

43rd International Conference on
VLDB Very Large
Data Bases

28 August – 1 September 2017 · Munich, Germany



www.vldb.org/2017

Welcome Message

VLDB is a premier annual international forum for data management and database researchers, vendors, practitioners, application developers, and users. The annual conference consists of a mix of research talks, tutorials, demonstrations, and workshops. Its topical coverage includes current issues in data management, database, and information systems research. Data management and databases remain among the main technological cornerstones of the applications of the twenty-first century. With the emergence of Big Data, data-related technologies are becoming more important than ever before. VLDB 2017 is taking place at the Technical University of Munich (TUM), one of Europe's top universities. It is committed to excellence in research and teaching, interdisciplinary education and the active promotion of promising young scientists. The university also forges strong links with companies and scientific institutions across the world. TUM was one of the first universities in Germany to be named a University of Excellence. Moreover, TUM regularly ranks among the best European universities in international rankings. The VLDB conference takes place at TUM's (original) downtown campus whereas most natural science and technical faculties, such as mechanical engineering, computer science, mathematics, chemistry, and physics are located at the modern Garching campus, about 15 km north of Munich. The VLDB 2017 conference is held as part of TUM's 50 year anniversary of establishing Computer Science as a scientific discipline in Munich. Since TUM was founded in 1868 (almost 150 years ago) it contributed significantly to the conversion of Bavaria from an agricultural to a highly industrialized region and also to the overall technological progress.

VLDB 2017 received almost 750 research paper submissions, of which 133 have been accepted for presentation at the conference. The conference program also includes 8 "roll-over" papers from VLDB 2016, for a total of 141 research papers. The full conference

program also includes 20 papers from the industrial track, 35 research demonstrations, 8 tutorials, and a panel on cross-disciplinary research. Each day of the conference also features a plenary keynote presentation. The main conference is flanked by a variety of workshops on topics of particular interest to the community.

The VLDB 2017 technical program reflects the efforts of hundreds of members of the research community who have prepared papers, demonstrations and presentations for the conference. It is also the result of more than a year of work by the conference officers and the PVLDB Review Board. We're looking forward to an outstanding program, and we hope that you enjoy it!

Alfons Kemper, TUM

Thomas Neumann, TUM

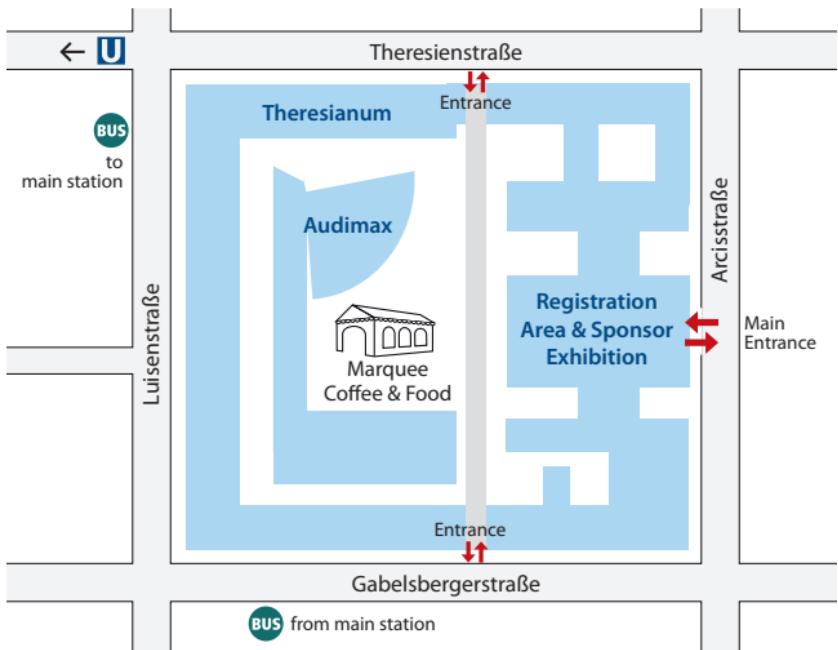
VLDB 2017 General Chairs

Peter Boncz, CWI

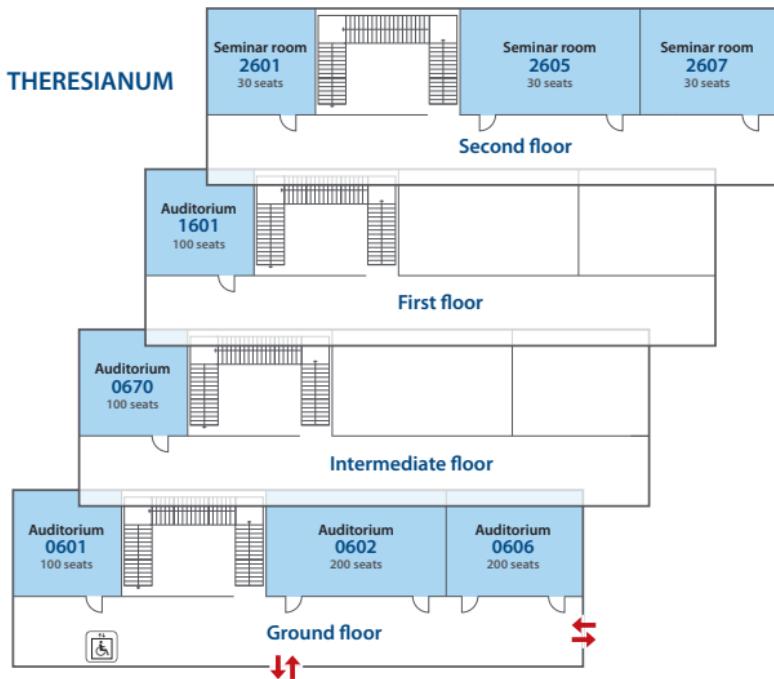
Ken Salem, University of Waterloo

VLDB 2017 Program Committee Chairs

Location TUM



Lecture Halls in the Theresianum



Street Map

Conference Location (A)

TUM, Arcisstraße 21

Reception (1)

Old Town Hall, Marienplatz 15

Banquet (B)

Hofbräuhaus, Platzl 9



Map data (c) OpenStreetMap contributors

Social Events

Both social events are close by the central place in Munich (Marienplatz). You can either walk there as shown on the map (2.5 km, about 30 min), or take public transport.

Public transport options:

- bus 100 (leaves from Gabelsbergerstraße, south entrance of TUM, direction Ostbahnhof) to Odeonsplatz. There, switch to the subway U3 or U6 towards Marienplatz (1 stop).
- live routing: <https://goo.gl/1T1Sg6>

The **Old Town Hall** is next to the Marienplatz, 50m to the east. It is a white building (<https://goo.gl/XE20UV>), not to be confused with the large, red New Town Hall immediately next to the Marienplatz.

The **Hofbräuhaus** (<https://goo.gl/SUUQvW>) is a few minutes east and north of the Marienplatz, as shown on the map. Turn left behind the Old Town Hall into Sparkassenstraße, right into Münzstraße, and left into Platzl.

WLAN

Preferably, just use the *EDUROAM* network if you have eduroam access. Otherwise, follow the instructions below:



Wi-Fi-Guide for mwn-events

Wi-Fi name (SSID): **mwn-events**

Username: **VLDB2017**

Password: **YTn06kdF**

Valid from **Fri Aug 25 06:00 2017** to **Sat Sep 9 23:59 2017**

Configuration profiles for wireless network access are available via the QR code or this URL:

<https://www.lrz.de/wlan> (follow the link mwn-events) Access to this site is available via the open Wi-Fi (the SSID) "lrz".

