December 6, 2023

Curriculum Vitae

Lucian Ilie

1 Personal

- Rank: Professor, full-time, tenured
- Address: Department of Computer Science, University of Western Ontario, London, ON, N6A 5B7, Canada, e-mail: `ilie@uwo.ca`, web: `www.csd.uwo.ca/~ilie/`
- Citizenship: Canadian

2 Education

- Ph.D. 1999, University of Turku, Finland
  - supervisor: Acad. Arto Salomaa, Academy of Finland
  - opponent: Prof. Grzegorz Rozenberg, Leiden University, The Netherlands
  - grade: Laudatur[1]

3 Employment history

- Jul. 2012 – present: Professor, Department of Computer Science, University of Western Ontario
- Jul. 2005 – Jun. 2012: Associate Professor, Department of Computer Science, University of Western Ontario
- Aug. 2000 – Jun. 2005: Assistant Professor, Department of Computer Science, University of Western Ontario

4 Awards, Fellowships, and Honours

- **CNRS Visiting Professor**[2], Centre National de la Recherche Scientifique, Université Paris-Est, France, Sep. 2006 - Jun. 2007[3].
- **Faculty Scholar Award**[4], University of Western Ontario, 2009 – 2011.
- **Award of Excellence**, USC Teaching Honour Roll, University of Western Ontario, 2008 – 2009, 2014 – 2015.
- **Humboldt fellowship**[5], Magdeburg, Germany, Oct. 2000 – Sep. 2001.
- Postdoctoral Fellow, Turku Centre for Computer Science, Turku, Finland, Feb. 1999 – Dec. 1999.
- Visiting Researcher, Leiden Institute of Advanced Computer Science, Leiden, The Netherlands, 1998. Oct. 1998 – Nov. 1998, Jun. 1998 – Jul. 1998
- My Erdös number[6] is 2

[1] The highest academic grade in the Finnish system (summa cum laude).

[2] The highly selective "poste rouge," French government-funded senior research fellowship. Awarded based on quality of applicant and research project, most applications receive only 3-6 months.

[3] During my sabbatical leave from the University of Western Ontario.

[4] Awarded "to honour and celebrate outstanding scholarly achievements at a critical point in the career" based on "a recent, outstanding research achievement that has had international impact in the field of research and that identifies the individual as a leading member of that research community."

[5] Declined to take up my tenure-track position at the University of Western Ontario.

[6] Via either Jeffrey Shallit or Solomon Marcus

5 Research interests

Current interests

- Bioinformatics
- Machine Learning
- String Algorithms

Other interests: String Combinatorics, Mathematical Properties of Strings, Text Processing, Finite Automata for String Processing, Regular Expression Matching, String Complexity, Data Compression

6 Publications

Summary: 115
refereed journals: **63**
refereed conferences: **38**
referred book chapters: **14**

Refereed journals

1. S. Hosseini, G.B. Golding, L. Ilie, Seq-InSite: sequence supersedes structure for protein interaction site prediction, *Bioinformatics* (2023), to appear.
2. S. Hosseini, L. Ilie, PITHIA: protein interaction site prediction using multiple sequence alignments and attention, *International Journal of Molecular Sciences* (2022) 23(21) 12814.
3. S.B. Ahmed, R. Solis-Oba, L. Ilie, Explainable-AI in Automated Medical Report Generation Using Chest X-ray Images, *Appl. Sci.* (2022) 12 11750.
4. A. Mallik, L. Ilie, ALeS: Adaptive-length spaced seed design, *Bioinformatics* (2021) 37(9) 1206 – 1210.
5. Y. Li, G.B. Golding, L. Ilie, DELPHI: accurate deep ensemble model for protein interaction sites prediction, *Bioinformatics* (2021) 37(7) 896 – 904.
6. M. Molnar, E. Haghshenas, L. Ilie, SAGE2: Parallel Human Genome Assembly, *Bioinformatics* (2018) 34(4) 678 – 680.
7. N. Khiste, L. Ilie, HISEA: HIerarchical SEed Aligner for PacBio data, *BMC Bioinformatics* (2017) 18(1) 564.
8. Y. Li, L. Ilie, SPRINT: Ultrafast protein-protein interaction prediction of the entire human interactome, *BMC Bioinformatics* (2017) 18 485.
9. N. Khiste, L. Ilie, LASER: Large genome ASsembly EvaluatoR, *BMC Research Notes* (2015) 8(1) 709.
10. M. Molnar, L. Ilie, Correcting Illumina data, *Briefings in Bioinformatics* (2015) 16(4) 588 – 599.
11. N. Khiste, L. Ilie, E-MEM: Efficient computation of Maximal Exact Matches for very large genomes, *Bioinformatics* (2015) 31(4) 509 – 514.
12. L. Ilie, B. Haider, M. Molnar, R. Solis-Oba, SAGE: String-graph Assembly of GEnomes, *BMC Bioinformatics* (2014) 15(1) 302.
13. L. Ilie, H. Mohamadi, G.B. Golding, W.F. Smyth, BOND: Basic OligoNucleotide Design, *BMC Bioinformatics* (2013) 14(1) 69.

14. L. Ilie, M. Molnar, RACER: Rapid and Accurate Correction of Errors in Reads, *Bioinformatics* (2013) 29(19) 2490 – 2493.
15. M. Crochemore, L. Ilie, C. Iliopoulos, M. Kubica, W. Rytter, and T. Walen, Computing the Longest Previous Factor, *Eur. J. Comb.* (2013) 34(1) 15 – 26.
16. A. Al-Hafeedh, M. Crochemore, L. Ilie, J. Kopylov, W.F. Smyth, G. Tischler, and M. Yusufu, A comparison of Lempel-Ziv LZ77 factorization algorithms, *ACM Computing Surveys* (2012) 45(1) 5.
17. L. Ilie and W.F. Smyth, Minimum unique substrings and maximal repeats, *Fund. Inform.* (2011) 110 (1-4) 183 – 195.
18. L. Ilie, S. Ilie, and A. Mansouri-Bigvand, SpEED: fast computation of sensitive spaced seeds, *Bioinformatics* (2011) 27(17) 2433 – 2434.
19. L. Ilie, S. Ilie, S. Khoshraftar, and A. Mansouri-Bigvand, Seeds for effective oligonucleotide design, *BMC Genomics* (2011) 12 280.
20. M. Crochemore, L. Ilie, and L. Tinta, The "runs" conjecture, *Theoret. Comput. Sci.* (2011) 412(27)2931 – 2941.
21. M. David, M. Dzamba, D. Lister, L. Ilie, and M. Brudno, SHRiMP2: Sensitive yet practical short read mapping, *Bioinformatics* (2011) 27(7) 1011 – 1012.
22. L. Ilie, F. Fazayeli, and S. Ilie, HiTEC: accurate error correction in high-throughput sequencing data, *Bioinformatics* (2011) 27(3) 295 – 302.
23. L. Ilie, G. Navarro, and L. Tinta, The Longest Common Extension problem revisited and an application to approximate string searching, *J. Discrete Alg.* (2010) 8(4) 418 – 428.
24. L. Ilie and S. Ilie, Fast computation of neighbour seeds, *Bioinformatics* (2009) 25(6) 822 – 823.
25. M. Crochemore, L. Ilie, and W. Rytter, Repetitions in strings: algorithms and combinatorics, *Theoret. Comput. Sci.* (2009) 410(50) 5227 – 5235.
26. M. Crochemore and L. Ilie, Computing longest previous factor in linear time and applications, *Inform. Proc. Lett.* (2008) 106 75 – 80.
27. M. Crochemore and L. Ilie, Maximal repetitions in strings, *J. Comput. Syst. Sci.* (2008) 74 796 – 807.
28. L. Ilie and S. Ilie, Multiple spaced seeds for homology search, *Bioinformatics* 23(22) (2007) 2969 – 2977.
29. S. Constantinescu and L. Ilie, The Lempel–Ziv complexity of fixed points of morphisms, *SIAM Journal on Discrete Math.* 21(2) (2007) 466 – 481.
30. M. Crochemore, L. Ilie, and E. Seid-Hilmi, The structure of factor oracles, *Internat. J. Found. Comput. Sci.* 18(4) (2007) 781 – 797.
31. L. Ilie, A note on the number of squares in a word, *Theoret. Comput. Sci.* 380(3) (2007) 373 – 376.
32. L. Ilie and C. Popescu, Viral genome compression and shortest common superstring problem, *Fund. Inform.* 73(1-2) (2006) 153 – 164.
33. S. Constantinescu and L. Ilie, Fine and Wilf's theorem for abelian periods, *Bulletin of EATCS* 89 (2006) 167 – 170.
34. L. Ilie, S. Marcus, and I. Petre, Periodic and Sturmian languages, *Inform. Proc. Lett.* 98(6) (2006) 242 – 246.
35. L. Ilie, A simple proof that a word of length n has at most $2n$ distinct squares, *J. Combin. Theory, Ser. A* 112(1) (2005) 163 – 164.
36. M. Davidson and L. Ilie, Fast data compression with antidictionaries, *Fund. Inform.* 64(1-4) (2005) 119 – 134.
37. L. Ilie, P. Ochem, and J. Shallit, A generalization of repetition threshold, *Theoret. Comput. Sci.* 345(2-3) (2005) 359 – 369.
38. S. Constantinescu and L. Ilie, Generalized Fine and Wilf's theorem for arbitrary number of periods, *Theoret. Comput. Sci.* 339(1) (2005) 49 – 60.

