Age Segregation in Canada.” Presented at the annual meeting of the Canadian Regional Science Association, Memorial University Newfoundland, Aug. 97.
  2. Townshend, I; Konstantinidis, S.; and Walker, R. “The Dimensionality of Age Segregation in Canadian Metropolitan Areas.” Presented at the 1997 annual meeting of the Great Plains/Rocky Mountain Division of the Association of American Geographers, Sep. 97.