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Bronze Sponsors



TPC



Exhibitors



Program at a Glance

Monday, August 28							
Time	Audimax	602	606	601	670	1601	260*
08:30-10:00		FADS	BIRTE	TPCTC	VLIoT	PhD	
10:00-10:30	Coffee break (tent)						
10:30-12:00		FADS	BIRTE	TPCTC	VLIoT	PhD	
12:00-13:30	Lunch (tent)						
13:30-15:00		FADS	BIRTE	TPCTC	VLIoT	PhD	
15:00-15:30	Coffee break (tent)						
15:30-17:00		FADS	BIRTE	TPCTC	VLIoT	PhD	
19:00	Welcome Reception with kind support of SAP (Old Townhall Munich)						

Tuesday, August 29							
Time	Audimax	602	606	601	670	1601	260*

Wednesday, August 30							
Time	Audimax	602	606	601	670	1601	260*

Thursday, August 31							
Time	Audimax	602	606	601	670	1601	260*

Friday, September 1							
Time	Audimax	602	606	601	670	1601	260*
08:30-10:00		MATES	ADMS	DMAH	DBPL	BOSS	BOSS
10:00-10:30	Coffee Break (tent)						
10:30-12:00		MATES	ADMS	DMAH	DBPL	BOSS	BOSS
12:00-13:30	Lunch (tent)						
13:30-15:00		MATES	ADMS	DMAH	DBPL	BOSS	BOSS
15:00-15:30	Coffee break (tent)						
15:30-17:00		MATES	ADMS	DMAH	DBPL	BOSS	BOSS

Sunday 30/06/2019 08:00-09:00

Coffee + Light Breakfast

Location: Grote Zaal

Sunday 30/06/2019 09:00-10:30

Tutorial 1: part 1

Location: Effectenbeurszaal

Towards Democratizing Relational Data Visualization

Nan Tang (Qatar Foundation), Eugene Wu (Columbia University), Guoliang Li (Tsinghua University)

GRADES-NDA 2019: Session 1 (starts 08:30)

Location: Administratiezaal

GRADES-NDA 2019: Joint International Workshop on Graph Data Management Experiences & Systems and Network Data Analytics

Akhil Arora (EPFL), Arnab Bhattacharya (IIT Kanpur), George Fletcher (TU Eindhoven)

DEEM 2019: Session 1

Location: Berlage Zaal

DEEM 2019: Workshop on Data Management for End-to-End Machine Learning

Sebastian Schelter (New York University), Neoklis Polyzotis (Google), Manasi Vartak (Massachusetts Institute of Technology), Stephan Seufert (Amazon Research)

Tutorial 3: part 1

Location: Veilingzaal

Database and Distributed Computing Foundations of Blockchains

Sujaya Maiyya (University of California, Santa Barbara), Victor Zakhary (University of California, Santa Barbara), Mohammad Javad Amiri (University of California, Santa Barbara), Divyakant Agrawal (University of California, Santa Barbara), Amr El Abbadi (University of California, Santa Barbara)

DSMM 2019: Session 1

Location: Mendes da Costa Kamer

DSMM 2019: the 5th Workshop on Data Science for Macro-modeling with Financial and Economic Datasets

Douglas Burdick (IBM Almaden Research Center), Rajasekar Krishnamurthy (IBM T. J. Watson Research Center), Louiza Raschid (University of Maryland)

Sunday 30/06/2019 10:30-11:00

Coffee

Location: Grote Zaal

Sunday 30/06/2019 11:00-12:30

Tutorial 1: part 2

Location: Effectenbeurszaal

Towards Democratizing Relational Data Visualization

Nan Tang (Qatar Foundation), Eugene Wu (Columbia University), Guoliang Li (Tsinghua University)

GRADES-NDA 2019: Session 2

Location: Administratiezaal

GRADES-NDA 2019: Joint International Workshop on

Graph Data Management Experiences & Systems and Network Data Analytics

Akhil Arora (EPFL), Arnab Bhattacharya (IIT Kanpur), George Fletcher (TU Eindhoven)

DEEM 2019: Session 2

Location: Berlage Zaal

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Tutorial 3: part 2

Location: Veilingzaal

Database and Distributed Computing Foundations of Blockchains

Sujaya Maiyya (University of California, Santa Barbara), Victor Zakhary (University of California, Santa Barbara), Mohammad Javad Amiri (University of California, Santa Barbara), Divyakant Agrawal (University of California, Santa Barbara), Amr El Abbadi (University of California, Santa Barbara)

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Douglas Burdick (IBM Almaden Research Center), Rajasekar Krishnamurthy (IBM T. J. Watson Research Center), Louiza Raschid (University of Maryland)

Sunday 30/06/2019 12:30-14:00

Lunch

Location: Grote Zaal

Sunday 30/06/2019 14:00-15:30

Tutorial 2: part 1

Location: Effectenbeurszaal

Exploring the Data Wilderness through Examples

Davide Mottin (Aarhus University), Matteo Lissandrini (Aalborg University), Yannis Velegrakis (Utrecht University), Themis Palpanas (Paris Descartes University)

GRADES-NDA 2019: Session 3

Location: Administratiezaal

GRADES-NDA 2019: Joint International Workshop on Graph Data Management Experiences & Systems and Network Data Analytics

Akhil Arora (EPFL), Arnab Bhattacharya (IIT Kanpur), George Fletcher (TU Eindhoven)

DEEM 2019: Session 3

Location: Berlage Zaal

DEEM 2019: Workshop on Data Management for End-to-End Machine Learning

Sebastian Schelter (New York University), Neoklis Polyzotis (Google), Manasi Vartak (Massachusetts Institute of Technology), Stephan Seufert (Amazon Research)

Phokion Kolaitis Special Event: part 1

Location: Veilingzaal

Phokion Kolaitis Special Event

Georg Gottlob (University of Oxford), Wang-Chiew Tan (Megagon Labs)

DSMM 2019: Session 3

Location: Mendes da Costa Kamer

DSMM 2019: the 5th Workshop on Data Science for Macro-modeling with Financial and Economic Datasets

Douglas Burdick (IBM Almaden Research Center), Rajasekar Krishnamurthy (IBM T. J. Watson Research Center), Louiqa Raschid (University of Maryland)

Sunday 30/06/2019 15:30-16:30

Coffee + Workshop Posters

Location: Grote Zaal

Sunday 30/06/2019 16:30-18:00

Tutorial 2: part 2

Location: Effectenbeurszaal

Exploring the Data Wilderness through Examples

Davide Mottin (Aarhus University), Matteo Lissandrini (Aalborg University), Yannis Velegrakis (Utrecht University), Themis Palpanas (Paris Descartes University)

GRADES-NDA 2019: Session 4

Location: Administratiezaal

GRADES-NDA 2019: Joint International Workshop on Graph Data Management Experiences & Systems and Network Data Analytics

Akhil Arora (EPFL), Arnab Bhattacharya (IIT Kanpur), George Fletcher

(TU Eindhoven)

DEEM 2019: Session 4

Location: Berlage Zaal

DEEM 2019: Workshop on Data Management for End-to-End Machine Learning

Sebastian Schelter (New York University), Neoklis Polyzotis (Google), Manasi Vartak (Massachusetts Institute of Technology), Stephan Seufert (Amazon Research)

