Sebastian Schlag

Bay Area, United States
info@sebastianschlag.de • http://www.sebastianschlag.de

PROFESSIONAL EXPERIENCE	**Apple Inc.**, Cupertino, United States	Jul. 2021 – present
	▪ Algorithm Engineer, Apple Maps Navigation	

Apple Technology Services B.V. & Co. KG, München, Germany   Apr. 2020 – Jul. 2021
▪ Algorithm Engineer, Apple Maps Navigation

Karlsruhe Institute of Technology, Karlsruhe, Germany   Oct. 2013 – Mar. 2020
▪ (Post)Doctoral Researcher, Institute of Theoretical Informatics – Algorithmics

SAP SE, Walldorf, Germany
▪ Thesis Student   Dec. 2012 – Jul. 2013
▪ Working Student   Oct. 2010 – Jun. 2012
▪ Cooperative Studies   Sep. 2007 – Sep. 2010

EDUCATION

Karlsruhe Institute of Technology, Karlsruhe, Germany
▪ Dr. rer. nat. in Computer Science / Algorithm Engineering   Oct. 2013 – Dec. 2019
  • Advisor: Prof. Dr. Peter Sanders
  • Grade: Summa cum laude
▪ M.Sc. in Computer Science   Oct. 2010 – Jul. 2013
  • GPA: 1.1/1.0 (with distinction)

Baden-Württemberg Cooperative State University, Karlsruhe, Germany
▪ B.Sc. in Applied Computer Science   Sep. 2007 – Sep. 2010
  • GPA: 1.2/1.0

AWARDS

Software Development Award, DFG SPP 1736: Algorithms for BIG DATA   Sep. 2018
▪ For the prominent role in the development of KaHyPar

OPEN SOURCE SOFTWARE

KaHyPar - Karlsruhe Hypergraph Partitioning, http://www.kahypar.org/
▪ A multi-level hypergraph partitioning framework providing partitioning algorithms that compute solutions of very high quality.

PUBLICATIONS

Conference Articles

[1] L. Gottesbüren, T. Heuer, P. Sanders, S. Schlag "Shared-Memory n-level Hypergraph Partitioning", in *SIAM Symposium on Algorithm Engineering and Experiments (ALENEX)*, Jan. 2022.

[2] T. Heuer, N. Mass, S. Schlag, "Multilevel Hypergraph Partitioning with Vertex Weights Revisited", in *19th International Symposium on Experimental Algorithms (SEA)*, Jun. 2021.

[3] M. Popp, S. Schlag, C. Schulz, D. Seemaier, "Multilevel Acyclic Hypergraph Partitioning", in *SIAM Symposium on Algorithm Engineering and Experiments (ALENEX)*, Jan. 2021.

[4] L. Gottesbüren, T. Heuer, P. Sanders, S. Schlag, "Scalable Shared-Memory Hypergraph Partitioning", in *SIAM Symposium on Algorithm Engineering and Experiments (ALENEX)*, Jan. 2021.

[5] L. Gottesbüren, M. Hamann, S. Schlag, D. Wagner, "Advanced Flow-Based Multilevel Hypergraph Partitioning", in *18th International Symposium on Experimental Algorithms (SEA)*, Jun. 2020.

[6] I. Baar, L. Hübner, P. Oettig, A. Zapletal, S. Schlag, A. Stamatakis, B. Morel, "Data Distribution for Phylogenetic Inference with Site Repeats via Judicious Hypergraph Partitioning", in *IEEE International Parallel and Distributed Processing Symposium Workshops*, May. 2019.

[7] S. Schlag, M. Schmitt, C. Schulz, "Faster Support Vector Machines", in *Proceedings of the 21st Workshop on Algorithm Engineering and Experiments (ALENEX)*, Jan. 2019.

[8] S. Schlag, C. Schulz, D. Seemaier, D. Strash, "Scalable Edge Partitioning", in *Proceedings of the 21st Workshop on Algorithm Engineering and Experiments (ALENEX)*, Jan. 2019.

