

Curriculum Vitae

Siegfried Nijssen

Siegfried Gerardus Remius Nijssen was born April 29, 1978 in The Hague, The Netherlands.

Nationality: Dutch and Belgian (double nationality)

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Languages: Dutch (Native), English (Fluent), French (Reading: good; speaking and writing: basic), German (Reading: good; speaking and writing: basic).

Topics of interest:

- Data Mining (Pattern mining, Graph mining, Inductive databases)
- Machine Learning (Induction of models under constraints)
- Algorithms (Complexity of graph algorithms)
- Constraint Programming (Mining and learning using CP)
- Applications of Data Mining and Machine Learning in Chemoinformatics

Education:

1. August 1997: "Propedeuse" (first year university diploma) in Computer Science, Leiden University, The Netherlands
2. August 1997: "Propedeuse" (first year university diploma) in Mathematics, Leiden University, The Netherlands
3. November 2000: MSc in Computer Science; title of thesis: "Data Mining using Logic"; supervisor: Joost N. Kok, Leiden University, The Netherlands; degree: "cum laude".
4. May 2006: PhD in Computer Science, title of thesis: "Mining Structured Data", promotor: Joost N. Kok, Leiden University, The Netherlands

Positions:

1. September 1998 – December 2000: Student assistant at Leiden University, The Netherlands, assisting in courses
2. January 2001 – August 2005: PhD student at Leiden University, The Netherlands, in the group of Joost N. Kok
3. September 2005 – August 2006: Post-doctoral researcher at the Albert-Ludwigs-University of Freiburg, Germany, in the group of Luc De Raedt, working on EU IST-FET project “Inductive Querying” (IQ), with as partners the University of Antwerp (Bart Goethals, Belgium), the Jozef Stefan Institute (Saso Dzeroski, Slovenia), INSA Lyon (Jean-François Boulicaut, France), the University of Wales in Aberystwyth (Ross D. King, Wales) and the University of Helsinki (Heikki Mannila, Finland).
4. September 2006 – August 2008: Post-doctoral researcher at the Katholieke Universiteit Leuven, Belgium, in the group of Luc De Raedt, working on the EU IST-FET project IQ, with the same additional partners.
5. September 2008: Post-doctoral researcher at the Katholieke Universiteit Leuven, Belgium, in the group of Luc De Raedt, working on the EU IST-FET project BISON.
6. October 2008 – September 2011: FWO post-doctoral fellow at the Katholieke Universiteit Leuven, Belgium, in the group of Luc De Raedt.

Awards:

1. Winner of the yearly Master's Thesis price of the district South-Holland of the Dutch Computer Science Foundation, 2001.
2. Nominated for the “discovery of the year” award of the Faculty of Mathematics and Natural Sciences, Leiden University, 2006.

Grants:

1. FWO Post-doc Grant. “From Constraints to Knowledge”, October 2008 – September 2011.
2. FWO Project Grant, joint with L. De Raedt and B. Goethals. “Principles of Knowledge Discovery in Pattern Sets”, January 2009 – December 2012.

Teaching:

1. In Leiden as student: assisting in the courses on programming languages (1998-2004), computer architecture (1999-2000), compiler construction (1999), algorithms (2001-2002), databases (2003), complexity (2004)
2. In Freiburg as post-doc: giving some of the lectures in the machine learning course (2006)
3. In Leuven as post-doc: assisting in the course on fundamentals of computer science (2007-2010), students in the seminar on scientific training (2007-2009).
4. In Leuven as post-doc: elected as “ombuds” for the 2nd bachelor Computer Science.
5. Supervised master's thesis projects: Kim Cui (Leiden, 2004, together with Eric-Wubbo Lameijer), Roel Rymenants (Leuven, 2009), Mathias Verbeke (Leuven, 2009, together with Bettina Berendt), Lucie Van Hove (Leuven, 2010, together with Bettina Berendt);

- bachelor projects: Tijmen Moerland (Leiden, 2003, together with Eric-Wubbo Lameijer).
6. Co-supervising the PhD thesis of Tias Guns (Leuven, with Luc De Raedt).