Phokion Kolaitis Special Event: part 2 (16:00-18:15)

Location: Veilingzaal

Phokion Kolaitis Special Event

Georg Gottlob (University of Oxford), Wang-Chiew Tan (Megagon Labs)

DSMM 2019: Session 4

Location: Mendes da Costa Kamer

DSMM 2019: the 5th Workshop on Data Science for Macro-modeling with Financial and Economic Datasets

Douglas Burdick (IBM Almaden Research Center), Rajasekar Krishnamurthy (IBM T. J. Watson Research Center), Louiza Raschid (University of Maryland)

Sunday 30/06/2019 18:15-19:45

PODS Reception

Location: Grote Zaal

Monday 01/07/2019 08:00-08:30

Coffee + Light Breakfast

Location: Grote Zaal

Monday 01/07/2019 08:30-10:00

PODS Keynote

Location: Effectenbeurszaal

Chair: Christoph Koch

Differential Privacy and the US Census

Cynthia Dwork (Harvard University)

Monday 01/07/2019 10:00-11:00

PODS 1: Incomplete Information

Location: Effectenbeurszaal

Chair: Pierre Senellart

Regularizing Conjunctive Features for Classification

Pablo Barceló (University of Chile & IMFD Chile), Alexander Baumgartner (University of Chile & RISC), Victor Dalmau (Universitat Pompeu Fabra), Benny Kimelfeld (Technion)

Probabilistic Databases with an Infinite Open-World Assumption

Martin Grohe (RWTH Aachen University), Peter Lindner (RWTH Aachen University)

Query Evaluation in Election Databases

Benny Kimelfeld (Technion), Phokion Kolaitis (University of California, Santa Cruz & IBM Almaden Research Center), Muhammad Tibi (Technion)

DaMoN 2019: Session 1

Location: Berlage Zaal

DaMoN 2019: the 15th International Workshop on Data

Management on New Hardware

Thomas Neumann (Technische Universität München), Ken Salem (University of Waterloo)

Monday 01/07/2019 11:00-11:30

Coffee

Location: Grote Zaal

Monday 01/07/2019 11:30-13:00

Gems of PODS and Test-of-Time Award

Location: Effectenbeurszaal

Chair: Benny Kimelfeld

A General Datalog-based Framework for Tractable Query Answering

Andrea Calì (Birkbeck College), Georg Gottlob (University of Oxford), Thomas Lukasiewicz (University of Oxford)

Database Repairs and Consistent Query Answering: Origins and Further Developments

Leopoldo Bertossi (RelationalAI & Carleton University)

Remembering the Probabilistic Analysis of Latent Semantic Indexing

Christos Papadimitriou (Columbia University)

DaMoN 2019: Session 2

Location: Berlage Zaal

DaMoN 2019: the 15th International Workshop on Data Management on New Hardware

Thomas Neumann (Technische Universität München), Ken Salem (University of Waterloo)

Monday 01/07/2019 13:00-14:30

Lunch + Posters (PODS, DaMoN, SIGMOD Student Research Competition)

Location: Grote Zaal

Monday 01/07/2019 14:30-16:30

PODS 2: Enumeration and Counting

Location: Effectenbeurszaal

Chair: Dirk van Gucht

Efficient Logspace Classes for Enumeration, Counting, and Uniform Generation

Marcelo Arenas (Pontificia Universidad Católica de Chile), Luis Alberto Croquevielle (Pontificia Universidad Católica de Chile), Rajesh Jayaram (Carnegie Mellon University), Cristian Riveros (Pontificia Universidad Católica de Chile)

Ranked Enumeration of Minimal Triangulations

Noam Ravid (Technion), Dori Medini (Technion), Benny Kimelfeld (Technion)

Enumeration on Trees with Tractable Combined Complexity and Efficient Updates

Antoine Amarilli (LTCI, CNRS, Télécom ParisTech, Université Paris-Saclay), Pierre Bourhis (CRISTAL, CNRS UMR 9189, Inria Lille), Stefan Mengel (CNRS, CRIL UMR 8188), Matthias Niewerth (University of Bayreuth)

Counting Database Repairs under Primary Keys Revisited

Marco Calautti (University of Edinburgh), Marco Console (University of Edinburgh), Andreas Pieris (University of Edinburgh)

The Complexity of Counting Cycles in the Adjacency List

Streaming Model

John Kallaugher (University of Texas at Austin), Andrew McGregor (University of Massachusetts Amherst), Eric Price (University of Texas at Austin), Sofya Vorotnikova (University of Massachusetts Amherst)

On the Enumeration Complexity of Unions of Conjunctive Queries

Nofar Carmeli (Technion), Markus Kröll (Vienna University of Technology)

DaMoN 2019: Session 3

Location: Berlage Zaal

DaMoN 2019: the 15th International Workshop on Data Management on New Hardware

Thomas Neumann (Technische Universität München), Ken Salem (University of Waterloo)

Monday 01/07/2019 16:30-17:00

Coffee

Location: Grote Zaal

Monday 01/07/2019 17:00-18:00

PODS 3: Information Extraction, Hashing, and Privacy

Location: Effectenbeurszaal

Chair: Yufei Tao

Split-Correctness in Information Extraction

Johannes Doleschal (University of Bayreuth & Hasselt University), Benny Kimelfeld (Technion), Wim Martens (University of Bayreuth), Yoav Nahshon (Technion), Frank Neven (Hasselt University & Transnational University of Limburg)

Robust Set Reconciliation via Locality Sensitive Hashing

Michael Mitzenmacher (Harvard University), Tom Morgan (Harvard University & Google)

What Storage Access Privacy is Achievable with Small Overhead?

Sarvar Patel (Google), Giuseppe Persiano (Google & University of Salerno), Kevin Yeo (Google)

DaMoN 2019: Session 4

Location: Berlage Zaal

DaMoN 2019: the 15th International Workshop on Data Management on New Hardware

Thomas Neumann (Technische Universität München), Ken Salem (University of Waterloo)

Monday 01/07/2019 18:00-19:00

PODS Business Meeting

Location: Effectenbeurszaal

DaMoN 2019: Session 4 (uninterrupted from 17:00)

Location: Berlage Zaal

DaMoN 2019: the 15th International Workshop on Data Management on New Hardware

Thomas Neumann (Technische Universität München), Ken Salem (University of Waterloo)

Tuesday 02/07/2019 08:00-08:30

Coffee + Light Breakfast

Location: Grote Zaal

Tuesday 02/07/2019 08:30-10:20

SIGMOD Welcome + Keynote

Location: Effectenbeurszaal

Responsible Data Science

Lise Getoor (University of California, Santa Cruz)

Tuesday 02/07/2019 10:20-11:00

Teaser Talks for all Tuesday SIGMOD Research, Industrial Papers and TODS Posters

Location: Effectenbeurszaal

Tuesday 02/07/2019 11:00-11:30

Coffee

Location: Grote Zaal

Tuesday 02/07/2019 11:30-12:50

SIGMOD Panel on Data Ethics

Location: Effectenbeurszaal

PODS 4: Streams

Location: Veilingzaal

Chair: Pablo Barceló

Tight Trade-offs for the Maximum k-Coverage Problem in the General Streaming Model

Piotr Indyk (MIT), Ali Vakilian (MIT)

