

Tobias Ziegler

Curriculum Vitae

Hochschulstr. 10
64289 Darmstadt

✉ tobias.ziegler@cs.tu-darmstadt.de

Education

- 03/2018 – Present **Ph.D. in Computer Science, TU Darmstadt.**
- Focus: Scalable Data Management in the Presence of High-Speed Networks
- 02/2015 – 02/2018 **M.Sc. in Business Informatics (GPA: 1.5), University of Mannheim.**
- Specialization track: System Design and Development
- 10/2010 – 09/2013 **B.Sc. in Business Informatics (GPA: 1.4 / ETCS: A), Baden-Wuerttemberg Cooperative State University, Mannheim.**
- Industry partner: IBM

Selected Publications

- 2020 DB4ML: An In-Memory Database Kernel with ML Support (SIGMOD) [ACCEPTED].
- 2019 Designing Distributed Tree-based Index Structures for Fast RDMA-capable Networks (SIGMOD) [PDF].
- 2018 DPI: The Data Processing Interface for Modern Networks (CIDR) [PDF] [Code] .
- 2018 Boosting Scalable Data Analytics with Modern Programmable Networks (DaMoN) [PDF].
- 2017 Rethinking Distributed Query Execution on High-Speed Networks (IEEE) [PDF].
- 2014 Spotgres - Parallel Data Analytics on Spot Instances (IEEE ICDEW) [PDF].
- All publications can be found at [DBLP].

Selected Projects

- I-Store A novel distributed execution engine for analytical workloads over RDMA (Infini-Band). I-Store enables fine-grained collaborative query processing by remote work stealing to mitigate skew.
- DB4ML An in-memory transactional database kernel to efficiently implement ML algorithms. Offering new programming model and an execution engine to support iterative execution of transactions. Furthermore, it provides a MVCC-based storage manager, to realize common isolation levels for synchronizing updates of parallel ML algorithms.
- In-Network Processing Proof of concept in-network processing prototype which offloads parts of distributed Map/Reduce programs to networking devices, i.e., programmable smartNICs from Netronome.
- DPI An interface providing a set of abstractions flexible enough to exploit features of modern networks (e.g., RDMA or in-network processing) suitable for data processing.

Work Experience

- 06/2019 – 09/2019 **Research Exchange in Microsoft Research,**
MSR, REDMOND USA,
Focus: Database and Load Balancing.
- 08/2017 – 02/2018 **Research Assistant in the Data Management Group,**
TU DARMSTADT, DARMSTADT,
Focus: Database research.
 - Skew resilient execution engine over RDMA
- 04/2017 – 08/2017 **Research Assistant in the Brown Database Group,**
BROWN UNIVERSITY, PROVIDENCE,
Focus: Database research.
 - Implementation and development of distributed query engines over RDMA (C++)
- 08/2016 – 02/2017 **Working Student at HANA Core Development,**
SAP SE, WALLDORF,
Focus: Database development.
 - HANA development (C++)
- 03/2016 – 08/2016 **Visiting Research Fellow in the Brown Database Group,**
BROWN UNIVERSITY, PROVIDENCE,
Focus: Database development.
 - Implementation of distributed index structures over RDMA (C++)
- 03/2015 – 01/2016 **Research Assistant at the group for Large Scale Data Management,**
BADEN-WUERTTEMBERG COOPERATIVE STATE UNIVERSITY, MANNHEIM,
Focus: Data Analytics on RDMA.
 - Implementation of a RDMA based distributed shared memory library (C++)
 - Implementation of algorithms for data partitioning in a RDMA cluster
- 01/2015 – 02/2016 **Working student as a Software Developer,**
IDS-SYSTEM GMBH,
Focus: .NET development.
 - C#
 - Telerik and WPF
- 05/2014 – 12/2014 **Full time Database and ETL Consultant,**
IDS-SYSTEM GMBH,
Focus: Big Data.
- 09/2013 – 04/2014 **Working student at SAP Hosting,**
IBM SAP INTERNATIONAL COMPETENCE CENTER,
Focus: SAP Virtualization.
- 10/2010 – 09/2013 **Internships during the cooperative study program,**
IBM GERMANY,
Six internships during the study period - each three months.

Honors

- 08/2015 – 08/2017 **Germany Scholarship (Deutschlandstipendium),**
Mannheim University & INTER GmbH, awarded to support highly talented students.