

Sebastian Wild

University of Waterloo
David R. Cheriton School of Computer Science
DC 2332, 200 University Ave West
Waterloo, ON N2L 3G1, Canada
wild@uwaterloo.ca

609 A Pinerow Crescent
Waterloo, ON N2T 2K6, Canada
+1 519 498 2067
sebawild@gmail.com
wild-inter.net/research

May 9, 2018

Education

- Dr. rer. nat.** Department of Computer Science, University of Kaiserslautern, 2016
(equiv. to Ph.D.) Dissertation Title: *Dual-Pivot Quicksort and Beyond: Analysis of Multiway Partitioning and Its Practical Potential*
- M.Sc.** Department of Computer Science, University of Kaiserslautern, 2012
- B.Sc.** Department of Computer Science, University of Kaiserslautern, 2010

Publications

Preprints and details at wild-inter.net.

Peer-Reviewed Journal Articles

- [J5] *Building Fences Straight and High: An Optimal Algorithm for Finding the Maximum Length You Can Cut k Times from Given Sticks*
Raphael Reitzig and Sebastian Wild
Algorithmica online early access, (2017)
- [J4] *Analysis of Pivot Sampling in Dual-Pivot Quicksort*
Markus E. Nebel, Sebastian Wild, and Conrado Martínez
Algorithmica 75, 4, pp 632–683, (2016)
- [J3] *Analysis of Quickselect under Yaroslavskiy’s Dual-Pivoting Algorithm*
Sebastian Wild, Markus E. Nebel, and Hosam Mahmoud
Algorithmica 74, 1, pp 485–506, (2016)
- [J2] *Average Case and Distributional Analysis of Dual Pivot Quicksort*
Sebastian Wild, Markus E. Nebel, and Ralph Neininger
ACM Transactions on Algorithms 11, 3, article 22, (2015)
- [J1] *JAguc – A Software Package for Environmental Diversity Analyses*
Markus E. Nebel, Sebastian Wild, Michael Holzhauser, Lars Hüttenberger,
Raphael Reitzig, Matthias Sperber, and Thorsten Stoeck
Journal of Bioinformatics and Computational Biology 9, 6, pp 749–773, (2011)

Peer-Reviewed Conference Papers

- [c6] *Average Cost of QuickXsort with Pivot Sampling*
Sebastian Wild
International Conference on Probabilistic, Combinatorial and Asymptotic Methods for the Analysis of Algorithms (AofA) 2018
- [c5] *Quicksort Is Optimal for Many Equal Keys*
Sebastian Wild
Meeting on Analytic Algorithmics and Combinatorics (ANALCO) 2018
Nebel M., Wagner S. (eds.): ANALCO 2018, SIAM, pp 8–22
- [c4] *Analysis of Branch Misses in Quicksort*
Conrado Martínez, Markus E. Nebel, and Sebastian Wild
Meeting on Analytic Algorithmics and Combinatorics (ANALCO) 2015
Sedgewick R., Ward M. D. (eds.): ANALCO 2015, SIAM, pp 114–128
- [c3] *Pivot Sampling in Dual-Pivot Quicksort* · Markus E. Nebel and Sebastian Wild
International Conference on Probabilistic, Combinatorial and Asymptotic Methods for the Analysis of Algorithms (AofA) 2014
Bousquet-Mélou M., Soria M. (eds.): DMTCs-HAL Proceedings Series, vol. BA, pp 325–338
- [c2] *Engineering Java 7's Dual Pivot Quicksort Using MALIJAN*
Sebastian Wild, Markus E. Nebel, Raphael Reitzig, and Ulrich Laube
Meeting on Algorithm Engineering and Experiments (ALENEX) 2013
Sanders P., Zeh N. (eds.): ALENEX 2013, SIAM, pp 55–69
- [c1] *Average Case Analysis of Java 7's Dual Pivot Quicksort*
Sebastian Wild and Markus E. Nebel
European Symposium on Algorithms (ESA) 2012
Epstein L. and Ferragina P. (eds.): ESA 2012, LNCS 7501, Springer, pp 825–836.

Theses

- [T3] *Dual-Pivot Quicksort and Beyond: Analysis of Multiway Partitioning and Its Practical Potential*
Dissertation · University of Kaiserslautern · **2016**
- [T2] *Java 7's Dual Pivot Quicksort* · *Master's Thesis* · University of Kaiserslautern · **2012**
- [T1] *An Earley-style Parser for Solving the RNA-RNA Interaction Problem*
Bachelor's Thesis · University of Kaiserslautern · **2010**

Manuscripts in Preparation & Working Papers

- [P3] *Median-of-k Jumplists*
Markus E. Nebel, Elisabeth Neumann, and Sebastian Wild
- [P2] *A Practical and Worst-Case Efficient Algorithm for Divisor Methods of Apportionment*
Raphael Reitzig and Sebastian Wild

- [P1] *Reputation-Based Cooperation in Local Interaction: Evolution of Indirect Reciprocity with Minimal Memory* · Jano Costard, Sándor P. Fekete, Hella-Franziska Hoffmann, Alexander Koch, Dominik Leipold, Jonas Radbruch, Maximilian Schlund, Jann Spiess, Paul Stursberg, and Sebastian Wild

Other Publications

- [O2] *Quicksort mit zwei Pivots und mehr* · Sebastian Wild
Sammelband Ausgezeichnete Informatikdissertationen, Lecture Notes in Informatics
- [O1] *Why is Dual-Pivot Quicksort Fast?* · Sebastian Wild
extended abstract for *Theorietage 2015* (GI Workshop on Algorithms)

Honors and Awards

- 2017 **GI Dissertationspreis 2016** · [T3]
Prize for best dissertation in computer science 2016 in Germany, Austria and Switzerland, jointly awarded by GI, SI and OCG
- 2013 *Preis des Freundeskreises der TU Kaiserslautern* · [T2]
Best Master's Thesis of the Department 2012
- 2012 **Best Paper Award** at the *European Symposium on Algorithms 2012* · [C1]
- 2009–2012 **Scholarship** of German National Academic Foundation

Talks

Slides available on slideshare.net.