Weighted Reservoir Sampling from Distributed Streams

Rajesh Jayaram (Carnegie Mellon University), Gokarna Sharma (Kent State University), Srikanta Tirthapura (Iowa State University), David Woodruff (Carnegie Mellon University)

Distributed and Streaming Linear Programming in Low Di-

mensions

Sepehr Assadi (Princeton University), Nikolai Karpov (Indiana University), Qin Zhang (Indiana University)

Better Sliding Window Algorithms to Maximize Subadditive and Diversity Objectives

Michele Borassi (Google Research), Alessandro Epasto (Google Research), Silvio Lattanzi (Google Research), Sergei Vassilvitskii (Google Research), Morteza Zadimoghaddam (Google Research)

Tuesday 02/07/2019 12:50-14:20

Lunch + SIGMOD Awards

Location: Grote Zaal

Tuesday 02/07/2019 14:20-16:20

SIGMOD Research 1: Query Processing & Optimization
1

Location: Effectenbeurszaal

Chair: TBD

Exact Cardinality Query Optimization with Bounded Execution Cost

Immanuel Trummer (Cornell University)

Pessimistic Cardinality Estimation

Walter Cai (University of Washington), Magdalena Balazinska (University of Washington), Dan Suciu (University of Washington)

Efficiently Searching In-Memory Sorted Arrays: Revenge of the Interpolation Search?

Peter Van Sandt (University of Wisconsin, Madison), Yannis Chronis (University of Wisconsin, Madison), Jignesh Patel (University of Wisconsin, Madison)

Iterative Query Processing based on Unified Optimization Techniques

Kisung Park (Kyung Hee University), Hojin Seo (Kyung Hee University), Mostofa Rasel (Kyung Hee University), Young-Koo Lee (Kyung Hee University), Chanho Jeong (SAP Labs Korea), Sung Yeol Lee (SAP Labs Korea), Chungmin Lee (SAP Labs Korea), Dong-Hun Lee (SAP Labs Korea)

Approximate Distinct Counts for Billions of Datasets

Daniel Ting (Tableau Software)

Cache-oblivious High-performance Similarity Join

Martin Perdacher (University of Vienna), Claudia Plant (University of Vienna), Christian Böhm (Ludwig-Maximilians-Universität)

SIGMOD Research 2: Privacy/Blockchain

Location: Graanbeurszaal

Chair: TBD

Blurring the Lines between Blockchains and Database Systems: the Case of Hyperledger Fabric

Ankur Sharma (Saarland University), Felix Schuhknecht (Saarland University), Divya Agrawal (Saarland University), Jens Dittrich (Saarland University)

Towards Scaling Blockchain Systems via Sharding

Hung Dang (National University of Singapore), Tien Tuan Anh Dinh (National University of Singapore), Dumitrel Loghin (National University of Singapore), Ee-Chien Chang (National University of Singapore), Qian Lin (National University of Singapore), Beng Chin Ooi (National University of Singapore)

vChain: Enabling Verifiable Boolean Range Queries over Blockchain Databases

Cheng Xu (Hong Kong Baptist University), Ce Zhang (Hong Kong

Baptist University), Jianliang Xu (Hong Kong Baptist University)

Answering Multi-Dimensional Analytical Queries under Local Differential Privacy

Tianhao Wang (Purdue University), Bolin Ding (Alibaba Group), Jingen Zhou (Alibaba Group), Cheng Hong (Alibaba Group), Zhicong Huang (Alibaba Group), Ninghui Li (Purdue University), Somesh Jha (University of Wisconsin, Madison)

APEx: Accuracy-Aware Differentially Private Data Exploration

Chang Ge (University of Waterloo), Xi He (University of Waterloo), Ihab Ilyas (University of Waterloo), Ashwin Machanavajjhala (Duke University)

Active Sparse Mobile Crowd Sensing Based on Matrix Completion

Kun Xie (Hunan University), Xiaocan Li (Hunan University), Xin Wang (Stony Brook University), Gaogang Xie (Institute of Computing Technology & Chinese Academy of Sciences), Jigang Wen (Institute of Computing Technology & Chinese Academy of Sciences), Dafang Zhang (Hunan University)

SIGMOD Research 3: Information Extraction

Location: Administratiezaal

Chair: TBD

Autocompletion for Prefix-Abbreviated Input

Sheng Hu (Nagoya University & Kyoto University), Chuan Xiao (Nagoya University & Osaka University), Jianbin Qin (Shenzhen University), Yoshiharu Ishikawa (Nagoya University), Qiang Ma (Kyoto University)

Progressive Deep Web Crawling Through Keyword Queries For Data Enrichment

Pei Wang (Simon Fraser University), Ryan Shea (Simon Fraser University), Jiannan Wang (Simon Fraser University), Eugene Wu (Columbia University)

Visual Segmentation for Information Extraction from Heterogeneous Visually Rich Documents

Ritesh Sarkhel (Ohio State University), Arnab Nandi (Ohio State University)

RRR: Rank-Regret Representative

Abolfazl Asudeh (University of Michigan), Azade Nazi (Google AI), Nan Zhang (Pennsylvania State University), Gautam Das (University of Texas at Arlington), H. V. Jagadish (University of Michigan)

Strongly Truthful Interactive Regret Minimization

Min Xie (Hong Kong University of Science and Technology), Raymond Chi-Wing Wong (Hong Kong University of Science and Technology), Ashwin Lall (Denison University)

Verifying Text Summaries of Relational Data Sets

Saehan Jo (Cornell University), Immanuel Trummer (Cornell University), Weicheng Yu (Cornell University), Xuezhi Wang (Google Research), Cong Yu (Google Research), Daniel Liu (Cornell University), Niyati Mehta (Cornell University)

SIGMOD Industry 1: Data Applications

Location: Berlage Zaal

QuickInsights: Quick and Automatic Discovery of Insights from Multi-Dimensional Data

Rui Ding (Microsoft Research), Shi Han (Microsoft Research), Yong Xu (Microsoft Research), Haidong Zhang (Microsoft Research), Dongmei Zhang (Microsoft Research)

ExplainIt! – A Declarative Root-cause Analysis Engine for Time Series Data

Vimalkumar Jeyakumar (Cisco Tetration Analytics), Omid Madani (Cisco Tetration Analytics), Ali Parandeh (Cisco Tetration Analytics), Ashutosh Kulshreshtha (Cisco Tetration Analytics), Weifei Zeng (Cisco Tetration Analytics), Navindra Yadav (Cisco Tetration Analytics)

Automatically Generating Interesting Facts from Wikipedia Tables

Flip Korn (Google Research), Xuezhi Wang (Google Research), You Wu (Google Research), Cong Yu (Google Research)

Snorkel DryBell: A Case Study in Deploying Weak Supervision at Industrial Scale

Stephen Bach (Brown University), Daniel Rodriguez (Google), Yintao Liu (Google), Chong Luo (Google), Haidong Shao (Google), Cassandra Xia (Google), Souvik Sen (Google), Alex Ratner (Stanford University), Braden Hancock (Stanford University), Houman Alborzi (Google), Rahul Kuchhal (Google), Chris Ré (Stanford University), Rob Malkin (Google)

PS2: Parameter Server on Spark

Zhipeng Zhang (Peking University & Tencent Inc.), Bin Cui (Peking University), Yingxia Shao (Beijing University of Posts and Telecommunications), Lele Yu (Tencent Inc.), Jiawei Jiang (Tencent Inc.), Xupeng Miao (Peking University & Tencent Inc.)

