Aunn Raza

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RESEARCH INTERESTS

Database Systems, HTAP Systems, Parallel & Distributed Systems, Operating Systems

EDUCATION

École Polytechnique Fédérale de Lausanne (EPFL) · Lausanne, CH
Ph.D. in Data-Intensive Applications and Systems (DIAS) Laboratory · 2018–Current
- Tentative Thesis: "Efficient Operational Analytics on Fresh Data"
- Advisor: Prof. Anastasia Ailamaki

National University of Sciences and Technology (NUST) · Islamabad, PK
B.S. in Computer Sciences, GPA: 3.81/4.00 · 2012–2016
- Thesis: "Analytics and Visualizations in OpenStack Clouds"
- Advisor: Prof. Faisal Shafait, Dr. Junaid Qadir, Dr. Usman Ilyas

PUBLICATIONS

[1] H. Nicholson, A. Nica, **A. Raza**, V. Sanca, and A. Ailamaki, "Chaosity: Understanding contemporary numa-architectures", in *Fifteenth TPC Technology Conference on Performance Evaluation & Benchmarking (TPCTC 2023)*, 2023.

[2] **A. Raza**, P. Chrysogelos, A. G. Anadiotis, and A. Ailamaki, "One-shot garbage collection for in-memory OLTP through temporality-aware version storage", *Proc. ACM Manag. Data*, vol. 1, no. 1, 19:1–19:25, 2023.

[3] H. Nicholson, **A. Raza**, P. Chrysogelos, and A. Ailamaki, "Hetcache: Synergising nvme storage and GPU acceleration for memory-efficient analytics", in *CIDR*, www.cidrdb.org, 2023.

[4] **A. Raza**, P. Chrysogelos, A. G. Anadiotis, and A. Ailamaki, "Adaptive HTAP through elastic resource scheduling", in *SIGMOD Conference*, ACM, 2020, pp. 2043–2054.

[5] **A. Raza**, P. Chrysogelos, P. Sioulas, V. Indjic, A. G. Anadiotis, and A. Ailamaki, "GPU-accelerated data management under the test of time", in *CIDR*, www.cidrdb.org, 2020.

[6] C. Iorgulescu, F. Dinu, **A. Raza**, W. U. Hassan, and W. Zwaenepoel, "Don't cry over spilled records: Memory elasticity of data-parallel applications and its application to cluster scheduling", in *USENIX Annual Technical Conference*, USENIX Association, 2017, pp. 97–109.

TEACHING

- **Teaching Assistant** at **EPFL**
  CS-460: Systems for data management and data science · [Spring 2023]
  CS-422: Database Systems · [Spring 2020, Spring 2021, Spring 2022]
  CS-322: Introduction to Database Systems · [Spring 2019]
  COM-208: Computer Networks · [Fall 2019, Fall 2020, Fall 2021]

Skills

- **Programming:** C/C++, LLVM, CUDA, SQL, Python, JAVA, JavaScript, Bash
- **Database Systems:** PostgreSQL, MySQL, Oracle, ElasticSearch, Solr
- **Debugging and Performance Analyzer:** Intel Vtune Profiler, Nvidia Nsight Systems, gdb, perf, ebpf

Research Experience

École Polytechnique Fédérale de Lausanne (EPFL)   Lausanne, CH
Doctoral Assistant at DIAS Laboratory (Advisor: Prof. Anastasia Ailamaki)   2018–Current
  − Topic: Adaptive HTAP Systems

École Polytechnique Fédérale de Lausanne (EPFL)   Lausanne, CH
Summer Intern at LabOS Laboratory (Supervisor: Prof. Willy Zweaenpool, Dr. Florin Dinu)   Summer 2016
  − Topic: Leveraging Memory Elasticity in Apache Spark.

National University of Sciences and Technology (NUST)   Islamabad, PK
Undergrad thesis at TULK-NUST R&D Center (Supervisor: Dr. Faisal Shafait, Dr. Junaid Qadir)   2015–2016
  − Topic: Deep Learning based VM-level anomaly detection in OpenStack clouds.

National University of Sciences and Technology (NUST)   Islamabad, PK
Research Intern at HPC Laboratory (Supervisor: Dr. Aamir Shafi)   2014–2015
  − Topic: Support for Infiniband interconnect in MPJExpress.

Honors and Awards

- EPFL EDIC Ph.D. Fellowship 2018
- Best adjudged industrial final year project award at NUST SEECS Openhouse 2016
- NUST highest merit scholarship (8 semesters) 2012-2016

Industrial Experience

VisionX Technologies   Islamabad, PK/ New York, USA (Remote)
Software Engineer (Cloud Systems)   2017–2018
  − Design and deployment of serverless cloud architecture for PackageX, a VisionX product.
  − Design and deployment of enterprise CICD pipelines for streamlined development processes.

Techlogix, Pvt. Ltd.   Karachi, PK
Software Engineer (Data Analytics)   2016–2017
  − Design and prototype deployment of Cloudera based data warehouse and analytical pipelines
  − Analytical dashboards with Microsoft PowerBI