

Lawrence Benson

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Summary

I am a CS PhD student with a strong focus on data management with modern hardware. I am passionate about efficiently leveraging hardware in novel system designs. Currently, I am working on persistent memory and next-gen stream processing systems, with multiple published papers at top venues (VLDB, SIGMOD). I assist with lectures and supervise various student projects, of which two have been published.

Education

Nov 2019 - PhD Student Computer Science - Hasso Plattner Institute, Potsdam, Germany
present Focus on data management with modern hardware. Supervisor: Prof. Dr. Tilmann Rabl

Apr 2017 - M.Sc. IT-Systems Engineering - Hasso Plattner Institute, Potsdam, Germany

Nov 2019 Final GPA: 3.9; Focus on scalable systems, databases, and stream processing

Oct 2013 - B.Sc. IT-Systems Engineering - Hasso Plattner Institute, Potsdam, Germany

Jul 2016 Final GPA: 3.7; Focus on data engineering, algorithms, and Internet technologies

Publications (selection, full list at <https://lawben.com>)

CIDR 2022 **Darwin: Scale-In Stream Processing**
Lawrence Benson, Tilmann Rabl

VLDB 2021 **Viper: An Efficient Hybrid PMem-DRAM Key-Value Store**
Lawrence Benson, Hendrik Makait, Tilmann Rabl

SIGMOD 2021 **Maximizing Persistent Memory Bandwidth Utilization for OLAP Workloads**
Björn Daase, Lars Jonas Bollmeier, Lawrence Benson, Tilmann Rabl

EDBT 2020 **Disco: Efficient Distributed Window Aggregation**
Lawrence Benson, Philipp M. Grulich, Steffen Zeuch, Volker Markl, Tilmann Rabl

Work Experience

Nov 2019 - Hasso Plattner Institute, Potsdam, Germany
present Research Associate and group's head teaching assistant.

Jul 2018 - Google Inc., New York, NY, USA

Oct 2018 Software Engineering Intern

Designed and implemented disaster recovery for petabyte-scale revenue-critical distributed streaming service infrastructure. Also introduced recovery end-to-end tests. Recovery based on technologies such as MapReduce and Spanner (strongly consistent distributed database).

Technology: C++

Oct 2017 - Hasso Plattner Institute, Potsdam, Germany

Jul 2018 Student Research Assistant

Developing core functionality of university's new columnar in-memory research database. Including: Network interface, NULL value support, and SQL-interface.

Technology: C++ | **Github:** <https://github.com/hyrise/hyrise>

Oct 2016 - Google Inc., Mountain View, CA, USA

Jan 2017 Software Engineering Intern

Extended a server fuzz-testing framework to use semantic information from traffic log invariants to increase the overall efficiency in finding bugs. Added duplicate bug detection to ensure that subsequent failures would be associated with a master bug.

Technology: C++, Python

Teaching & Supervision (selection, full list at <https://lawben.com>)

Theses **R-Tree Data Placement on Persistent Memory** (Nils Thamm, Master Thesis, 2021)

Lectures **Big Data Systems** (2019, 2021), **Database Systems I** (2020)

Projects **Modern Storage Technologies** (2021), **Open Source Data Processing** (2020)

Data Processing on Modern Hardware (2020)