Entity Matching Meets Data Science: A Progress Report from the Magellan Project

Yash Govind (University of Wisconsin, Madison), Pradap Konda (University of Wisconsin, Madison), Paul Suganthan G.C. (Google), Philip Martinkus (University of Wisconsin, Madison), Palaniappan Nagaranjan (University of Wisconsin, Madison), Aravind Soundararajan (University of Wisconsin, Madison), Han Li (University of Wisconsin, Madison), Sidharth Mudgal (University of Wisconsin, Madison), Jeff Ballard (University of Wisconsin, Madison), Haojun Zhang (University of Wisconsin, Madison), Adel Ardalan (University of Wisconsin, Madison)

sin, Madison), Sanjib Das (University of Wisconsin, Madison), Derek Paulsen (University of Wisconsin, Madison), Amanpreet Singh Saini (University of Wisconsin, Madison), Erik Paulson (University of Wisconsin, Madison), Youngchoon Park (Johnson Controls), Marshall Carter (American Family Insurance), Mingju Sun (American Family Insurance), Glenn Fung (American Family Insurance), AnHai Doan (University of Wisconsin, Madison)

PODS Invited Tutorial 1

Location: Veilingzaal

Chair: Pierre Bourhis

Making Consistency Protocols Serializable

Alan Fekete (University of Sydney)

Tuesday 02/07/2019 16:20-17:50

Poster & Demo Groups A and B

Location: Grote Zaal

One poster for each SIGMOD and PODS paper presented on Tuesday. Plus 5 Programming Contest demos.

Representations and Optimizations for Embedded Parallel Dataflow Languages

Alexander Alexandrov (TU Berlin), Georgi Krastev (TU Berlin), Volker Markl (TU Berlin)

A Survey of Spatial Crowdsourcing

Srinivasa Raghavendra (Aalborg University), Bhuvan Gummidi (Aalborg University), Xike Xie (University of Science and Technology of China), Torben Bach Pedersen (Aalborg University)

K-Regret Queries Using Multiplicative Utility Functions

Jianzhong Qi (The University of Melbourne), Fei Zuo (The University

of Melbourne), Hanan Samet (University of Maryland), Jia Cheng Yao (The University of Melbourne)

Historic Moments Discovery in Sequence Data.

Ran Bai (The Hong Kong Polytechnic University), Wing-Kai Hon (National Tsing Hua University, Taiwan), Eric Lo (Chinese University of Hong Kong), Zhian He (University of Hong Kong), Kenny Q. Zhu (Shanghai Jiao Tong University)

FindYourFavorite: An Interactive System for Finding the User's Favorite Tuple in the Database

Min Xie (Hong Kong University of Science and Technology), Tianwen Chen (Hong Kong University of Science and Technology), Raymond Chi-Wing Wong (Hong Kong University of Science and Technology)

Large Scale Graph Mining with G-Miner

Hongzhi Chen (The Chinese University of Hong Kong), Xiaoxi Wang (The Chinese University of Hong Kong), Chenghuan Huang (The Chinese University of Hong Kong), Juncheng Fang (The Chinese University of Hong Kong), Yifan Hou (The Chinese University of Hong Kong), Changji Li (The Chinese University of Hong Kong), James Cheng (The Chinese University of Hong Kong)

ANMAT: Automatic Knowledge Discovery and Error Detection through Pattern Functional Dependencies

Abdulhakim Qahtan (QCRI, HBKU), Nan Tang (QCRI, HBKU), Mourad Ouzzani (QCRI, HBKU), Yang Cao (University of Edinburgh), Michael Stonebraker (MIT)

Estimating Cardinalities with Deep Sketches

Andreas Kipf (Technische Universität München), Dimitri Vorona (Technische Universität München), Jonas Müller (Technische Universität München), Thomas Kipf (University of Amsterdam), Bernhard Radke (Technische Universität München), Viktor Leis (Technische Universität München), Peter Boncz (CWI), Thomas Neumann (Technische Universität München)

sität München), Alfons Kemper (Technische Universität München)

Unit Testing Data with Deequ

Sebastian Schelter (Amazon Research), Felix Biessmann (Amazon Research), Dustin Lange (Amazon Research), Tammo Rukat (Amazon Research), Phillip Schmidt (Amazon Research), Stephan Seufert (Amazon Research), Pierre Brunelle (Amazon Research), Andrey Taptunov (Amazon Research)

DuckDB: an Embeddable Analytical Database

Mark Raasveldt (CWI), Hannes Mühleisen (CWI)

CLASH: A High-Level Abstraction for Optimized, Multi-Way Stream Joins over Apache Storm

Manuel Dossinger (TU Kaiserslautern), Sebastian Michel (TU Kaiserslautern), Constantin Roudsarabi (TU Kaiserslautern)

PgCuckoo: Laying Plan Eggs in PostgreSQL's Nest

Denis Hirn (Universität Tübingen), Torsten Grust (Universität Tübingen)

Demonstration of ModelarDB: Model-Based Management of Dimensional Time Series

Søren Kejser Jensen (Aalborg University), Torben Bach Pedersen (Aalborg University), Christian Thomsen (Aalborg University)

NEURON: Query Execution Plan Meets Natural Language Processing For Augmenting DB Education

Siyuan Liu (Nanyang Technological University), Sourav Bhowmick (Nanyang Technological University), Wanlu Zhang (Nanyang Technological University), Shu Wang (Nanyang Technological University), Wanyi Huang (Nanyang Technological University), Shafiq Joty (Nanyang Technological University)

PIClean: A Probabilistic and Interactive Data Cleaning System

Zhuoran Yu (Georgia Institute of Technology), Xu Chu (Georgia Institute of Technology)

Apollo: A Dataset Profiling and Operator Modeling System
Tasos Bakogiannis (National Technical University of Athens), Ioannis Giannakopoulos (National Technical University of Athens), Dimitrios Tsoumakos (Ionian University), Nectarios Koziris (National Technical University of Athens)

Pivotal Greenplum® for Kubernetes: Demonstration of Managing Greenplum Database on Kubernetes

Jemish Patel (Pivotal Software Inc), Goutam Tadi (Pivotal Software Inc), Oz Basarir (Pivotal Software Inc), Lawrence Hamel (Pivotal Software Inc), David Sharp (Pivotal Software Inc), Fei Yang (Pivotal Software Inc), Xin Zhang (Pivotal Software Inc)

Demonstration of SpeakQL: Speech-driven Multimodal Querying of Structured Data

Vraj Shah (University of California, San Diego), Side Li (University of California, San Diego), Kevin Yang (University of California, San Diego), Arun Kumar (University of California, San Diego), Lawrence Saul (University of California, San Diego)

RateL: Interactive Analytics for Large Scale Trajectories

Haoda Li (Tsinghua University), Guoliang Li (Tsinghua University), Jiayang Liu (Tsinghua University), Haitao Yuan (Tsinghua University), Haiquan Wang (Tsinghua University)

MigCast: Putting a Price Tag on Data Model Evolution in NoSQL Data Stores

Andrea Hillenbrand (Darmstadt University of Applied Sciences), Maksym Levchenko (Darmstadt University of Applied Sciences), Uta Störl (Darmstadt University of Applied Sciences), Stefanie Scherzinger (OTH Regensburg), Meike Klettke (University of Rostock)

NeMeSys - A Showcase of Data Oriented Near Memory

Graph Processing

Alexander Krause (Technische Universität Dresden), Thomas Kissinger (Technische Universität Dresden), Dirk Habich (Technische Universität Dresden), Wolfgang Lehner (Technische Universität Dresden)

