Ankur Sharma

Personal Data

Place and Date of Birth:	Allahabad, India | 25 March 1991
Address:	Ludwigstr. 17, 66386 Sankt Ingbert, Saarland, Germany
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Education

Apr 2016 - June 2020	Ph.D. in Computer Science, Advisor: Prof. Dr. Jens Dittrich
Thesis	"Snapshot: Friend or Foe of Data Management – On Optimizing Transaction Processing in Database and Blockchain Systems"
Grade	Summa Cum Laude (Excellent)
Oct 2014 - Apr 2016	Ph.D. (Preparatory Phase) Graduate School of Computer Science, Saarland University
Grade	1.8 (Scale: 1.0 - 5.0, Best GPA: 1.0)
Aug 2010 - Sep 2014	Bachelor of Technology in Computer Science National Institute of Technology, Sikkim
Grade	9.15 (Scale: 1.0 - 10.0, Best GPA: 10.0)

Work Experience

June 2021 - Current — Software Development Engineer (Redshift-Spectrum)
at Amazon Web Services, Berlin, Germany

Responsible for driving the performance optimization of Spectrum's external format scanners for the next-gen Serverless architecture. Also contributing to the overall migration of Spectrum's architecture on Redshift Serverless and operational readiness to ensure smooth transition from provisioned clusters for our customers.

Mar 2020 - May 2021 — Technical Lead | Project Leader
at chainifyDB, incubation project funded by BMBF

Responsible for the technical development, leading back-end developers, and managing the business activities to bring chainifyDB to market by Q3 2021.

Apr 2016 - Feb 2020 — Doctoral Research Assistant
at Big Data Analytics Group, Saarland University

Worked on the development and optimization of main-memory OLTP and permissioned blockchain systems under the umbrella of several projects for my Ph.D.

Projects

chainifyDB — Published at CIDR 2021

Designed and developed the distributed architecture of chainifyDB that allows us to transform a set of existing databases into a blockchain system ensuring zero down-time, e2e encryption, and only 17% overhead on the underlying database system.

`Tech-Stack`: Go, Docker, Kubernetes, gRPC, protobuf, Kafka, SQL, Git, CI/CD, Jira, Test automation, Transaction processing, Public-key infrastructure, Permissioned-blockchain systems

Fabric++ — Published at SIGMOD 2019

Integrated MVCC with early aborts and transaction-reordering into Hyperledger Fabric to improve the transactional throughput by up to 12x for contended workloads.

`Tech-Stack`: Go, C++, Bash, NodeJS, Docker, gRPC, protobuf, Kafka, Git, Transaction processing, Permissioned-blockchain systems

AnkerDB — Published at SIGMOD 2018 and pVLDB 2016

Extended Linux-kernel to support virtual memory snapshotting. Developed a prototype main-memory DBMS to exploit snapshotting and reduce the scanning-overhead in MVCC due to random accesses, bringing down the latency by 4x.

`Tech-Stack`: C, C++, Column-stores, MVCC, Kernel development, Git, Database-internals, Transaction processing, Main-memory systems, Hybrid OLTP/OLAP systems

Patents and Grants

Patent	„Secure and Transparent Cross-organization Data Sharing via Permissioned Blockchain Technology." (Filed provisionally by the Saarland University)
Grant	EUR 840,000 for 18 months under the „StartUpSecure" program of the BMBF for commercializing the chainifyDB project.

Scholarships and Awards

Oct 2014 - Mar 2016	Graduate School Fellowship, Saarland University
Sep 2014	Institute's Gold Medal, NIT Sikkim (Best grade across all departments)
Sep 2014	Computer Science Gold Medal, NIT Sikkim (Best grade in CS department)
May - July 2013	DAAD WISE Summer Research Fellowship
May - July 2012	Summer Research Fellowship, IIT Bombay, India

Publications

[1] Felix Martin Schuhknecht, Ankur Sharma, Jens Dittrich, and Divya Agrawal. chainifydb: How to get rid of your blockchain and use your dbms instead. In *CIDR 2020, 10th Conference on Innovative Data Systems Research, Amsterdam, The Netherlands, January 12-15, 2020, Online Proceedings*. www.cidrdb.org, 2020.

[2] Felix Martin Schuhknecht, Ankur Sharma, Jens Dittrich, and Divya Agrawal. Chainifydb: How to blockchainify any data management system. *arXiv preprint arXiv:1912.04820*, 2019.

[3] Ankur Sharma, Felix Martin Schuhknecht, Divya Agrawal, and Jens Dittrich. Blurring the lines between blockchains and database systems: the case of hyperledger fabric. In *ACM SIGMOD 2019, Amsterdam, The Netherlands, June 30 - July 5, 2019.*, pages 105–122, 2019.

[4] Ankur Sharma, Felix Martin Schuhknecht, and Jens Dittrich. Accelerating analytical processing in MVCC using fine-granular high-frequency virtual snapshotting. In *ACM SIGMOD 2018, Houston, TX, USA, June 10-15, 2018*, pages 245–258, 2018.

[5] Felix Martin Schuhknecht, Jens Dittrich, and Ankur Sharma. RUMA has it: Rewired user-space memory access is possible! *PVLDB*, 9(10):768–779, 2016.

[6] Ankur Sharma, Felix Martin Schuhknecht, and Jens Dittrich. The case for automatic database administration using deep reinforcement learning. *CoRR*, abs/1801.05643, 2018.

Languages

Hindi	Mother-tongue
English	Fluent
German	Basic Knowledge

Programming Skills

Languages	>5000 LOC: Go, C++ >1000 LOC: C, Java, Python, Bash
Familiar Technologies	git, svn, SQL, Docker, Kubernetes, gRPC, Database-internals, Apache Kafka Hybrid OLTP/OLAP, Permissioned-blockchain systems

Professional Activities

External Reviewer	VLDB' 16, SIGMOD' 17, CIKM' 17, VLDB' 17 (Demo), VLDB' 18, SIGMOD' 18 CIKM' 18, BTW' 19, SIGMOD' 20, SIGMOD' 21, DPD' 21, DPD' 22

Reference

Available upon request