39. L. Ilie, S. Yu, and K. Zhang, Word complexity and repetitions in words, *Internat. J. Found. Comput. Sci.* 15(1) (2004) 41 – 55.
40. L. Ilie and S. Yu, Follow automata, *Inform. and Comput.* 186(1) (2003), 140 – 162.
41. L. Ilie and S. Yu, Reducing NFAs by invariant equivalences, *Theoret. Comput. Sci.* 306(1-3) (2003) 373 – 390.
42. V. Halava, T. Harju, and L. Ilie, Periods and binary words, *J. Combin. Theory, Ser. A*, 89 (2000) 298 – 303.
43. L. Ilie, Gh. Păun, G. Rozenberg, and A. Salomaa, On strongly context-free languages, *Discrete Appl. Math.* 103 (2000) 153 – 165.
44. L. Ilie and A. Salomaa, On the expressiveness of subset-sum representations, *Acta Inform.* 36 (2000) 665 – 672.
45. L. Ilie, G. Rozenberg, and A. Salomaa, A characterizations of poly-slender context-free languages, *Theoret. Inform. Appl. (RAIRO)* 34 (2000) 77 – 86.
46. L. Ilie, On lengths of words in context-free languages, *Theoret. Comput. Sci.* 242 (2000) 327 – 359.
47. L. Ilie and W. Plandowski, Two-variable word equations, *Theoret. Inform. Appl. (RAIRO)* 34 (2000) 467 – 501.
48. L. Ilie, Subwords and power-free words are not expressible by word equations, *Fund. Inform.* 38 (1999) 109 – 118.
49. L. Ilie and A. Salomaa, 2-Testability and relabelings produce everything, *J. Comput. System Sci.* 56 (1998) 253 – 262.
50. T. Harju and L. Ilie, On quasi orders of words and the confluence property, *Theoret. Comput. Sci.* 200 (1998) 205 – 224.
51. L. Ilie and A. Salomaa, On well quasi orders of free monoids, *Theoret. Comput. Sci.* 204 (1998) 131 – 152.
52. L. Ilie, Generalized factors of words, *Fund. Inform.* 33 (1998) 239 – 247.
53. T. Harju and L. Ilie, Languages obtained from infinite words, *RAIRO, Inform. Thèor. Appl.* 31 (1997) 445 – 455.
54. L. Ilie, On computational complexity of contextual languages, *Theoret. Comput. Sci.* 183 (1997) 33 – 44.
55. V. Halava, T. Harju, and L. Ilie, On a geometric problem of zig-zags, *Inform. Process. Lett.* 62 (1997) 1 – 4.
56. L. Ilie, On the computational complexity of Marcus contextual languages, *Fund. Inform.* 30 (1997) 161 – 167.
57. L. Ilie, A new type of self-reading sequences, *Rev. Roumaine Math. Pures Appl.* 42 (1997) 409 – 421.
58. L. Ilie, Some recent results on contextual languages, *Bull. EATCS* (The Formal Language Theory Column) 62 (1997) 176 – 194.
59. L. Ilie, Collapsing hierarchies in parallel communicating grammar systems with communication by command, *Comput. Artificial Intelligence* 15 (1996) 173 – 184.
60. L. Ilie, A non-semilinear language generated by an internal contextual grammar with finite choice, *An. Univ. Bucureşti Mat. Inform.* 45 (1996) 63 – 70.
61. L. Ilie and V. Mitrana, Binary self-adding sequences and languages, *Int. J. Comput. Math.* 62 (1996) 171 – 181.
62. L. Ilie, On subwords of infinite words, *Discrete Appl. Math.* 63 (1995) 277 – 279.
63. L. Ilie, On a conjecture about slender context-free languages, *Theoret. Comput. Sci.* 132 (1994) 427 – 434.