Low-latency Spark Queries on Updatable Data

Alexandru Uta (Vrije Universiteit Amsterdam), Bogdan Ghit (Databricks), Ankur Dave (University of California, Berkeley), Peter Boncz (CWI)

Demonstration of Nimbus: Model-based Pricing for Machine Learning in a Data Marketplace

Lingjiao Chen (University of Wisconsin, Madison), Hongyi Wang (University of Wisconsin, Madison), Leshang Chen (University of Pennsylvania), Paraschos Koutris (University of Wisconsin, Madison), Arun Kumar (University of California, San Diego)

Capturing and Querying Structural Provenance in Spark with Pebble

Ralf Diestelkämper (Universität Stuttgart), Melanie Herschel (Universität Stuttgart)

SVQ: Streaming Video Queries

Ioannis Xarchakos (University of Toronto), Nick Koudas (University of Toronto)

GraphWrangler: An Interactive Graph View on Relational Data

Nafisa Anzum (University of Waterloo), Semih Salihoglu (University of Waterloo), Daniel Vogel (University of Waterloo)

Coconut Palm: Static and Streaming Data Series Exploration Now in your Palm

Haridimos Kondylakis (FORTH-ICS), Niv Dayan (Harvard University), Kostas Zoumpatianos (Harvard University), Themis Palpanas (Paris Descartes University)

Natural Language Querying of Complex Business Intelligence Queries

Jaydeep Sen (IBM Research AI), Fatma Ozcan (IBM Research AI), Abdul Quamar (IBM Research AI), Greg Stager (IBM Canada), Ashish Mittal (IBM Research AI), Manasa Jammi (IBM Research AI), Chuan Lei (IBM Research AI), Diptikalyan Saha (IBM Research AI), Karthik Sankaranarayanan (IBM Research AI)

Tuesday 02/07/2019 17:50-19:50

New Researcher Symposium

Location: Effectenbeurszaal

Student Research Competition (starts 17:20)

Location: Graanbeurszaal

SpeakQL: Towards Speech-driven Multimodal Querying

Vraj Shah (University of California, San Diego)

Fingerprints for Compressed Columnar Data Search

Carmen Kwan (University of Waterloo)

CAvSAT: A System for Query Answering over Inconsistent Databases

Akhil Dixit (University of California, Santa Cruz)

Scalable Reservoir Sampling on Many-Core CPUs

Altan Birler (Technische Universität München)

LSM-Trees and B-Trees: The Best of Both Worlds

Varun Jain (Harvard University), James Lennon (Harvard University), Harshita Gupta (Harvard University)

Generating Selective Filters for Access Method and PhysicalDesign Evaluation

Pranav Subramaniam (University of Chicago)

Interactive Visualization For Big Spatial Data

Saheli Ghosh (University of California, Riverside)

Learning to Generate Questions with Adaptive Copying Neural Networks

Xinyuan Lu (Carleton University)

Query-Driven Learning for Next Generation Predictive Modeling & Analytics

Fotis Savva (University of Glasgow)

Answering Range Queries Under Local Differential Privacy

Tejas Kulkarni (University of Warwick)

Helios: An Adaptive and Query Workload-driven Partitioning Framework for Distributed Graph Stores

Ali Davoudian (Carleton University)

Deep Query Optimization

Tin Vu (University of California, Riverside)

Bootstrapping an End-to-End Natural Language Interface for Databases

Nathaniel Weir (Brown University), Prasetya Utama (TU Darmstadt)

Recommending Deployment Strategies in Crowdsourcing Platforms

Dong Wei (New Jersey Institute of Technology)

Towards Understanding Data Analysis Workflows using a Large Notebook Corpus

Mohammed Suhail Rehman (University of Chicago)

Arachnid: Generalized Visual Data Cleaning

Conder Shou (Columbia University), Amita Shukla (Columbia University)

PODS 5: Semistructured Data and Knowledge Graphs, Logic, and Verification

Location: Veilingzaal

Chair: Reinhard Pichler

The Space-Efficient Core of Vadalog

Gerald Berger (Vienna University of Technology), Georg Gottlob (University of Oxford), Andreas Pieris (University of Edinburgh), Emanuel Sallinger (University of Oxford)

Decidable XPath Fragments in the Real World

David Baelde (ENS Paris-Saclay & CNRS, Université Paris-Saclay), Anthony Lick (ENS Paris-Saclay & CNRS, Université Paris-Saclay), Sylvain Schmitz (ENS Paris-Saclay & CNRS, Université Paris-Saclay)

Containment of Shape Expression Schemas for RDF

Slawek Staworko (CNRS & University of Lille), Piotr Wieczorek (University of Wroclaw)

Complexity Bounds for Relational Algebra over Document Spanners

Liat Peterfreund (Technion), Dominik Freydenberger (Loughborough University), Benny Kimelfeld (Technion), Markus Kröll (Vienna University of Technology)

Reachability in Database-driven Systems with Numerical Attributes under Recency Bounding

Parosh Aziz Abdulla (Uppsala University), C. Aiswarya (Chennai Mathematical Institute), Mohamed Faouzi Atig (Uppsala University), Marco Montali (KRDB Research Centre, Free University of Bozen-Bolzano)

Compiling Existential Positive Queries to Bounded-Variable Fragments

Christoph Berkholz (Humboldt-Universität), Hubie Chen (Birkbeck,

University of London)

Tuesday 02/07/2019 20:30-23:00

SIGMOD Reception - sponsored by MonetDB

Location: Van Gogh Museum

Wednesday 03/07/2019 08:00-08:30

Coffee + Light Breakfast

Location: Grote Zaal

Wednesday 03/07/2019 08:30-10:00

SIGMOD Keynote

Location: Effectenbeurszaal

State of Public and Private Blockchains: Myths and Reality
C. Mohan (IBM Almaden Research Center)

Wednesday 03/07/2019 10:00-11:00

Teaser Talks for all Wednesday SIGMOD Research and Industrial Papers

Location: Effectenbeurszaal

PODS 6: Containment and Homomorphisms

Location: Veilingzaal

Chair: Dan Olteanu

Testability of Homomorphism Inadmissibility: Property Testing Meets Database Theory

Hubie Chen (Birkbeck, University of London), Yuichi Yoshida (National Institute of Informatics)

The Selfish Models Property: Bounding the Complexity of Query Containment and Entailment Problems

Hubie Chen (Birkbeck, University of London)

Attacking Diophantus: Solving a Special Case of Bag Containment

George Konstantinidis (University of Southampton), Fabio Mogavero (University of Naples Federico II)

Wednesday 03/07/2019 11:00-11:30

Coffee

Location: Grote Zaal

Wednesday 03/07/2019 11:30-12:50

SIGMOD Research 4: Distributed Data Management

Location: Effectenbeurszaal

Chair: TBD

An End-to-End Automatic Cloud Database Tuning System Using Deep Reinforcement Learning

Ji Zhang (Huazhong University of Science and Technology), Yu Liu (Huazhong University of Science and Technology), Ke Zhou (Huazhong University of Science and Technology), Guoliang Li (Tsinghua University), Zhili Xiao (Tencent Inc.), Bin Cheng (Tencent Inc.), Jiashu Xing (Tencent Inc.), Yangtao Wang (Huazhong University of Science and Technology), Tianheng Cheng (Huazhong University of Science and Technology), Li Liu (Huazhong University of Science and Technology), Minwei Ran (Huazhong University of Science and Technology), Zekang Li (Huazhong University of Science and Technology)