[9] R. Andre, S. Schlag, C. Schulz, "Memetic Multilevel Hypergraph Partitioning", in *Proceedings of the Genetic and Evolutionary Computation Conference (GECCO)*, Jul. 2018.

[10] T. Heuer, P. Sanders, S. Schlag, "Network Flow-Based Refinement for Multilevel Hypergraph Partitioning", in *17th International Symposium on Experimental Algorithms (SEA)*, Jun. 2018.

[11] T. Heuer, S. Schlag, "Improving Coarsening Schemes for Hypergraph Partitioning by Exploiting Community Structure", in *16th International Symposium on Experimental Algorithms (SEA)*, Jun. 2017.

[12] Y. Akhremtsev, T. Heuer, P. Sanders, S. Schlag, "Engineering a direct k-way Hypergraph Partitioning Algorithm", in *Proceedings of the 19th Workshop on Algorithm Engineering and Experiments (ALENEX)*, Jan. 2017.

[13] T. Bingmann, M. Axtmann, E. Jöbstl, S. Lamm, H. Nguyen, A. Noe, S. Schlag, M. Stumpp, T. Sturm, 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.

[14] S. Schlag, V. Henne, T. Heuer, H. Meyerhenke, P. Sanders, C. Schulz, "k-way Hypergraph Partitioning via n-Level Recursive Bisection", in *Proceedings of the 18th Workshop on Algorithm Engineering and Experiments (ALENEX)*, Jan. 2016.

[15] P. Sanders, S. Schlag, 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

[16] L. Gottesbüren, T. Heuer, N. Maas, P. Sanders, S. Schlag, "Scalable High-Quality Hypergraph Partitioning", in *ACM Transactions on Algorithms*, Sep. 2023.

[17] Ü. V. Çatalyürek, K. D. Devine, M. Fonseca Faraj, L. Gottesbüren, T. Heuer, H. Meyerhenke, P. Sanders, S. Schlag, C. Schulz, D. Seemaier, D. Wagner, "More Recent Advances in (Hyper)Graph Partitioning", in *ACM Computing Surveys*, Nov. 2022.

[18] S. Schlag, T. Heuer, L. Gottesbüren, Y. Akhremtsev, C. Schulz, P. Sanders, "High-Quality Hypergraph Partitioning", in *ACM Journal of Experimental Algorithmics (JEA)*, Apr. 2022.

[19] S. Schlag, M. Schmidt, C. Schulz, "Faster Support Vector Machines", in *ACM Journal of Experimental Algorithmics (JEA)*, Oct. 2021.

[20] T. Heuer, P. Sanders, S. Schlag, "Network Flow-Based Refinement for Multilevel Hypergraph Partitioning", in *ACM Journal of Experimental Algorithmics (JEA)*, Dec. 2019.

Dissertation and Theses

[21] S. Schlag, "High-Quality Hypergraph Partitioning", *PhD thesis*, Karlsruhe Institute of Technology, Feb. 2020.

[22] S. Schlag, "Distributed Duplicate Removal", *Master thesis*, Karlsruhe Institute of Technology, 2013.

[23] 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

[24] J. Langguth, S. Schlag, C. Schulz, "Load-Balanced Bottleneck Objectives in Process Mapping", in *9th SIAM Workshop on Combinatorial Scientific Computing*, Feb. 2020.

[25] S. Schlag, "High-Quality (Hyper-)Graph Partitioning", in *Scientific Review: Research Field Key Technologies – Information*, Dec. 2017.

INVITE-ONLY WORKSHOPS

Dagstuhl Seminar (No. 23331), Aug. 2023
- Recent Trends in Graph Decomposition

ACADEMIC SERVICE

Reviewer
- Conferences: ESA'16, HiPC'16, ESA'18, IPDPS'18
- Journals: ACM Journal of Experimental Algorithmics, IEEE Transactions on Knowledge and Data Engineering, IEEE Transactions on Parallel and Distributed Systems, IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems, Information Sciences, Systems Architecture, Cluster Computing, Computers & Operations Research, Computer Science Review
- Book Chapters: Algorithm Engineering: Selected Results and Surveys

Program Committee
- Conferences: ALENEX'22, SEA'22