Refereed conferences

64. S. Hosseini, G.B. Golding, L. Ilie, Sequence-based protein interaction site prediction that surpasses structure-based models, *31st Annual International Conference on Intelligent Systems for Molecular Biology (ISMB/ECCB 2023)*, 3DSIG COSI: Structural Bioinformatics and Computational Biophysics, Lyon, 2023. (poster)
65. S. Hosseini, L. Ilie, PITHIA: protein interaction site prediction using multiple sequence alignments and attention, *30th Annual International Conference on Intelligent Systems for Molecular Biology (ISMB'22)*, 3DSIG COSI: Structural Bioinformatics and Computational Biophysics, Madison, 2022. (poster)
66. A. Mallik, L. Ilie, ALeS: Adaptive-length spaced seed design, *28th Annual International Conference on Intelligent Systems for Molecular Biology (ISMB'20)*, Evolution and Comparative Genomics COSI, 2020, *F1000Research* 2020, 9 (*ISCB Comm J*):838 (poster)
67. Y. Li, G.B. Golding, L. Ilie, DELPHI: accurate deep ensemble model for protein interaction sites prediction, *28th Annual International Conference on Intelligent Systems for Molecular Biology (ISMB'20)*, 3DSIG COSI, 2020, *F1000Research* 2020, 9 (*ISCB Comm J*):1024 (presentation and poster)
68. N. Khiste, L. Ilie, HISEA: HIerarchical SEed Aligner for PacBio data, *25th Annual International Conference on Intelligent Systems for Molecular Biology (ISMB'17)*, HiTSeq, Prague, 2017. (poster)
69. Y. Li, L. Ilie, SPRINT: Ultrafast protein-protein interaction prediction of the entire human interactome, *25th Annual International Conference on Intelligent Systems for Molecular Biology (ISMB'17)*, 3DSIG, Prague, 2017. (poster)
70. I. Rezaeian, E. Mucaki, K. Baranova, H.P. Quang, D. Angelov, L. Ilie, A. Ngom, L. Rueda, P. Rogan, "Predicting patient outcomes of hormone therapy in the METABRIC breast cancer study", *The GLBIO/CCBC Great Lakes Bioinformatics and the Canadian Computational Biology Conference*, 2016, Toronto, Canada. (poster)
71. David M., Dzamba M., Lister D., Ilie L., Brudno M., SHRiMP2: Fast and accurate mapping of reads from highly polymorphic genomes, *18th Annual International Conference on Intelligent Systems for Molecular Biology (ISMB'09)*, HiTSeq, Boston, 2010. (poster)
72. L. Ilie and L. Tinta, Practical algorithms for the longest common extension problem, in: J. Karlgren, J. Tarhio, and H. Hyyrö (eds.), *Proc. of the 16th International Symposium on String Processing and Information Retrieval (SPIRE'09)*, Lecture Notes in Comput. Sci. 5721, Springer, Heidelberg, 2009, 302 – 309.
73. L. Ilie and S. Ilie, Efficient computation of good neighbour seeds, *17th Annual International Conference on Intelligent Systems for Molecular Biology (ISMB'09) & 8th European Conference for Computational Biology (ECCB'09)*, Stockholm, 2009. (poster).
74. M. Crochemore, L. Ilie, C. Iliopoulos, M. Kubica, W. Rytter, and T. Waleń, LPF computation revisited, in: J. Fiala, J. Kratochvíl, and M. Miller, eds., *Proc. of 20th IWOCA*, Lecture Notes in Comput. Sci. 5874, Springer, Heidelberg, 2009, 158–169.
75. L. Ilie and S. Ilie, Improved algorithms for local alignment, *16th Annual International Conference on Intelligent Systems for Molecular Biology (ISMB'08)*, Toronto, 2008. (poster).
76. M. Crochemore, L. Ilie, and L. Tinta, Towards a solution to the "runs" conjecture, in: P. Ferragina and G. Landau (Eds.), *Proceedings of the 19th Annual Symposium on Combinatorial Pattern Matching (CPM'08)* (Pisa, Italy), Lecture Notes in Comput. Sci. 5029, Springer, Berlin, 2008, 290 – 302.
77. M. Crochemore and L. Ilie, Understanding Maximal Repetitions in Strings, in: S. Albers and P. Weil, eds., *Proceedings of the 25th Symposium on Theoretical Aspects of Computer Science (STACS'08)* (Bordeaux, 2008), `http://drops.dagstuhl.de/opus/volltexte/2008/1344`.
78. M. Crochemore, L. Ilie, and W.F. Smyth, A simple algorithm for computing the Lempel-Ziv factorization, in: J. A. Storer and M. W. Marcellin, eds., *Proc. of the 18th Data Compression*

Conference (DCC'08) (Snowbird, Utah, USA), IEEE Computer Society, Los Alamitos, CA, 2008, 482 – 488.

79. L. Ilie and S. Ilie, Fast computation of multiple spaced seeds for homology search, in: R. Giancarlo, S. Hannenhalli, eds., *Proc. of the 7th Workshop on Algorithms in Bioinformatics (WABI'07)* (Philadelphia, 2007), Lecture Notes in Bioinformatics 4645, Springer, Berlin, 2007, 346 – 358.
80. L. Ilie and S. Ilie, Long spaced seeds for homology search, in: H. Arabnia, M.Q. Yang, and J.Y. Yang, eds., *Proc. of the 2007 International Conference on Bioinformatics and Computational Biology (BIOCOMP'07)* (Las Vegas, 2007), Vol. I, CSREA Press, Las Vegas, 2007, 3 – 8.
81. M. Crochemore and L. Ilie, Analysis of maximal repetitions in strings, in: L. Kučera, A. Kučera, eds., *Proc. of The 32nd Mathematical Foundations of Computer Science (MFCS'07)* (Cesky Krumlov, Czech Republic, 2007), Lecture Notes in Comput. Sci. 4708, Springer, Berlin, 2007, 465–476.
82. M. Crochemore, L. Ilie, and E. Seid-Hilmi, Factor oracles, in: O. Ibarra and H.-C. Yen, eds., *Proc. of the 11th International Conference on Implementation and Application of Automata (CIAA'06)* (Taipei, Taiwan, 2006), Lecture Notes in Comput. Sci. 4094, Springer, Berlin, 2006, 78 – 89.
83. S. Constantinescu and L. Ilie, The Lempel–Ziv complexity of fixed points of morphisms, *Proc. of the 31st Mathematical Foundations of Computer Science (MFCS'06)* (Stara Lesna, Slovakia, 2006), Lecture Notes in Comput. Sci. 4162, Springer, Berlin, 2006, 280 – 291.
84. L. Ilie, L. Tinta, C. Popescu, and K. Hill, Viral genome compression, in: C. Mao, T. Yokomori, eds., *Proc. of the 12th International Meeting on DNA Computing (DNA'06)* (Seoul, Korea), Lecture Notes in Comput. Sci. 4287, Springer, Berlin, 2006, 111 – 126.
85. L. Ilie and R. Solis-Oba, Gene assembly algorithms for ciliates, in: C. Mao, T. Yokomori, eds., *Proc. of the 12th International Meeting on DNA Computing (DNA'06)* (Seoul, Korea, 2006), Lecture Notes in Comput. Sci. 4287, Springer, Berlin, 2006, 71 – 82.
86. S. Constantinescu and L. Ilie, The Lempel–Ziv complexity of fixed points of morphisms, *SIAM Conference on Discrete Mathematics* (Victoria, 2006).
87. L. Ilie, A note on the number of distinct squares in a word, in: S. Brlek, C. Reutenauer, eds., *Proc. of the 5th International Conference on Combinatorics on Words (WORDS'05)* (Montreal, 2005), LaCIM 36, Montreal, 2005, 289 – 294.
88. L. Ilie, R. Solis-Oba, and S. Yu, Reducing NFAs by equivalences and preorders, in: A. Apostolico, M. Crochemore, K. Park, eds., *Proceedings of the 16th Annual Symposium on Combinatorial Pattern Matching (CPM'05)* (Jeju island, Korea, 2005), Lecture Notes in Comput. Sci. 3537, Springer, Berlin, 2005, 310 – 321.
89. L. Ilie, P. Ochem, and J. Shallit, A generalization of repetition threshold, in: J. Fiala et al., eds.: *Proceedings of the 29th International Symposium on Mathematical Foundations of Computer Science (MFCS'04)*, (Prague, 2004), Lecture Notes in Comput. Sci. 3153, Springer, Berlin, 2004, 818 – 826.
90. S. Constantinescu and L. Ilie, Fine and Wilf's theorem for any number of periods, in: T. Harju, J. Karhumaki, eds., *Proc. of the 4th International Conference on Combinatorics on Words (WORDS'03)* (Turku, 2003), TUCS General Publication, 27 (2003) 65 – 74.
91. L. Ilie, S. Yu, and Q. Zhao, Introduction to Process Traces, in: H.R. Arabnia and Y. Mun, Eds., *Proc. of the 2003 International Conference on Parallel Distributed Processing Techniques and Applications (PDPTA'03)* (Las Vegas, 2003), CSREA Press, Las Vegas, 2003, 1706 – 1712.
92. L. Ilie, B. Shan, and S. Yu, Fast algorithms for extended regular expression matching and searching, in: H. Alt and M. Habib, eds., *Proceedings of the 20th Symposium on Theoretical Aspects of Computer Science (STACS'03)* (Berlin, 2003), Lecture Notes in Comput. Sci., 2607, Springer, Berlin, 2003, 179 – 190.