Fast General Distributed Transactions with Opacity

Alex Shamis (Microsoft Research), Matthew Renzelmann (Microsoft), Stanko Novakovic (VMware), Georgios Chatzopoulos (EPFL), Alek-

sandar Dragojević (Microsoft Research), Dushyanth Narayanan (Microsoft Research), Miguel Castro (Microsoft Research)

The Log-Structured Merge-Bush & the Wacky Continuum

Niv Dayan (Harvard University), Stratos Idreos (Harvard University)

RaSQL: Greater Power and Performance for Big Data Analytics with Recursive-aggregate-SQL on Spark

Jiaqi Gu (University of California, Los Angeles), Yugo Watanabe (University of California, Los Angeles), William Mazza (University of Naples Federico II), Alexander Shkapsky (Workday, Inc.), Mohan Yang (Google), Ling Ding (University of California, Los Angeles), Carlo Zaniolo (University of California, Los Angeles)

SIGMOD Research 5: Provenance

Location: Graanbeurszaal

Chair: TBD

Going Beyond Provenance: Explaining Query Answers with Pattern-based Counterbalances

Zhengjie Miao (Duke University), Qitian Zeng (Illinois Institute of Technology), Boris Glavic (Illinois Institute of Technology), Sudeepa Roy (Duke University)

Explaining Wrong Queries Using Small Examples

Zhengjie Miao (Duke University), Sudeepa Roy (Duke University), Jun Yang (Duke University)

Ariadne: Online Provenance for Big Graph Analytics

Vicky Papavasileiou (University of California, San Diego), Ken Yocum (Intuit, Inc. & University of California, San Diego), Alin Deutsch (University of California, San Diego)

Hypothetical Reasoning via Provenance Abstraction

Daniel Deutch (Tel Aviv University), Yuval Moskovitch (Tel Aviv University), Noam Rinetzky (Tel Aviv University)

SIGMOD Research 6: Streams

Location: Administratiezaal

Chair: TBD

Event Trend Aggregation Under Rich Event Matching Semantics

Olga Poppe (Microsoft Gray Systems Lab), Chuan Lei (IBM Almaden Research Center), Elke Rundensteiner (Worcester Polytechnic Institute), David Maier (Portland State University)

Elasticutor: Rapid Elasticity for Realtime Stateful Stream Processing

Li Wang (Yitu Technology), Tom Z. J. Fu (Advanced Digital Sciences Center), Richard T. B. Ma (National University of Singapore), Marianne Winslett (University of Illinois Urbana-Champaign), Zhenjie Zhang (Yitu Technology)

Real-Time Multi-Pattern Detection over Event Streams

Ilya Kolchinsky (Technion), Assaf Schuster (Technion)

AStream: Ad-hoc Shared Stream Processing

Jeyhun Karimov (DFKI GmbH), Tilmann Rabl (DFKI GmbH & TU Berlin), Volker Markl (DFKI GmbH & TU Berlin)

SIGMOD Industry 2: Storage and Indexing

Location: Berlage Zaal

Nanosecond Indexing of Graph Data With Hash Maps and VLlists

Andrew Carter (LinkedIn Corporation), Andrew Rodriguez (LinkedIn Corporation), Yiming Yang (LinkedIn Corporation), Scott Meyer (LinkedIn Corporation)

Implementation of Cluster-wide Logical Clock and Causal Consistency in MongoDB

*Misha Tyulenev (MongoDB, Inc), Andy Schwerin (MongoDB, Inc),
Asya Kamsky (MongoDB, Inc), Randolph Tan (MongoDB, Inc), Alyson
Cabral (MongoDB, Inc), Jack Mulrow (MongoDB, Inc)*

X-Engine: An Optimized Storage Engine for Large-scale E-commerce Transaction Processing

Gui Huang (Alibaba Group), Xuntao Cheng (Alibaba Group), Jianying Wang (Alibaba Group), Yujie Wang (Alibaba Group), Dengcheng He (Alibaba Group), Tieying Zhang (Alibaba Group), Feifei Li (Alibaba Group), Sheng Wang (Alibaba Group), Wei Cao (Alibaba Group), Qiang Li (Alibaba Group)

Automatically Indexing Millions of Databases in Microsoft Azure SQL Database

Sudipto Das (Microsoft), Miroslav Grbic (Microsoft), Igor Ilic (Microsoft), Isidora Jovanic (Microsoft), Andrija Jovanovic (Microsoft), Vivek Narasayya (Microsoft), Miodrag Radulovic (Microsoft), Maja Stikic (Microsoft), Gaoxiang Xu (Microsoft), Surajit Chaudhuri (Microsoft)

PODS 7: Joins, hypergraphs, and Aggregate Queries

Location: Veilingzaal

Chair: Hubie Chen

On Functional Aggregate Queries with Additive Inequalities

Mahmoud Abo Khamis (RelationalAI), Ryan Curtin (RelationalAI), Benjamin Moseley (Carnegie Mellon University), Hung Ngo (RelationalAI), XuanLong Nguyen (University of Michigan), Dan Olteanu (University of Oxford), Maximilian Schleich (University of Oxford)

Topology Dependent Bounds For FAQs

Michael Langberg (University at Buffalo, SUNY), Shi Li (University at Buffalo, SUNY), Sai Vikneshwar Mani Jayaraman (University at Buffalo, SUNY), Atri Rudra (University at Buffalo, SUNY)

Instance and Output Optimal Parallel Algorithms for Acyclic Joins

Xiao Hu (Hong Kong University of Science and Technology), Ke Yi (Hong Kong University of Science and Technology)

HyperBench: A Benchmark and Tool for Hypergraphs and Empirical Findings

Wolfgang Fischl (Vienna University of Technology), Georg Gottlob (University of Oxford), Davide Mario Longo (Vienna University of Technology), Reinhard Pichler (Vienna University of Technology)

Wednesday 03/07/2019 12:50-14:20

Lunch + SIGMOD Business Meeting

Location: Grote Zaal

Wednesday 03/07/2019 14:20-16:20

SIGMOD Research 7: Modern Hardware

Location: Effectenbeurszaal

Chair: TBD

Concurrent Prefix Recovery: Performing CPR on a Database

Guna Prasaad (University of Washington), Badrish Chandramouli (Microsoft Research), Donald Kossmann (Microsoft Research)

BriskStream: Scaling Data Stream Processing on Shared-Memory Multicore Architectures

Shuhao Zhang (National University of Singapore), Jiong He (Advanced Digital Sciences Center), Amelie Zhou (Shenzhen University), Bingsheng He (National University of Singapore)

Border-Collie: A Wait-free, Read-optimal Algorithm for Database Logging on Multicore Hardware

Jongbin Kim (Hanyang University), Hyeongwon Jang (Hanyang University), Seohui Son (Hanyang University), Hyuck Han (Dongduk

Women's University), Sooyong Kang (Hanyang University), Hyungsoo Jung (Hanyang University)

Designing Distributed Tree-based Index Structures for Fast RDMA-capable Networks

Tobias Ziegler (TU Darmstadt), Sumukha Tumkur Vani (Brown University), Carsten Binnig (TU Darmstadt), Rodrigo Fonseca (Brown University), Tim Kraska (MIT)