Invited Talks

- 2017 “Dual-Pivot Quicksort and Beyond”
Annual SPP Meeting of the DFG Schwerpunktprogramm Algorithms for Big Data
19 Oct. 2017
- 2016 “Dual-Pivot Quicksort and Beyond”
Research Seminar · **Hasso-Plattner-Institut Potsdam** · 6 Sep. 2016

Conference & Workshop Presentations

- 2018 “Quicksort Is Optimal for Many Equal Keys” · [C5]
ANALCO Conference · 8 Jan. 2018
- 2017 “Median-of-k Quicksort is optimal for many equal keys”
AofA Meeting · 19 June 2017
- 2016 “Quicksort with Equal Keys”
Dagstuhl Seminar 16 101 (Data Structures and Advanced Models of Computation on Big Data)
7 March 2016

- 2015 “Why is Dual-Pivot Quicksort Fast?” · [O1]
GI Theorietage (Workshop) · 29 Sept. 2015
- 2015 “Analysis of Branch Misses in Quicksort” · [c4]
ANALCO Conference · 4 Jan. 2015
- 2014 “Pivot Sampling in Dual-Pivot Quicksort” · [c3]
AofA Conference · 16 June 2014
- 2014 “Dual-Pivot Quicksort – Asymmetries in Sorting”
Dagstuhl Seminar 14 091 (Data Structures and Advanced Models of Computation on Big Data)
25 March 2014
- 2013 “Engineering Java 7’s Dual Pivot Quicksort Using MALIJAN” · [c2]
ALENEX Conference · 7 Jan. 2013
- 2013 “Quickselect Under Yaroslavskiy’s Dual-Pivoting Algorithm”
AofA Meeting · 28 May 2013
- 2013 “Java 7’s Dual Pivot Quicksort”
FORMAT Workshop · 9 April 2013
- 2012 “Average Case Analysis of Java 7’s Dual Pivot Quicksort” · [c1]
ESA Conference · 11 Sept. 2012

Departmental Talks

- 2017 “Dual-Pivot Quicksort and Beyond” · University of Waterloo · 1 November 2017
- 2015 “Dual-Pivot Quicksort” · TU Kaiserslautern · 24 March 2015

Teaching Experience

Instructor of Record

Sole responsibility for course (give lectures, design tutorials, take/grade exams).

- 2018 *Data Structures and Data Management (CS240)* · undergraduate level
- 2017 *Advanced Algorithmics: Strategies for Hard Problems* · advanced graduate level
- 2017 *Competitive Programming* · undergraduate level
- 2016/17 *Algorithms and Data Structures* · introductory undergraduate level, non-CS majors

Teaching Assistance

Responsible for tutorials (recruit student tutors, design exercise and exam problems, give exercise classes).

- 2015/16 *Introduction to the Mathematical Analysis of Algorithms*
2014 (original title: *Algorithm Engineering*) · advanced graduate level
- 2013/14 *Computational Biology I: Alignments and Sequencing* · advanced undergraduate level
- 2015/16 *Computational Biology II: Signals, Phylogenetics and Structure Prediction*
2014 graduate level
2012/13

2014/15 *Design and Analysis of Algorithms* · intermediate undergraduate level

2013 *Combinatorial Algorithms: String Search, Compression, Networks,
and Random Generation* · advanced undergraduate level

2013/14 *Proof Techniques* · short tutorial, introductory undergraduate level
2012/13

Tutor Positions

Student Tutor (grade students' solutions, give exercise class).

Student tutor for lectures *Formal Foundations of Programming* · *Software Development I: Introduction to Programming* · *Software Development III: Concurrency and Parallel Programming*

Supervised Theses

Bachelor's Theses

2016 Marvin Peterson · Title: *Experimental View on Cache Behavior of Search Trees*

2015 Elisabeth Neumann · Title: *Randomized Jumplists With Several Jump Pointers*

Service

To Profession

Program committees ANALCO 2018, ANALCO 2019

Review (journals) *ACM Journal of Experimental Algorithmics* · *Bulletin of Mathematical Biology* · *Combinatorics, Probability & Computing* · *IEEE Transactions on Computers* · *Information Processing Letters* · *International Journal of Computer Mathematics* · *Software: Practice and Experience* · *The Computer Journal*

Review (conferences) SEA 2018 · WADS 2017 · SEA 2017 · ANALCO 2017 · AofA 2016 · SWAT 2014 · ANALCO 2014 · ESA 2013

To Department

Representative of Scientific Employees in **Examination Board** · 2012 – 2017

Additional Training

- 2017** *Teaching Development Seminar Series for Postdocs*
Centre for Teaching Excellence, University of Waterloo · 6–10 Nov. 2017
- 2016** *Lehre 2.0 – Lehren mit dem Internet*
Workshop on including social media in teaching · 13 June 2016
- 2015** *Meetings und Projektbesprechungen effizient und zielgerichtet leiten*
Workshop on how to effectively chair a group meeting · 9–10 April 2015

Nonacademic Work

Java Developer *marketmaker Software AG* (since 2012 part of *vwd Vereinigte Wirtschaftsdienste GmbH*)
Jul 2010 – Apr 2012 in term breaks
Developed server components for a web-based financial market-data solution.

Languages

German native tongue

English fluently written and spoken

French elementary