93. L. Ilie and S. Yu, Constructing NFAs by optimal use of positions in regular expressions, in: A. Apostolico, M. Takeda, eds., *Proceedings of the 13th Annual Symposium on Combinatorial Pattern Matching (CPM'02)* (Fukuoka, 2002), Lecture Notes in Comput. Sci., 2373, Springer, Berlin, 2002, 279 – 288.
94. L. Ilie, S. Yu, and K. Zhang, Repetition complexity of words, in: O. Ibarra, L. Zhang, eds., *Proceedings of the 8th Annual International Computing and Combinatorics Conference (COCOON'02)* (Singapore, 2002), Lecture Notes in Comput. Sci., 2387, Springer, Berlin, 2002, 320 – 329.
95. L. Ilie and S. Yu, Algorithms for computing small NFAs, in: K. Diks, W. Rytter, eds., *Proceedings of the 27th International Symposium on Mathematical Foundations of Computer Science (MFCS'02)*, (Warszawa, 2002), Lecture Notes in Comput. Sci., 2420, Springer, Berlin, 2002, 328 – 340.
96. L. Ilie and W. Plandowski, Two-variable word equations, in: H. Reichel, S. Tison, eds., *Proc of the 17th Symposium on Theoretical Aspects of Computer Science (STACS'00)* (Lille, 2000), Lecture Notes in Comput. Sci., 1770, Springer, Berlin, 2000, 122 – 132.
97. L. Ilie, An attempt to define a class of mildly context-sensitive languages, in: A. Ádám, P. Dömösi, eds., *Proceedings of the 8th International Conference on Automata and Formal Languages (ICAFL'99)* (Salgotarjan, 1996), *Publ. Math. Debrecen* 54 (1999) 865 – 876.
98. L. Ilie, Remarks on well quasi orders of words, in: S. Bozapalidis, ed., *Proceedings of the 3rd Developments in Language Theory Conference (DLT'98)* (Thessaloniki, 1997), Aristotle Univ. of Thessaloniki, 1998, 399 – 411.
99. L. Ilie, On ambiguity in internal contextual languages, in: C. Martin-Vide, ed., *Mathematical and computational analysis of natural language* (Tarragona, 1996), Benjamins, Amsterdam, 1998, 29 – 45.
100. L. Ilie, On disjunctivity, ultimate periodicity, and ultimate identity of Păun-Salomaa self-reading sequences, in: J. Dassow, G. Rozenberg, A. Salomaa, eds., *Proceedings of the 2nd Developments in Language Theory Conference (DLT'95)* (Magdeburg, 1995), World Sci. Publishing, River Edge, NJ, 1996, 44 – 53.
101. L. Ilie and A. Salomaa, On regular characterizations of languages by grammar systems, in: E. Csuhaj-Varju, ed., *Grammar systems: recent results and perspectives* (Budapest 1996), *Acta Cybernet.* 12 (1996) 411 – 425.

Refereed book chapters

102. S. Hosseini, L. Ilie, Predicting protein interaction sites using PITHIA. In: Mukhtar, S. (ed.) Protein-Protein Interactions: Methods and Protocols, *Methods in Molecular Biology*, vol. 2074, Springer, New York, 2023, 375-383.
103. Y. Li, L. Ilie, Predicting Protein-Protein Interactions Using SPRINT. In: Canzar S., Ringeling F. (eds) Protein-Protein Interaction Networks. *Methods in Molecular Biology*, 2074, Humana, New York, NY, 2020, 1 – 11.
104. L. Ilie, *Regular Expression Matching*, in: Ming-Yang Kao, ed., *Encyclopedia of Algorithms, 2nd edition*, Springer, New York, 2016.
105. L. Ilie, *Regular Expression Matching*, in: Ming-Yang Kao, ed., *Encyclopedia of Algorithms*, Springer, New York, 2008, 768 – 771.
106. L. Ilie, Combinatorial complexity measures for strings, *Recent Advances in Formal Languages and Applications*, Springer-Verlag, Berlin, Heidelberg, 2006, 149 – 170.
107. L. Ilie, G. Navarro, and S. Yu, On NFA reductions, in: J. Karhumaki, H. Maurer, G. Paun, G. Rozenberg, eds., *Theory is Forever* Lecture Notes in Comput. Sci. 3113, Springer-Verlag, Berlin, Heidelberg, 2004, 112 – 124.

108. L. Ilie and V. Mitrana, Crossing-over on languages: a formal representation of chromosomes recombination, in C. Martin-Vide et al., eds., *Grammars and Automata for String Processing: From Mathematics and Computer Science to Biology, and Back*, Taylor and Francis, London, 2003, 391-401.
109. L. Ilie, S. Yu, K. Zhang, Repetition complexity of words, invited lecture, in: J. Dassow, M. Hoeberechts, H. Jürgensen, D. Wotschke, eds., *Preproc. of Descriptional Complexity of Formal Systems (DCFS)*, (London, 2002).
110. T. Harju and L. Ilie, Forbidden subsequences and permutations sortable on two parallel stacks, in: C. Martin-Vide et al., eds., *Where Mathematics, Computer Science, Linguistics, and Biology Meet*, Kluwer, Dordrecht, 2001, 267 – 275.
111. L. Ilie, On generalized slenderness of languages, in: M. Ito, Gh. Păun, S. Yu, eds. *Words, Semigroups, and Transductions*, World. Sci. Publ., Singapore, 2001, 189 – 202.
112. L. Ilie, I. Petre, and G. Rozenberg, Uniformly scattered factors, in: C. Calude, Gh. Păun, eds., *Finite Versus Infinite. Contributions to an Eternal Dilemma*, Springer-Verlag, London, 2000, 187 – 198.
113. L. Ilie, The decidability of the generalized confluence problem for context-free languages, in, Gh. Păun, A. Salomaa, eds., *New Trends in Formal Languages. Control, Cooperation, and Combinatorics*, Lecture Notes in Comput. Sci., 1218, Springer-Verlag, Berlin, New York, 1997, 454 – 464.
114. A. Ehrenfeucht, L. Ilie, Gh. Păun, G. Rozenberg, and A. Salomaa, On the generative capacity of some classes of contextual grammars, in: Gh. Păun, ed., *Mathematical Linguistics and Related Topics*, Ed. Acad. Române, Bucharest, 1995, 105 – 118.
115. L. Ilie, On contextual grammars with parallel derivation, in: Gh. Păun, ed., *Mathematical Aspects of Natural and Formal Languages*, World Sci. Publishing, Singapore, 1994, 165 – 172.

7 Research funding

1. NSERC Discovery grant, individual
   - title: *Bioinformatics Algorithms for Protein Interactions and Applications*
   - amount: **$145,000** for five years (2021 – 2026)
2. Western Strategic Support for NSERC Success
   - title: *Bioinformatics Algorithms for Understanding Protein Sequences*
   - amount: **$25,000** for one year (2020 – 2021)
3. NSERC Discovery grant, individual
   - title: *Bioinformatics Tools for Genomics and Proteomics Research*
   - amount: **$180,000** for five years (2015 – 2020)
4. Research Tools and Instruments (RTI), NSERC, PI, 5 members
   - title: *Bioinformatics Tools for Advancing Genomics and Proteomics*
   - amount: **$69,333** (2013)
5. Western Internal Science
   - title: *Doctoral supervision*
   - amount **$3,000** (2012-2014)
6. MITACS Seed Project, PI: M. Brudno (UofT), 3 members
   - title: *Assembly and Analysis of 2-base Encoded Sequencing Data*
   - amount: **$80,000** for two years (2010 – 2012)
   - non-academic participants: Applied Biosystems, Ontario Institute for Cancer Research, Hospital for Sick Children (Sick Kids)

