Sebastian Wild

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Education

Dr. rer. nat.
(equiv. to **Ph.D.**)   Department of Computer Science, University of Kaiserslautern, 2016

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]   *JAᴳᴜᴄ – 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

[c5] *Quicksort Is Optimal for Many Equal Keys*
Sebastian Wild
Meeting on Analytic Algorithmics and Combinatorics (ANALCO) 2018

[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 Simple and Fast Linear-Time Algorithm for Proportional 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

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

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   *Meeting Analytic Algorithmics and Combinatorics* (ANALCO) 2018

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)   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*
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