Services to the community:

1. Workshop and tutorial **co-chair** of the European Conference on Machine Learning and the European Conference on Principles and Practice of Knowledge Discovery in Databases (ECML PKDD), 2008.
2. Workshop program **co-chair** of the International Workshop on Constraint-based Mining and Learning (CMILE), 2007.
3. Workshop program **co-chair** of the International Workshop on Open Source Data Mining (OSDM), 2005.
4. Workshop program **co-chair** of the International Workshop on Mining Graphs, Trees and Sequences (MGTS), 2004.
5. Workshop co-organizer of the International Workshop on Mining Graphs, Trees and Sequences (MGTS), 2003.
6. Member of the program committee of the European Conference on Machine Learning and the European Conference on Principles and Practice of Knowledge Discovery in Databases (ECML PKDD), 2006-2009.
7. Member of the program committee of the SIAM International Conference on Data Mining (SDM), 2008-2010.
8. Member of the program committee of the ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (KDD), 2009.
9. Member of the program committee of the International Joint Conference on Artificial Intelligence (IJCAI), 2009.
10. Member of the program committee of the European Conference on Artificial Intelligence (ECAI), 2008.
11. Member of the program committee of the IEEE International Conference on Data Mining (ICDM), 2008-2009.
12. Member of the program committee of the International Conference on Discovery Science (DS), 2009.
13. Member of the program committee of the ACM Conference on Information and Knowledge Management (CIKM), 2007.
14. Member of the program committee of the International Workshop on Mining and Learning with Graphs (MLG), 2006-2007, 2009.
15. Member of the program committee of the International Workshop on going From Local Patterns to Global Models (LeGo), 2008-2009.
16. Member of the program committee of the International Workshop on Knowledge Discovery in Inductive Databases (KDID), 2006.
17. Member of the program committee of the International Workshop on Knowledge Discovery from XML documents (KDXD), 2006.
18. Reviewer for the Journal of Machine Learning.
19. Reviewer for the Journal of Machine Learning Research.
20. Reviewer for the Journal of Data Mining and Knowledge Discovery.
21. Reviewer for the Journal of Intelligent Data Analysis.
22. Reviewer for the Journal of Knowledge and Information Systems.
23. Reviewer for the International Journal of Data Mining and Bioinformatics.

24. Reviewer for the IEEE Transactions on Nanobioscience.
25. Reviewer for the IEEE Transactions on Knowledge and Data Engineering.
26. Reviewer for the SIGKDD Explorations.
27. Reviewer for Fundamenta Informaticae.
28. Reviewer for Theoretical Computer Science.
29. Reviewer for the ACM International Conference on Knowledge Discovery and Data Mining (KDD), 2005-2008.
30. Reviewer for the SIAM International Conference on Data Mining (SDM), 2007.
31. Reviewer for the International Conference on Data Engineering (ICDE), 2007.
32. Reviewer for the International Conference on Machine Learning (ICML), 2007.
33. Reviewer for the Pacific-Asia Conference on Knowledge Discovery and Data Mining (PAKDD), 2007.
34. Reviewer for the IEEE International Conference on Data Mining (ICDM), 2006.
35. Reviewer for the European Conference on Machine Learning and the European Conference on Principles and Practice of Knowledge Discovery in Databases (ECML/PKDD), 2004.

Visits:

1. May 1999, TU Vienna, Erasmus Intensive Program on Pattern Recognition.
2. July 2002, University of Aarhus, Summer school on Massive Datasets.
3. November 2005, Helsinki Institute for Information Technology, visit for European Project IQ.
4. May 2006, University of Wales in Aberystwyth, 1 week visit for European Project IQ.
5. September 2005 – August 2008, University of Wales in Aberystwyth, University of Helsinki, INSA Lyon, Jožef Stefan Institute (Ljubljana), University of Antwerp, for 2 day IQ project meetings.