7. NSERC Discovery grant, individual
   - title: *Combinatorial Algorithms for Approximate String Searching and DNA Sequencing*
   - amount: **$125,000** for five years (2010 – 2015)
8. MITACS Accelerate Internship, one co-PI
   - title: *Wheat Sequence Variation Prediction by Peptide Mass Spectra*
   - amount: **$15,000** for four months (Sep. 2009 – Dec.2009)
   - non-academic participant: NeoVentures Biotechnology Inc.
9. Faculty Scholar Award, University of Western Ontario
   - amount: **$14,000** for two years (2009 – 2011)
10. NSERC Discovery grant, individual
    - title: *Strings, Finite Machines, and Applications*
    - amount: **$105,000** for five years (2005 – 2010).
11. NSERC Individual grant
    - title: *Combinatorics on Words and Languages*
    - amount: **$72,000** for four years (2001 – 2005).
12. Start-up grant (Sep. 2000)
    - amount: **$25,000**

8 Other scholarly and professional activities

8.1 Conferences and Talks

–
– 3DSIG COSI, 28th Annual International Conference on Intelligent Systems for Molecular Biology (ISMB'20), Montreal, 2020. (virtual)
– Evolution and Comparative Genomics COSI, 28th Annual International Conference on Intelligent Systems for Molecular Biology (ISMB'20), Montreal, 2020. (virtual)
– 3DSIG, 25th Annual International Conference on Intelligent Systems for Molecular Biology (ISMB'17), Prague, 2017.
– **invited lecture** – McMaster University, 2015
– **invited lecture** – Guelph University, 2014
– **invited lecture** – The Royal Society, London, UK, 2013
– **invited lecture** – McMaster University, 2012
– **invited lecture** – McMaster University, 2011
– **invited lecture** – 3rd biennial Canadian Discrete and Algorithmic Mathematics Conference (CanaDAM), Victoria, 2011
– **invited lecture** – McMaster University, 2009
– **invited lecture** – 7th International Conference on Combinatorics on Words (WORDS), Salerno, Italy, 2009.
– 16th International Symposium on String Processing and Information Retrieval (SPIRE), Saariselkä, Finland, 2009
– 17th Annual International Conference on Intelligent Systems for Molecular Biology (ISMB) & 8th European Conference for Computational Biology (ECCB), Stockholm, 2009
– 20th International Workshop on Combinatorial Algorithms (IWOCA), Czech Republic, 2009
– 16th Annual International Conference Intelligent Systems for Molecular Biology (ISMB), Toronto, 2008
– **invite lecture** – Waterloo University, 2008
– 19th Annual Symposium on Combinatorial Pattern Matching (CPM), Pisa, Italy, 2008
– 18th Data Compression Conference (DCC), Snowbird, Utah, USA

- **invited lecture** 25th Symposium on Theoretical Aspects of Computer Science (STACS), Bordeaux, France, 2008
- 7th Workshop on Algorithms in Bioinformatics (WABI), Philadelphia, USA, 2007
- the 2007 International Conference on Bioinformatics and Computational Biology (BIOCOMP), Las Vegas, USA, 2007
- **invited lecture** – AutoMathA 2007, Palermo, Italy, 2007
- 32nd Mathematical Foundations of Computer Science (MFCS), Cesky Krumlov, Czech Republic, 2007
- **invited lecture** – Workshop on Algorithms on Words, Turku, Finland, 2007
- **invited lecture** – London Stringology Day and London Algorithmic Workshop (LSD + LAW) 2007, King's College, London, UK, 2007
- **invited lecture** – Journées du GDR Informatique Mathematique, Institut Henri Poincarè, Paris, 2007
- **invited lecture** – Laboratoire d'Informatique Algorithmique: Fondements et Applications UMR 7089, CNRS et Université Paris 7, France, 2007
- **invited lecture** – Marne-la-Vallèe University, France, 2006
- **invited lecture** – SCRA 2006, Portugal
- 6th PhD School, Tarragona, Spain, 2006
- SIAM Conference on Discrete Mathematics, Victoria, 2006.
- 11th International Conference on Implementation and Application of Automata (CIAA), Taipei, 2006
- 31st International Symposium on Mathematical Foundations of Computer Science (MFCS), Stara Lesna, Slovakia, 2006
- 12th International Meeting on DNA Computing (DNA), Seoul, 2006
- **invited lecture** – McMaster University 2006, Combinatorial complexity measures for strings
- 5th PhD School, Tarragona, Spain, 2005
- 5th International Conference on Combinatorics on Words (WORDS), Montreal, 2005
- 16th Annual Symposium on Combinatorial Pattern Matching (CPM), Jeju island, South Korea, 2005
- 29th International Symposium on Mathematical Foundations of Computer Science (MFCS), Prague, 2004
- 4th International Conference on Combinatorics on Words (WORDS), Turku, 2003.
- International Conference on Parallel and Distributed Processing Techniques and Applications (PDPTA), Las Vegas, 2003.
- 20th Symposium on Theoretical Aspects of Computer Science (STACS), Berlin, Germany, 2003
- **invited lecture** – 4th Descriptional Complexity of Formal Systems (DCFS), London, 2002
- 27th International Symposium on Mathematical Foundations of Computer Science (MFCS), Warszawa, 2002
- 8th Annual International Computing and Combinatorics Conference (COCOON), Singapore, 2002
- 13th Annual Symposium on Combinatorial Pattern Matching (CPM), Fukuoka, Japan, 2002
- **invited lecture** – The University of Western Ontario 2000, On fast word algorithms
- 17th Symposium on Theoretical Aspects of Computer Science (STACS), Lille, France, 2000
- **invited lecture** – University of Turku 1999, Periods and binary words
- **invited lecture** – University of Turku 1999, The Critical Factorization Theorem
- **invited lecture** – University of Leiden 1998, Orders of words
- 3rd Developments in Language Theory Conference (DLT), Thessaloniki, Greece, 1997
- **invited lecture** – University of Frankfurt 1996, Recent results on contextual languages
- Workshop on Grammar Systems, Budapest, Hungary, 1996

- 1st German Conference on Bioinformatics (GCB), Leipzig, Germany, 1996
- 8th International Conference on Automata and Formal Languages (ICAFL), Salgotarjan, Hungary, 1996
- 2nd International Conference on Mathematical Linguistics (ICML), Tarragona, Spain, 1996.
- **invited lecture** – University of Turku 1995, Languages of infinite words
- 2nd Developments in Language Theory Conference (DLT), Magdeburg, Germany, 1995
- **invited lecture** – University of Turku 1994, Self-reading sequences

