

# Jana Giceva

Short Bio:

2011-2017 -- Ph.D. in Computer Science at **ETH Zurich**

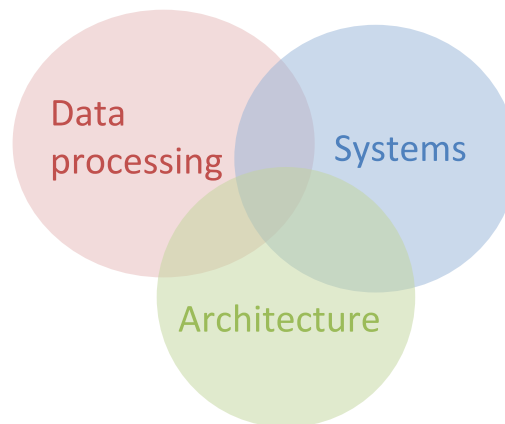
2017-2019 -- Lecturer for Computing at **Imperial College London**

since 2020 -- TT Professor in the Chair of DB Systems at **TUM**



About me:

- Systems person
- Address the *systems challenges* of modern *data-intensive workloads* for current and future *hardware trends*
- Focus on optimizing performance of data structures and algorithms, system design, scheduling and resource management, and modelling system behavior



# Goal + Open questions

- Opportunities for collaboration at TUM
  - General systems-research
  - Efficient data processing for IoT data (volume, velocity, variety, veracity)?
  - (Pre-)processing data as it moves over the network and/or on power-efficient devices where it is generated?
  - Systems-support for active heterogeneous devices (e.g., smartNICs, programmable switches, computational storage, etc.)?
  - Efficient and lightweight systems support for serverless (e.g., customized kernels, runtime, etc.)

# Research overview

Research Overview	Data processing	Systems for HTAP and high performance graph workloads [SIGMOD'17, ongoing work]	Distributed query processing on multicores, NUMA, high perf networks, etc.. [EuroSys'11, ongoing work]	
	Hardware tuned algorithms	Algorithms for Project RAPID with Oracle Labs	Partition-Reduce SQL operators at Oracle Labs	Joins, HTs, filters, locks, graph data structures, etc. Ongoing work
	Compiler and Runtime system	Memory management for BigData systems, SysML (for GNNs) [HotOS'15 with MSR], ongoing work	Multi-level dataflow IR, compilation and optimization CIDR'19, Ongoing work	
	Operating system	<ul style="list-style-type: none"><li>▪ COD: OS Policy Engine</li><li>▪ declarative DB/OS interface</li></ul> [CIDR'13, VLDB'14, DaMoN'16, IEEE Data Eng. Bulletin'19]	<ul style="list-style-type: none"><li>▪ Kernel-integrated Runtime</li><li>▪ Basslet OS architecture</li></ul>	
	Hardware acceleration	hw/sw co-design Project RAPID with Oracle Labs	HW accelerated partitioning (FGPAs) [SIGMOD'17]	Active HW resources (e.g., comp. storage) Ongoing work