List of Publications

Siegfried Nijssen

Within square brackets are given the numbers of citations according to Google Scholar (last checked on **23-09-2009**).

Journals:

Within brackets are given the impact factors of the journals according to the ISI citation index (last checked on **23-09-2009**).

1. A. Dries, S. Nijssen, L. De Raedt. *Mining Predictive k -CNF Expressions*. In: IEEE Transactions on Knowledge and Data Engineering, 2009. (2.236)
2. J. Ramon, S. Nijssen. *Polynomial Delay Enumeration of Monotone Graph Classes*. In: Journal of Machine Learning Research, volume 10, pages 907-929, 2009. (3.116)
3. J. Kazius, S. Nijssen, J.N. Kok, T. Bäck, A.P. IJzerman. [Substructure Mining Using Elaborate Chemical Representation](#). In: Journal of Chemical Information and Modeling, volume 46, pages 597-605, 2006. (3.643) [20]
4. Y. Chi, S. Nijssen, R. Muntz, J.N. Kok. [Frequent Subtree Mining - An Overview](#). In: Fundamenta Informaticae, volume 66, pages 161-198, IOS Press, 2005. (0.715) [105]
5. S. Nijssen and T. Bäck. [An analysis of the behaviour of simplified genetic algorithms on trap functions](#). In IEEE Transactions on Evolutionary Computation, volume 7(1), pages 11-22, 2003. (3.736) [16]

International conferences with refereed proceedings or refereed post-workshop proceedings:

6. A. Dries, S. Nijssen, L. De Raedt. *A Query Language for Analyzing Networks*. In: Proceedings of the 18th ACM Conference on Information and Knowledge Management (CIKM), 2009.
7. S. Nijssen, T. Guns, L. De Raedt. [Correlated Itemset Mining in ROC Space: A Constraint Programming Approach](#). In: Proceedings of the 15th ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (KDD), 2009. [1]
8. S. Nijssen, L. De Raedt. [Grammar Mining](#). In: Proceedings of the SIAM International Conference on Data Mining (SDM), 2009.

9. L. De Raedt, T. Guns, S. Nijssen. [*Constraint Programming for Itemset Mining*](#). In: Proceedings of the 14th ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (KDD), 2008. [5]
10. S. Nijssen. [*Bayes Optimal Classification for Decision Trees*](#). In: Machine Learning, Proceedings of the Twenty-Fifth International Conference (ICML), 2008.
11. B. Bringmann and S. Nijssen. [*What is Frequent in a Single Graph?*](#) In: Advances in Knowledge Discovery and Data Mining, 12th Pacific-Asia Conference (PAKDD), pages 858-863, 2008. [7]
12. S. Nijssen and L. De Raedt. *IQL: A Proposal for an Inductive Query Language*, extended version. In: Proceedings of the Fifth International Workshop on Knowledge Discovery in Inductive Databases (KDID), revised and selected papers, Lecture Notes in Computer Science, 2007. [4]
13. S. Nijssen and E. Fromont. [*Mining Optimal Decision Trees from Itemset Lattices*](#). In: Proceedings of the 13th ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (KDD), pages 530-539, 2007. [7]
14. B. Bringmann, A. Zimmermann, L. De Raedt and S. Nijssen. [*Don't be afraid of simpler patterns*](#). In: Proceedings of the 10th European Conference on Principles and Practice of Knowledge Discovery in Databases (PKDD), volume 4213 of Lecture Notes in Computer Science, pages 55-66, 2006. [28]
15. S. Nijssen and J.N. Kok. [*Multi-Class Correlated Pattern Mining*](#), extended version. In: Proceedings of the Fourth International Workshop on Knowledge Discovery in Inductive Databases (KDID), revised and selected papers, volume 3933 of Lecture Notes in Computer Science, pages 165-187, 2006. [8]
16. S. Nijssen and J.N. Kok. [*A quickstart in frequent structure mining can make a difference*](#). In: Proceedings of the 10th ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (KDD), pages 647-652, 2004. [153]
17. S. Nijssen and J.N. Kok. *Ideal refinement of datalog clauses using primary keys*. In: Proceedings of the 16th European Conference on Artificial Intelligence (ECAI), pages 520-524, 2004.
18. S. Nijssen and J.N. Kok. [*Efficient frequent query discovery in FARMER*](#). In: Proceedings of the 7th European Conference on Principles and Practice of Knowledge Discovery in Databases (PKDD), volume 2431 of Lecture Notes in Artificial Intelligence, pages 350-362, 2003. [21]
19. S. Nijssen and J.N. Kok. [*Faster association rules for multiple relations*](#). In: Proceedings of the Seventeenth International Joint Conference on Artificial Intelligence (IJCAI), pages 891-896, 2001. [50]