8.2 Conference committees

- Program Committee Member, 9th ACM Conference on Bioinformatics, Computational Biology, and Health Informatics (ACM BCB'18), August 29 - September 1, 2018, Washington DC, US.
- Program Committee Member, 8th ACM Conference on Bioinformatics, Computational Biology, and Health Informatics (ACM BCB'17), August 21-24, Boston, US.
- Program Committee member, 19th Symposium on String Processing and Information Retrieval (SPIRE'12), October 21-25, 2012, Cartagena de Indias, Colombia.
- Program Committee member, Workshop on Algorithmic Analysis of Biological Data (WAABD'11), October 21, Pisa, Italy.
- Program Committee member, 18th Symposium on String Processing and Information Retrieval (SPIRE'11), October 17-21, 2011, Pisa, Italy.
- Program Committee member, 15th International Conference on Implementation and Application of Automata (CIAA'10), August 12-15, Winnipeg, Canada.
- Program Committee member, 14th Developments in Language Theory (DLT'10), Aug.17-20, London, Canada.
- Program Committee member, 14th International Conference on Implementation and Application of Automata (CIAA'09), 14-17th July, Sydney, Australia.
- Program Committee member, 7th International Conference on Combinatorics on Words (WORDS'09), Salerno, Italy, 2009.
- Program Committee member, 3rd International Conference on Language and Automata Theory and Applications (LATA'09), 2009, Tarragona, Spain.
- Program Committee member, 13th International Conference on Implementation and Application of Automata (CIAA'08), July 21-24, 2008, San Francisco, US.
- Program Committee member, 10th Workshop on Descriptional Complexity of Formal Systems (DCFS'08), Charlottetown, Prince Edward Island, Canada, on July 16-18, 2008.
- Program Committee member, 14th Symposium on String Processing and Information Retrieval (SPIRE'07), October 29-31, 2007, Santiago, Chile.
- Program Committee member, 1st International Conference on Language and Automata Theory and Applications (LATA'07), March 29 - April 4, 2007, Tarragona, Spain.
- Program Committee member, 9th Workshop on Descriptional Complexity of Formal Systems (DCFS'07), July 20 - 22, High Tatras, Slovakia, 2007.
- Program Committee member, Language Theory in Biocomputing Workshop (satellite to Unconventional Computation, UC'07), Kingston, Canada, 2007.
- Program Committee member, 11th Developments in Language Theory (DLT'07), July 2007, Turku (Finland).
- Program Committee member, Workshop on Words and Automata (WoWA'06), June 7, 2006, St. Petersburg (Russia).
- Program Committee member, 12th Syposium on String Processing and Information Retrieval (SPIRE'05), November 2-4, 2005, Buenos Aires, Argentina.
- Steering Committee member, Descriptional Complexity of Formal Systems (DCFS), 2005 –

- Program Committee member, 7th Workshop on Descriptional Complexity of Formal Systems (DCFS'05), Como, Italy, June 30 - July 2, 2005.
- Organizing Committee Chair, 6th Workshop on Descriptional Complexity of Formal Systems (DCFS'04), July 26-28, 2004, London, Ontario.
- Program Committee Chair, 6th Workshop on Descriptional Complexity of Formal Systems (DCFS'04), July 26-28, 2004, London, Ontario.

8.3 Journal editorship

- **Academic Editor, BioMed Research International (Impact Factor: 2.276), Bioinformatics section.**
- **Associate Editor, BMC Research Notes (Cite Score: 2.1), Bioinformatics section.**
- Reviewer for *Mathematical Reviews*.
- Member of the Editorial Board, *International Journal of Computer Mathematics*, 2005 – 2008.
- Guest Editor (with G. Rozenberg, A. Salomaa, K. Salomaa) special issue of *Theoretical Computer Science* 410 (24-25) (2009), volume dedicated to Sheng Yu.
- Guest Editor (with D. Wotschke) of a special issue of *International Journal of Foundations of Computer Science* 16(5) (2005) 829 – 830.
- Editor (with D. Wotschke) of *Proc. of DCFS'04*, Dept. Comput. Sci., UWO, Technical Rep. 619, 2004.

8.4 Reviewer

Journals

- Bioinformatics
- BMC Bioinformatics
- Genome Research
- Journal of Molecular Biology
- Journal of Bioinformatics and Computational Biology
- BMC Research Notes
- PLoS ONE
- PeerJ
- BMC Systems Biology
- Current Bioinformatics
- Journal of Mathematical Biology
- Journal of Computer and System Sciences
- SIAM Journal on Computing
- Philosophical Transactions of the Royal Society A
- ACM Journal of Experimental Algorithmics
- Information and Computation
- Journal of Discrete Algorithms
- Theoretical Computer Science
- Algorithmica
- Information Processing Letters
- European Journal of Combinatorics
- Acta Informatica
- Theoretical Informatics and Applications (RAIRO)
- Discrete Applied Mathematics
- Discrete Mathematics

– Fundamenta Informaticae
– International Journal of Foundations of Computer Sciences
– Acta Cybernetica
– Journal of Automata, Languages, and Combinatorics
– Journal of Parallel and Distributed Computing
– Natural Computing
– BioMed Research International

Conferences

– IEEE/ACM Transactions on Computational Biology and Bioinformatics
– Transactions on Computational Systems Biology
– ACM-SIAM Symposium on Discrete Algorithms (SODA)
– Annual Symposium on Combinatorial Pattern Matching (CPM)
– Data Compression Conference (DCC)
– International Conference on Current Trends in Theory and Practice of Computer Science (SOFSEM)
– International Symposium on Theoretical Aspects of Computer Science (STACS)
– International Colloquium on Automata, Languages, and Programming (ICALP)
– International Symposium on Mathematical Foundations of Computer Science (MFCS)
– International Conference on Implementation and Applications of Automata (CIAA)
– Symposium on String Processing and Information Retrieval (SPIRE)
– Foundations of Software Science and Computation Structures (FOSSACS)
– IBM Centre for Advanced Studies Conference (CASCON)
– International Colloquium on Words, Languages, and Combinatorics (ICWLC)
– International Conference on Developments in Language Theory (DLT)
– International Symposium on Fundamentals of Computation Theory (FCT)
– International Workshop on Descriptional Complexity of Formal Systems (DCFS)
– Latin American Theoretical INformatics (LATIN)
– Workshop on Algorithm Engineering and Experiments (ALENEX)
– Foundations of Software Technology and Theoretical Computer Science (FSTTCS)
– International Frontiers of Algorithmics Workshop (FAW)
– International Conference on Algorithmic Aspects of Information and Management (AAIM)

8.5 Memberships in Professional Organizations

– ISCB (International Society for Computational Biology)
– ACM, SIGACT (Association for Computing Machinery, Special Interest Group on Algorithms and Computation Theory)

Past memberships
– IEEE, Computer Society (Institute of Electrical and Electronics Engineers, Computer Society)
– IACR (International Association for Cryptologic Research)
– EATCS (European Association for Theoretical Computer Science)

8.6 Grant reviewer

- NSERC RTI (Research Tools and Instruments): Computer, Mathematical and Statistical Sciences Selection Committee (2019)
- NSERC RTI (Research Tools and Instruments): Computer, Mathematical and Statistical Sciences Selection Committee (2018)
- NSERC RTI (Research Tools and Instruments): Computer, Mathematical and Statistical Sciences Selection Committee (2017)
- NSA (National Security Agency)
- ISF (Israel Science Foundation)
- NSERC (Natural Sciences and Engineering Research Council of Canada)
- NWO (The Netherlands Organization for Scientific Research)
- MITACS (Mathematics of Information Technology and Complex Systems)

8.7 Miscellaneous

- Teaching "String Complexity" at the 4th International PhD school, Tarragona, Spain, 2005.
- Teaching "String Complexity and applications" at the 5th International PhD school, Tarragona, Spain, 2006.
- Examiner – the 5th International PhD school, Tarragona, Spain, 2006.

9 Teaching

9.1 Undergraduate Courses

- Analysis of Algorithms
- Foundations of Computer Science
- Data Structures and Algorithms
- Computational Biology
- Bioinformatics Tools and Applications
- Programming Languages
- Cryptography and Security

9.2 Graduate Courses

- Research Topics in Genomics and Proteomics
- High-Throughput DNA Sequencing
- Biological Sequence Analysis
- Bioinformatics Tools and Applications
- String Algorithms
- String Complexity
- Approximate String Algorithms and Applications
- Finite Automata and Applications
- Combinatorics on Words
- Current Problems on Words and Automata.

