Zur Vonarburg-Shmaria

Lead Software/Data Engineer

zuriscript.ch | linkedin | blog | github | researchgate | google scholar

Interests: data engineering, full stack, web development, software architecture, DDD, microserivces, algorithms, high performance computing
Info: born 1995, swiss citizen, currently employed at ti&m AG (full time), father of two
Open source projects: signalstory, ngx-signal-immutability, GraphMineSuite, PAPIW,

Education

ETH Zurich	Zurich
BSc ETH CS (BSc ETH Inf.-Ing)	*2016 - 2020*
Thesis: Towards High-Performance Clique Mining	
Kantonsschule Seetal	Baldegg, Lucerne
Matura	*2008 - 2014*

Experience

Lead Engineer at ti&m — 04/2024 - Present
ti&m AG — *Altstetten, Zurich*

- Playing a key role in assembling and developing a cohesive data engineering team
- Led the design, development, and deployment of a dynamic data platform with a focus on efficient reporting and ETL/ELT tasks tailored for data lake houses.

Senior Software Engineer at ti&m — 10/2021 - 03/2024
ti&m AG — *Altstetten, Zurich*

- Multiple projects for various external customers, usually in the role of team lead, architect or full stack developer.
- Led the technical implementation of a web-based data platform, combining multiple tools for data preparation, transformation, and visualization. This highly scalable platform employs microfrontend and mircoservice strategies and integrates Angular, React, Web Components, Signalstory, Asp.Net (C#), Flask (Python), Kubernetes, data lake architecture, Apache Iceberg, Polars, Trino, Apache Spark, DuckDB, PostgreSQL, and many more.
- Implementing and advising internal and external data engineering projects in the cloud and on premise (Data lakehouse, Azure Synapse, Google Dataproc, Superset, Airflow, Kafka, Spark, Hadoop)
- Most significant Project: Team Lead, Software Architekt and Full stack developer in a large web app (4 developers and 1 UI/UX Designer; MVP delivered after 2 months). Keywords: Microserivces, Apache Kafka, CQRS, Event-driven, Domain-driven, Test-driven, C#, ASP.NET Core, Angular, NGRX, Postgres, XUnit, Cypress, Cloud Foundry, Prometheus, Grafana, Splunk, Azure Devops, Scrum

Software Developer at Auto-i-Dat — 11/2017 - 10/2021
Auto-i-Dat AG (20%-30% until 2020, full time since April, 2020) — *Wollishofen, Zurich*

- Developed multiple REST APIs, Angular web apps, some lightweight WPF desktop apps and participated in the development of an enterprise application based on Blazor WebAssembly in a scrum-like team
- Responsible for Auto-i-Dat Involvement in the Cardossier project (based on Corda, distributed ledger technology), including Google cloud/Kubernetes maintenance, ETL processes, Proxy/Facade Applications, etc.
- Analysed and improved database ecosystems and data driven applications

Research with Dr. Maciej Besta — 08/2019 - 10/2021
And other researchers from the Scalable Parallel Computing Laboratory (SPCL) — *ETH Zurich*

- Improved state-of-the-art on parallel maximal clique listing algorithms (on average 1.92x faster than competitors)
- Contributed significantly to the enhancement of parallel graph coloring and degeneracy vertex reordering
- Core developer of GraphMineSuite, a benchmark and design framework for graph mining problems
  You may find more information about this open source project under https://graphminesuite.spcl.inf.ethz.ch/

Teaching Assistant — 08/2018 - 12/2019
Introduction to programming, Prof. Dr. Thomas Gross — *ETH Zurich*
Java-Based OOP-Course

Technical Skills

Languages: C#, Python, C/C++, Java, SQL, JavaScript/Typescript, HTML, CSS/Sass, Haskell, R
Frameworks/Libs: ASP.NET Core, Angular, Blazor, Entity Framework, React, WPF, Flask, Spring, XUnit/JUnit, Apache Spark, Shared-Memory Parallelization Frameworks (OpenMP, Intel TBB, Cilk, TPL), MPI
Infrastructure: MS SQL, PostgreSQL, EventStoreDB, Kubernetes, Docker, Apache Kafka, Hadoop, RabbitMQ, Azure, Google Cloud, AWS, Corda
Tools: Visual Studio/VS Code, Git, TFS, PyCharm, IntelliJ, Eclipse, Intel Advisor, Valgrind
OS: Linux (preferably Ubuntu), Windows

Publications

GraphMineSuite | 2nd author, *Accepted to VLDB'21 conference/PVLDB Vol 14 journal*   2021
Enabling High-Performance and Programmable Graph Mining Algorithms with Set Algebra
Maciej Besta, Zur Vonarburg-Shmaria, Yannick Schaffner, Leonardo Schwarz, Grzegorz Kwasniewski, Lukas Gianinazzi, [...], Torsten Hoefler;
In Proceedings of the 47th International Conference on Very Large Data Bases
arXiv:2103.03653 [cs.DC] 2021 (https://arxiv.org/pdf/2103.03653.pdf)

Parallel Graph Coloring | 3rd author, *Accepted to SC20 conference (Acceptance rate 25%)*   2020
High-Performance Parallel Graph Coloring with Strong Guarantees on Work, Depth, and Quality
Maciej Besta, Armon Carigiet, Zur Vonarburg-Shmaria, Kacper Janda, Lukas Gianinazzi, Torsten Hoefler;
In Proceedings of the IEEE/ACM International Conference on High Performance Computing, Networking, Storage and Analysis
arXiv:2008.11321 [cs.DC] 2020 (https://arxiv.org/pdf/2008.11321.pdf)

SISA | Intermediate contribution, *Accepted to MICRO'21 conference*   2021
Set-Centric Instruction Set Architecture for Graph Mining on Processing-in-Memory Systems
Maciej Besta, Raghavendra Kanakagiri, Grzegorz Kwasniewski, Rachata Ausavarungnirun, Jakub Beránek, Konstantinos Kanellopoulos, Kacper Janda, Zur Vonarburg-Shmaria, [...], Onur Mutlu, Torsten Hoefler;
Proceedings of the 54th IEEE/ACM International Symposium on Microarchitecture
arXiv:2104.07582 [cs.DC] 2021 (https://arxiv.org/pdf/2104.07582.pdf)

Achievements & Skills

Swiss Army | *Specialist Officer (Captain)*   2015 – Present

- *Staff Officer of computer science (since 2018)*
  I'm responsible for the military executive information system of our battalion ($\approx$ 1000 soldiers).
  This includes planning and deploying radio transmission means to ensure coverage of data/voice services.

- *Quartermaster Sergeant of a rescue unit (2015 - 2017)*
  I was responsible for back office, finance and food in a rescue company ($\approx$ 200 soldiers)

- *Higher Non-commissioned officers school (2015)*
  Acquired leadership and planning skills and trained perseverance

B1 drivers license   since 2016

English: C1 Advanced (CAE) | *Victoria, Canada*   2015

French: Intermediate | *Matura (equivalent to B2 Level)*   2014

German: First Language   since birth

Hebrew: Intermediate, only speech   since birth