International workshops with refereed proceedings or unrefereed international conferences:

20. M. Verbeke, B. Berendt and S. Nijssen. *Data mining, interactive semantic structuring, and collaboration: A diversity-aware method for sense-making in search*. In: Living Web, 2009.
21. B. Bringmann, S. Nijssen and A. Zimmermann. [Pattern-based Classification: A Unifying Perspective](#). In: Proceedings of 'From Local Patterns to Global Models': Second ECML PKDD Workshop (LeGo), 2009.
22. H. Blockeel and S. Nijssen. [Induction of Node Label Controlled Graph Grammar Rules](#). In: Proceedings of the Sixth International Workshop on Mining and Learning with Graphs (MLG), 2008. [2]
23. J. Ramon and S. Nijssen. [General Graph Refinement with Polynomial Delay](#). In: Proceedings of the Fifth International Workshop on Mining and Learning with Graphs (MLG), 2007. [2]
24. B. Bringmann and S. Nijssen. [What is Frequent in a Single Graph?](#) In: Proceedings of the Fifth International Workshop on Mining and Learning with Graphs (MLG), 2007.
25. S. Nijssen and L. De Raedt. *IQL: A Proposal for an Inductive Query Language*. In: Proceedings of the Fifth International Workshop on Knowledge Discovery in Inductive Databases (KDID), 2006.
26. S. Nijssen. [Mining Interpretable Subgraphs](#). In: Proceedings of the Fourth International Workshop on Mining and Learning with Graphs (MLG), 2006.
27. S. Nijssen and J.N. Kok. [Frequent Subgraphs: Runtimes Don't Say Everything](#). In: Proceedings of the Fourth International Workshop on Mining and Learning with Graphs (MLG), 2006. [7]
28. S. Nijssen and J.N. Kok. *On Multi-Class Correlated Pattern Mining*. In: Proceedings of the Fourth International Workshop on Knowledge Discovery in Inductive Databases (KDID), 2005.
29. S. Nijssen and J.N. Kok. *The Gaston tool for frequent subgraph mining*. In: Proceedings of the International Workshop on Graph-Based Tools (Grabats), volume 127 of Electronic Notes in Theoretical Computer Science, pages 77-87, 2004. [15]
30. S. Nijssen and J.N. Kok. *Frequent graph mining and its application to molecular databases*. In: Proceedings of the IEEE International Conference on Systems, Man and Cybernetics (SMC), invited sessions, 2004. [19]

31. S. Nijssen and J.N. Kok. *Efficient discovery of frequent unordered trees*. In: Proceedings of the First International Workshop on Mining Graphs, Trees and Sequences (MGTS), 2003. [83]

National conferences with refereed proceedings:

32. T. Guns, S. Nijssen and L. De Raedt. *Constraint Programming for Correlated Itemset Mining* (abstract). In: Proceedings of the 21th Belgium/Netherlands Conference on Artificial Intelligence (BNAIC), 2009.
33. S. Nijssen and E. Fromont. *Apprentissage d'arbres de décision optimaux à partir de treillis d'itemsets*. In: Proceedings of the Conférence francophone sur l'apprentissage automatique, 2007.
34. S. Nijssen and E. Fromont. *Learning Optimal Decision Trees*. In: Proceedings of the Annual Machine Learning Conference of Belgium and The Netherlands (Benelearn), pages 53-60, 2007.
35. S. Nijssen and J.N. Kok. *On Multi-Class Correlated Pattern Mining* (abstract). In: Proceedings of the 18th Belgium/Netherlands Conference on Artificial Intelligence (BNAIC), 2006.
36. S. Nijssen and J.N. Kok. *Proper refinement of datalog clauses using primary keys*. In: Proceedings of the 15th Belgium/Netherlands Conference on Artificial Intelligence (BNAIC), 2003.
37. S. Nijssen and T. Bäck. *An analysis of the behavior of simplified evolutionary algorithms on trap functions* (abstract). In: Proceedings of the 14th Belgium/Netherlands Conference on Artificial Intelligence (BNAIC), 2002.
38. S. Nijssen and J.N. Kok. *Tree sets: Towards a set-oriented view on multi-relational data mining*. In: Proceedings of the 14th Belgium/Netherlands Conference on Artificial Intelligence (BNAIC), 2002.

Editorships:

39. S. Nijssen, L. De Raedt. *Proceedings of the International Workshop on Constraint-Based Mining and Learning*, 2007.
40. B. Goethals, S. Nijssen and M.J. Zaki. *Proceedings of the Open Source Data Mining Workshop*. ACM Press, 2005.
41. S. Nijssen, T. Meinl, G. Karypis. *Proceedings of the Third International Workshop on Mining Graphs, Trees and Sequences*. 2005.

Unrefereed journals:

42. B. Goethals, S. Nijssen and M.J. Zaki. *Open Source Data Mining: Workshop Report*. In: SIGKDD Explorations - Newsletter of the ACM Special Interest Group on Knowledge Discovery and Data Mining, 2006.

Technical reports and theses:

43. S. Nijssen, E. Fromont. *Mining optimal decision trees from itemset lattices*. Technical Report 476, KU Leuven, 2007.
44. S. Nijssen. *Mining Structured Data*. PhD Thesis. Leiden Institute of Advanced Computer Science, Universiteit Leiden, 2006.
45. S. Nijssen and J.N. Kok. *Efficient discovery of frequent unordered trees: Proofs*. Technical Report 1, Leiden Institute of Advanced Computer Science, Universiteit Leiden, 2003.
46. S. Nijssen. *Data Mining using Logic*. Master's Thesis. Leiden Institute of Advanced Computer Science, Universiteit Leiden, 2000.

Presentations without publications:

47. S. Nijssen. *Mining Grammars under Constraints*. Black Forest Workshops, Titisee, Germany, March 16, 2006.
48. S. Nijssen. *Graph Mining - An Overview*. Presentation at the Seminar on Metabolic Modeling, Helsinki, December 1, 2005.
49. S. Nijssen. *Efficiently Mining Structured Data & An Application to Chemistry*. Discovery of the week presentations, Leiden, November 8, 2005.
50. S. Nijssen. *Mining Structures*. Autumn days of the Institute for Programming research and Algorithmics (IPA), November 24, 2004.
51. S. Nijssen. *Frequent Structure Mining: Efficiency Issues*. Introduction at the Second International Workshop on Mining Graphs, Trees and Sequences (MGTS), September 24, 2004.
52. S. Nijssen. *A quickstart in frequent structure mining can make a difference*. At the Black Forest Workshop on Inductive Databases and Constraint-based Mining, Hinterzarten, Germany, March 11-13, 2004.

53. S. Nijssen. *Data Mining using Logic*. [On more efficient implementations of ILP algorithms](#). Invited talk at the Leuven-Freiburg Workshop on Machine Learning (LF-01), Oostkamp, Belgium, March 14-16, 2001.
54. S. Nijssen. *Data Mining using Logic*. At the Dagstuhl Workshop on Intelligent Data Analysis, Dagstuhl, 2000.