9.3 Curriculum Development and Course Design

CS3340 – Analysis of Algorithms I have designed this course from scratch. I have introduced quite a few interview-like questions that are both interesting and fun, providing variety to keep the students focused on the lectures.

CS2121/9643 – Data Structures and Algorithms for Scientists – new course I have designed this course from scratch for non-computer science students. The only background required is some knowledge of a programming language, preferably Python. I have found a suitable textbook for algorithms and data structures in Python. The approach had to be continuously tailored to the abilities of the students. I have designed individual projects for each student according to their background and interests. The response from the students was overwhelmingly positive.

CS3331 – Foundations of Computer Science I have designed this course from scratch. The material on Turing Machines and Undecidability is highly abstract and challenging for students. I worked on finding ways to present the material in a suitable manner. The experience of the first year was used to perform significant redesign in the second year.

CS413/634 - Cryptography and Security – new course. I have proposed this new course and it turned out to be very successful; in the first year 43 undergraduate students and 7 graduate students attended; it has been introduced in the calendar with its own name and number. I provided **100 pages of course notes** totally written by myself in LaTeX(10pt font, very large text body). It was challenging to find a way to present quite a number of rather deep results from various areas of Mathematics and Computer Science (including number theory, finite fields, probabilities, information theory, algorithms, complexity theory, information theory), which are essential for understanding Cryptography, to Computer Science students. The basic idea was to understand Cryptography and not to simply present various cryptosystems. I started essentially from scratch and presented the concepts in a very easy to understand manner. Gradually, I could help the students grasp even the most difficult parts of the material. I have chosen an interesting but not very deep text book which students could read by themselves; the depth I intended to achieve was provided in my course notes and explained in class.
The assignments and projects were built such that they tested all aspects investigated: theory, applications, and practical implementations. According to the evaluations, it worked.

CS342 - Programming Languages. I have designed this course from scratch. In the functional and logic programming part, I tried to make clear the connection between underlying theory and actual programming languages. I had to compile a number of sources to build good lecture notes. I provided **360 new slides**, all written by myself in LaTeX.

CS98xx courses. Each year I teach a new highest level graduate course; see above. I always try to present top level research so that it is accessible for a wide audience. Because of that, my courses are very popular among students; Approximate String Algorithms and Applications had 27 graduate students attending. The assignments and projects are very research oriented.

CS9601 – Analysis of Biological Sequences. Probabilistic models are fundamental in the analysis of huge amounts of data produced at an increasingly fast rate. The course provides an introduction to core topics in this area, such as: statistical analysis of pairwise alignments, statistical analysis of one and many DNA sequences, whole genome shotgun sequencing – algorithms and statistical analysis, Markov chains and hidden Markov models, profile HMMs for sequence families (applications to modelling protein families, multiple sequence alignment), algorithms for gene prediction, etc. An introduction to the necessary background in probability, statistics, and biology is also provided. I have written **309 new slides** for this course. It is very interesting to put Computer Science, Biology, and Statistics together in a coherent manner. This course has attracted students from two departments outside Computer Science.

9.4 Graduate supervision

Current students

- Seyed Mohsen Hosseini, Ph.D. student
  Thesis: Machine learning for protein interaction prediction
- Zahra Fazel, M.Sc. student
- Sepehr Ashrafzadeh, M.Sc. student
- Julia Malec, B.Sc. student
- Riley Gavigan, B.Sc. student

Former students

- Qin Dong, Ph.D. student (2023)
  - Thesis: Algorithms and Software for Oligonucleotide Design
- Yiwei Li, Ph.D. (2020)
  - Thesis: Computational Methods for predicting Protein-Protein Interactions and Binding Sites
  - Position after graduation: **Cerebras Systems**
- Nilesh Khiste, Ph.D. (2018)
  - Thesis: Efficient alignment algorithms for DNA sequencing data
  - Position after graduation: **Cadence Design Systems**
- Mike Molnar, Ph.D. (2017)
  - Thesis: Error correction and de novo genome assembly of DNA sequencing data
  - Position after graduation: **Ontario Institute for Cancer Research**
- Bahlul Haider, Ph.D. (2012)
  - Thesis: De Novo Genome Assembly
  - Position after graduation: **Microsoft**
- Liviu Tinta, Ph.D. (2009)
  - Thesis: String Repetitions: Combinatorics and Algorithms
  - Position after graduation: **Google**
- Sorin Constantinescu, Ph.D. (2007)
  - Thesis: Repetitions and periods of strings
  - Position after graduation: **IBM**
- Madhav Singhal, B.Sc. (Sep. 2021 - Apr. 2022: Hotspot and Protein Binding Residue Prediction from Protein Sequences using Embeddings)
  - **Replit**
- Dipanjan Chatterjee, M.Sc. (Sep. 2019 - Dec. 2020: Visualization and Interpretation of Protein Interactions)
  - **IBM**
- Sourajit Basak, M.Sc. (Sep. 2019 - Dec. 2020: Protein Interaction Site Prediction using Deep Learning)
  - **CITCO**
- Arnab Malik, M.Sc. (Sep. 2018 - Apr. 2020: Computation of Sensitive Multiple Spaced Seeds)
  - **AGFA healthcare**
- Valeria Portes de Cerqueira Cesar, M.Sc. (Sep. 2017 - Mar. 2020: Efficient Computation of Maximal Exact Matches Between Genomic Sequences)
  - **J.D.Power**
- Debanjan Guha Roy, M.Sc. (Sep. 2017 - Dec. 2019: A new algorithm for primer design)
  - **Huawei**

- Pierce Saly, B.Sc., (Sep. 2018 - Apr. 2019: Improving Error Correction of High-Throughput DNA Sequencing Data)
  - **Penfield.AI**
- Pierce Saly, NSERC USRA (Undergraduate Student Research Award) (Apr. 2018 - Aug.2018: Error Correction in DNA sequencing)
- Stephen Lu, M.Sc. (Sep. 2016 - Dec. 2017: Correction of DNA sequencing data with spaced seeds)
  - **Rapid7**
- Nilesh Khiste (Sep. 2013: fast tracked to Ph.D.)
- Wenjing Wan, M.Sc. (Sep. 2013 - Jan. 2015: Metagenomics assembly)
  - **Google, Facebook**
- Muhammed Saad Ahmed, M.Sc. (Sep. 2015 - Apr. 2017; includes one term **internship at Google**: Predicting protein interactions by deep learning)
  - **Microsoft**
- Dimo Angelov, M.Sc. (Sep. 2015 - Dec. 2016: Machine learning for genomic signatures in breast cancer) (co-supervised)
  - **Government of Canada**
- Muhammed Saad Ahmed, B.Sc. (Sep. 2014 - Apr. 2015: Predicting protein interactions by deep learning)
- Yu Qian, M.Sc. (Sep. 2013 - Dec. 2014: Alignment of Protein-Protein Interaction networks)
  - **SurveyMonkey**
- Justin McDonalds, B.Sc. (Sep. 2013 - May 2014: Computing Edit Distance with a Bit-Parallel Dynamic Programming Algorithm)
- Mohamed Moselhy, Mitacs Globalink Research Award Abroad
- Qin Dong, M.Sc. (Sep. 2012 - Dec. 2013: Whole genome oligo tiling)
- Yiwei Li, M.Sc. (Sep. 2012 - Dec. 2013: Predicting protein-protein interactions)
- Ehsan Haghshenas, M.Sc. (Sep. 2012 - Dec. 2013: Genome variation detection by genome assembly) (co-supervised)
- Mike Molnar, M.Sc. (Sep. 2011 - Dec. 2012: Error Correction in DNA Sequencing Data)
- Lankesh Shivanna, M.Sc. (Sep. 2010 - Dec. 2011: Error correction in NGS data)
  - **Achievers**
- Mike Molnar, B.Sc. (Sep. 2010 - May. 2011: Software Tools for Genome Assembly)
- Hamid Mohamadi, M.Sc. (McMaster University) (Sep. 2010 - May 2012: Oligonucleotide design) (co-supervised)
  - **Illumina**
- Zhewei Liang, M.Sc. (Sep. 2010 - Dec. 2011: Efficient Algorithms for Local Forest Similarity) (co-supervised)
- Farideh Fazayeli, M.Sc. (Sep. 2010 - Dec. 2011: Error Correction in High Throughput Sequencing Data) (co-supervised)
  - **Google**
- Shima Khoshraftar, M.Sc. (Sep. 2010 - Dec. 2011: Oligonucleotide Design) (co-supervised)
- Anahita Mansouri, M.Sc. (Sep. 2010 - Dec. 2011: Spaced Seeds for Similarity Search) (co-supervised)
- Jonathan Cable, B.Sc. (Sep. 2009 - May 2010: Software for peptide databases)
- Liviu Tinta, M.Sc. (2006: fast tracked to Ph.D.)
- Cristian Popescu, M.Sc. (Sep. 2004 - Dec. 2005: Viral DNA compression)
- Emine Seid-Hilmi, M.Sc. (fast tracked to Ph.D.)
- Cerasela Toba, M.Sc. (Sep. 2004 - Dec. 2005: DNA self assembly)
- Sorin Constantinescu, M.Sc. (2004: fast tracked to Ph.D.)
- Mike Davidson, M.Sc. (Sep. 2002 - Dec. 2003: Data compression with antidictionaries)

