

# Sebastian Schlag

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<b>PROFESSIONAL EXPERIENCE</b>	<b>Apple Inc.</b> , Cupertino, USA	Apr. 2020 – present
	▪ Algorithm Engineer, Apple Maps routing team	
	<b>Karlsruhe Institute of Technology</b> , Karlsruhe, Germany	Oct. 2013 – Mar. 2020
	▪ (Post)Doctoral Researcher, Institute of Theoretical Informatics – Algorithmics	
	<b>SAP SE</b> , Walldorf, Germany	
	▪ Thesis Student	Dec. 2012 – Jul. 2013
▪ Working Student	Oct. 2010 – Jun. 2012	
▪ Cooperative Studies	Sep. 2007 – Sep. 2010	
	<b>EBF-Energiecontrolling GmbH</b> , Heppenheim, Germany	Aug. 2004
	▪ Internship	
	<b>Alstom Power Generation AG</b> , Mannheim, Germany	Sep. 2003
	▪ Internship	
<b>EDUCATION</b>	<b>Karlsruhe Institute of Technology</b> , Karlsruhe, Germany	
	▪ Dr. rer. nat. in Computer Science / Algorithm Engineering	Oct. 2013 – Dec. 2019
	• Advisor: Prof. Dr. Peter Sanders	
	• Grade: summa cum laude (with distinction)	
▪ M.Sc. in Computer Science	Oct. 2010 – Jul. 2013	
• GPA: 1.1/1.0 (with distinction)		
	<b>Baden-Württemberg Cooperative State University</b> , Karlsruhe, Germany	
	▪ B.Sc. in Applied Computer Science	Sep. 2007 – Sep. 2010
	• GPA: 1.2/1.0	
<b>AWARDS</b>	<b>Software Development Award</b> , DFG SPP 1736: Algorithms for BIG DATA	Sep. 2018
	▪ For the prominent role in the development of KaHyPar	
<b>OPEN SOURCE SOFTWARE</b>	<b>KaHyPar - Karlsruhe Hypergraph Partitioning</b> , <a href="http://www.kahypar.org/">http://www.kahypar.org/</a>	
	▪ A multilevel hypergraph partitioning framework providing partitioning algorithms that compute solutions of very high quality.	
<b>PUBLICATIONS</b>	<b>Conference Articles</b>	
	[1] M. Popp, S. Schlag, C. Schulz, D. Seemaier, “Multilevel Acyclic Hypergraph Partitioning”, in <i>SIAM Symposium on Algorithm Engineering and Experiments (ALENEX)</i> , Jan. 2021.	
	[2] L. Gottesbüren, T. Heuer, P. Sanders, S. Schlag, “Scalable Shared-Memory Hypergraph Partitioning”, in <i>SIAM Symposium on Algorithm Engineering and Experiments (ALENEX)</i> , Jan. 2021.	
	[3] L. Gottesbüren, M. Hamann, S. Schlag, D. Wagner, “Advanced Flow-Based Multilevel Hypergraph Partitioning”, in <i>18<sup>th</sup> International Symposium on Experimental Algorithms (SEA)</i> , Jun. 2020.	
	[4] I. Baar, L. Hübner, P. Oettig, A. Zapletal, S. Schlag, A. Stamatakis, and B. Morel, “Data Distribution for Phylogenetic Inference with Site Repeats via Judicious Hypergraph Partitioning”, in <i>IEEE International Parallel and Distributed Processing Symposium Workshops</i> , May. 2019.	
	[5] S. Schlag, M. Schmitt, and C. Schulz, “Faster Support Vector Machines”, in <i>Proceedings of the 21<sup>st</sup> Workshop on Algorithm Engineering and Experiments (ALENEX)</i> , Jan. 2019.	
	[6] S. Schlag, C. Schulz, D. Seemaier, and D. Strash, “Scalable Edge Partitioning”, in <i>Proceedings of the 21<sup>st</sup> Workshop on Algorithm Engineering and Experiments (ALENEX)</i> , Jan. 2019.	
	[7] R. Andre, S. Schlag, and C. Schulz, “Memetic Multilevel Hypergraph Partitioning”, in <i>Proceedings of the Genetic and Evolutionary Computation Conference (GECCO)</i> , Jul. 2018.	

- [8] T. Heuer, P. Sanders, and S. Schlag, “Network Flow-Based Refinement for Multilevel Hypergraph Partitioning”, in *17<sup>th</sup> International Symposium on Experimental Algorithms (SEA)*, Jun. 2018.
- [9] T. Heuer, and S. Schlag, “Improving Coarsening Schemes for Hypergraph Partitioning by Exploiting Community Structure”, in *16<sup>th</sup> International Symposium on Experimental Algorithms (SEA)*, Jun. 2017.
- [10] Y. Akhremtsev, T. Heuer, P. Sanders, and S. Schlag, “Engineering a direct k-way Hypergraph Partitioning Algorithm”, in *Proceedings of the 19<sup>th</sup> Workshop on Algorithm Engineering and Experiments (ALENEX)*, Jan. 2017.
- [11] T. Bingmann, M. Axtmann, E. Jöbstl, S. Lamm, H. Nguyen, A. Noe, S. Schlag, M. Stumpp, T. Sturm, and P. Sanders, “Thrill: High-Performance Algorithmic Distributed Batch Data Processing with C++”, in *Proceedings of the 2016 IEEE International Conference on Big Data*, Dec. 2016.
- [12] S. Schlag, V. Henne, T. Heuer, H. Meyerhenke, P. Sanders, and C. Schulz, “k-way Hypergraph Partitioning via n-Level Recursive Bisection”, in *Proceedings of the 18<sup>th</sup> Workshop on Algorithm Engineering and Experiments (ALENEX)*, Jan. 2016.
- [13] P. Sanders, S. Schlag, and I. Müller, “Communication Efficient Algorithms for Fundamental Big Data Problems”, in *Proceedings of the 2013 IEEE International Conference on Big Data*, Oct. 2013.

#### **Journal Articles**

- [14] T. Heuer, P. Sanders, and S. Schlag, “Network Flow-Based Refinement for Multilevel Hypergraph Partitioning”, in *ACM Journal of Experimental Algorithmics (JEA)*, Special issue for selected papers from SEA 2018, Dec. 2019.

#### **Dissertation and Theses**

- [15] S. Schlag, “High-Quality Hypergraph Partitioning”, *PhD thesis*, Karlsruhe Institute of Technology, Feb. 2020.
- [16] S. Schlag, “Distributed Duplicate Removal”, *Master thesis*, Karlsruhe Institute of Technology, 2013.
- [17] S. Schlag, “Transportation Management in the Cloud – A Prototype for Tendering-Scenarios”, *Bachelor thesis*, Baden-Württemberg Cooperative State University, 2010.

#### **Workshop Papers and Posters without Proceedings**

- [18] J. Langguth, S. Schlag, C. Schulz, “Load-Balanced Bottleneck Objectives in Process Mapping”, in *9<sup>th</sup> SIAM Workshop on Combinatorial Scientific Computing*, Feb. 2020.
- [19] S. Schlag, “High-Quality (Hyper-)Graph Partitioning”, in *Scientific Review: Research Field Key Technologies – Information*, Dec. 2017.

#### **ACADEMIC SERVICE**

##### **Reviewer**

- Conferences: ESA’16, HiPC’16, ESA’18, IPDPS’18
- Journals: Cluster Computing, Computers & Operations Research, Systems Architecture (JSA), Transactions on Parallel and Distributed Systems (TPDS)
- Book Chapters: Algorithm Engineering: Selected Results and Surveys