– Baozhen Shan, M.Sc. (Sep. 2001 - Dec. 2002: Fast algorithms for extended regular expression searching)
  - **CEO, Bioinformatics Solutions**
– Man Yuan, M.Sc. (Sep. 2001 - Dec. 2002: Comparing implementations of regular expressions by NFAs)
– Denby Wong, M.Sc. (Jan. 2001 - Dec. 2001: Finite automata with counters)

9.5 Outreach

I have personally recruited all my students except for the first three (the bottom of the list)[7].

9.6 Examiner

– 100+ MSc theses
– 50+ PhD theses
– 25+ external PhD theses

10 Administrative duties

10.1 Faculty of Science Committees

2005 – 2006:
– Member of the Faculty of Science Nominating Committee
2012 – 2013:
– Research Chair of Computer Science Department
2012 – 2014:
– Member of the Faculty of Science External Research Awards Committee (SERAC)
  - Obtained 9 OGS scholarships for the department; the highest number on recent years; double than usual!

10.2 Department of Computer Science Committees

2000 – 2001
– Member of the Awards Committee
2001 – 2002
– Chair of the Awards Committee
– Member of the Graduate Executive Committee
– Member of the Resource Planning Committee
– Member of the Curriculum Committee
– Ph.D. comprehensive exam - prepared and marked questions for
  - Programming Languages
2002 – 2003
– Chair of the Awards Committee
– Member of the Appointments Committee
– Member of the PhD Comprehensive Exam Committee

[7] Sorin Constantinescu obtained the only international OGS scholarship in our department ever. There are only 60 such scholarships each year in all disciplines in Ontario

- Ph.D. comprehensive exam - prepared and marked questions for
  - Programming Languages
  - Theory of Computing

  2003 – 2004
- Member of the Appointments Committee
- Member of the Graduate Executive Committee
- Member of the PhD Comprehensive Exam Committee
- Member of the Workload Committee

  2004 – 2005
- Member of the Appointments Committee
- Member of the Graduate Executive Committee
- Member of the PhD Comprehensive Exam Committee

  2005 – 2006
- Member of the Appointments Committee
- Member of the Graduate Executive Committee
- Member of the PhD Comprehensive Exam Committee

  2007 – 2009
- **Graduate Chair**
  - **Achievements as Graduate Chair (in addition to common duties):**
    1. I have created the Research Seminar of the Computer Science Department.
    2. I have initiated the faculty-graduate students common lounge.
    3. I have obtained extra funding from Faculty of Science for 7 graduate students.
    4. I have implemented the OCGS requirements regarding cross-listed courses and now our graduate program's classification is "Good Quality."
    5. Declining undergraduate enrolment created serious financial problems for the graduate program. I have obtained support from Faculty of Science and, as a consequence, our graduate enrolment increased.
- Member of the Department Executive Committee
- Chair of the Graduate Executive Committee
- Member of the Graduate Awards Committee
- Chair of the PhD Comprehensive Exam Committee
- Chair of the Graduate Scholarships Committee

  2009 – 2010
- Member of the Awards and Scholarships Committee
- Member of the PhD Comprehensive Exam Committee

  2010 – 2011
- Chair of the Awards and Scholarships Committee
- Chair of the Awards Committee
- Member of the Student Competitions Committee
- Member of the Appointments Committee

  2011 – 2012
- Chair of the Awards and Scholarships Committee
- Colloquium Committee Chair
- Member of the Nominating Committee
- Member of the Graduate Executive Committee
- Member of the PhD Review Committee

  2012 – 2013
- Chair of the Awards and Scholarships Committee
- Colloquium Committee Chair
- Member of the Nominating Committee

– Member of the PhD Review Committee

2013 – 2014

– Chair of the Awards and Scholarships Committee
– Colloquium Committee Chair
– Member of the Appointments Committee
– Member of the PhD Review Committee

2014 – 2015

– Chair of the Awards and Scholarships Committee
– Member of Graduate Executive Committee (Admissions)
– Colloquium Committee Chair
– Member of the Appointments Committee
– Member of the PhD Review Committee

2015 – 2016

– Member of Graduate Executive Committee (Admissions)
– Member of Graduate Executive Committee (Policy)
– Colloquium Committee Chair
– Member of the Appointments Committee
– Member of TRICS seminar Hosting Committee

2016 – 2017

– Chair of the TRICS seminar and Colloquium Committee
– Member of the Awards and Scholarships Committee
– Member of the Professional Programs Committee
– Member of the Space Committee

2017 – 2018

– Chair of the TRICS seminar and Colloquium Committee
– Member of the Graduate Executive Committee - Policy
– Member of the Promotion and Tenure Committee
– Open House (Fall Preview Day): Nov. 12, 2017

2018 – 2019 – Sabbatical

2019 – 2020

– Member of the Chair Selection Committee (elected)
– Member of the Appointments Committee (elected)
– Member of the Promotion and Tenure Committee (elected)
– Member of the Graduate Executive Committee - Admissions
– Member of the Graduate Executive Committee - Policy
– Member of the University Fair Committee

2020 – 2021

– Member of the Chair Selection Committee (elected)
– Member of the Annual Performance Evaluation Committee (elected)
– Member of the Appointments Committee (elected)
– Member of the Promotion and Tenure Committee (elected)
– Member of the Workload Committee (elected)
– Member of the University Fair Committee

2021 – 2022

– Member of the Promotion and Tenure Committee (elected)
– Member of the Workload Committee (elected)
– Member of the Appeals Committee
– Member of the Ranking USRA NSERC Applications Committee
– Member of the UWORCS Evaluation Committee

2022 – 2023 – Sabbatical (fall)

- Member of the Academic Integrity Committee
- Member of the Ranking USRA NSERC Applications Committee
- Member of the UWORCS Evaluation Committee
- Member of the National Scholarship Cvaluation

2023 – 2024

- CA Committees: Performance Evaluation
- Other Committees: academic integrity, grad scholarship
- Other Service Duties: internship reports, UWORCS

Lucian Ilie December 6, 2023