DistME: A Fast and Elastic Distributed Matrix Computation Engine using GPUs

Donghyoung Han (Daegu Gyeongbuk Institute of Science & Technology (DGIST)), Yoon-Min Nam (Daegu Gyeongbuk Institute of Science & Technology (DGIST)), Jihye Lee (Daegu Gyeongbuk Institute of Science & Technology (DGIST)), Kyongseok Park (Korea Institute of Science and Technology Information (KISTI)), Hyunwoo Kim (Korea Institute of Science and Technology Information (KISTI)), Min-Soo Kim (Daegu Gyeongbuk Institute of Science & Technology (DGIST))

GPU-based Graph Traversal on Compressed Graphs

Mo Sha (National University of Singapore), Yuchen Li (Singapore Management University), Kian-Lee Tan (National University of Singapore)

SIGMOD Research 8: Data Integration/Cleaning

Location: Graanbeurszaal

Chair: TBD

Interventional Fairness : Causal Database Repair for Algorithmic Fairness

Babak Salimi (University of Washington), Luke Rodriguez (University of Washington), Bill Howe (University of Washington), Dan Suciu (University of Washington)

Uni-Detect: A Unified Approach to Automated Error Detection in Tables

Pei Wang (Simon Fraser University), Yeye He (Microsoft Research)

HoloDetect: Few-Shot Learning for Error Detection

Alireza Heidari (University of Waterloo), Joshua McGrath (University of Wisconsin, Madison), Ihab Ilyas (University of Waterloo), Theodoros Rekatsinas (University of Wisconsin, Madison)

JOSIE: Overlap Set Similarity Search for Finding Joinable Tables in Data Lakes

Erkang Zhu (University of Toronto), Dong Deng (Inception Institute of Artificial Intelligence), Fatemeh Nargesian (University of Toronto), Renée Miller (Northeastern University)

Raha: A Configuration-Free Error Detection System

Mohammad Mahdavi (TU Berlin), Ziawasch Abedjan (TU Berlin), Raul Castro Fernandez (MIT), Samuel Madden (MIT), Mourad Ouzzani (QCRI, HBKU), Michael Stonebraker (MIT), Nan Tang (QCRI, HBKU)

Speculative Distributed CSV Data Parsing for Big Data Analytics

Chang Ge (University of Waterloo), Yinan Li (Microsoft Research), Eric Eilebrecht (Microsoft Research), Badrish Chandramouli (Microsoft Research), Donald Kossmann (Microsoft Research)

SIGMOD Research 9: Query Processing & Optimization 2

Location: Administratiezaal

Chair: TBD

CATAPULT: Data-driven Selection of Canned Patterns for Efficient Visual Graph Query Formulation

Kai Huang (Fudan University), Huey Chua (Nanyang Technological University), Sourav Bhowmick (Nanyang Technological University), Byron Choi (Hong Kong Baptist University), Shuigeng Zhou (Fudan University)

iQCAR: inter-Query Contention Analyzer for Data Analytics Frameworks

Prajakta Kalmegh (Duke University), Shivnath Babu (Unravel Data Systems), Sudeepa Roy (Duke University)

A Holistic Approach for Query Evaluation and Result Vocalization in Voice-Based OLAP

Immanuel Trummer (Cornell University), Yicheng Wang (Cornell University), Saketh Mahankali (Cornell University)

Top-k Queries over Digital Traces

Yifan Li (York University), Xiaohui Yu (York University), Nick Koudas (University of Toronto)

Visual Road: A Video Data Management Benchmark

Brandon Haynes (University of Washington), Amrita Mazumdar (University of Washington), Magdalena Balazinska (University of Washington), Luis Ceze (University of Washington), Alvin Cheung (University of Washington)

Mining Precision Interfaces From Query Logs

Qianrui Zhang (Tsinghua University), Haoci Zhang (Columbia University), Thibault Sellam (Columbia University), Eugene Wu (Columbia University)

SIGMOD Research 10: Graphs 1

Location: Berlage Zaal

Chair: TBD

Distance-generalized Core Decomposition

Francesco Bonchi (ISI Foundation & Eurecat), Arijit Khan (Nanyang Technological University), Lorenzo Severini (ISI Foundation)

Unboundedness and Efficiency of Truss Maintenance in Evolving Graphs

Yikai Zhang (Chinese University of Hong Kong), Jeffrey Yu (Chinese

University of Hong Kong)

PRSim: Sublinear Time SimRank Computation on Large Power-Law Graphs

Zhewei Wei (Renmin University of China), Xiaodong He (4Paradigm Inc.), Xiaokui Xiao (National University of Singapore), Sibo Wang (The Chinese University of Hong Kong), Yu Liu (Peking University), Xiaoyong Du (Renmin University of China), Ji-Rong Wen (Renmin University of China)

Scaling Distance Labeling on Small-World Networks

Wentao Li (University of Technology Sydney), Miao Qiao (University of Auckland), Lu Qin (University of Technology Sydney), Ying Zhang (University of Technology Sydney), Lijun Chang (University of Sydney), Xuemin Lin (University of New South Wales)

Maximizing Welfare in Social Networks under A Utility Driven Influence Diffusion model

Prithu Banerjee (University of British Columbia), Wei Chen (Microsoft Research), Laks Lakshmanan (University of British Columbia)

Efficient Approximation Algorithms for Adaptive Seed Minimization

Jing Tang (National University of Singapore), Keke Huang (Nanyang Technological University), Xiaokui Xiao (National University of Singapore), Laks Lakshmanan (University of British Columbia), Xueyan Tang (Nanyang Technological University), Aixin Sun (Nanyang Technological University), Andrew Lim (National University of Singapore)

Wednesday 03/07/2019 16:20-17:50

Poster & Demo Groups B and C

Location: Grote Zaal

One poster for each SIGMOD and PODS paper presented on Wednesday.

Pivotal Greenplum© for Kubernetes: Demonstration of Managing Greenplum Database on Kubernetes

Jemish Patel (Pivotal Software Inc), Goutam Tadi (Pivotal Software Inc), Oz Basarir (Pivotal Software Inc), Lawrence Hamel (Pivotal Software Inc), David Sharp (Pivotal Software Inc), Fei Yang (Pivotal Software Inc), Xin Zhang (Pivotal Software Inc)

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Natural Language Querying of Complex Business Intelligence Queries

Jaydeep Sen (IBM Research AI), Fatma Ozcan (IBM Research AI), Abdul Quamar (IBM Research AI), Greg Stager (IBM Canada), Ashish Mittal (IBM Research AI), Manasa Jammi (IBM Research AI), Chuan Lei (IBM Research AI), Diptikalyan Saha (IBM Research AI), Karthik

Sankaranarayanan (IBM Research AI)

Peering through the Dark: An Owl's View of Inter-job Dependencies and Jobs' Impact in Shared Clusters

Andrew Chung (Carnegie Mellon University), Carlo Curino (Microsoft), Subru Krishnan (Microsoft), Konstantinos Karanasos (Microsoft), Panagiotis Garefalakis (Imperial College London), Gregory Ganger (Carnegie Mellon University)

Visual Exploration of Time Series Anomalies with Metro-Viz

Philipp Eichmann (Brown University), Franco Solleza (Brown University), Nesime Tatbul (Intel Labs and MIT), Stan Zdonik (Brown University)

Data Debugging and Exploration with Vizier

Mike Brachmann (University at Buffalo), Carlos Bautista (New York University), Sonia Castelo (New York University), Su Feng (Illinois Institute of Technology), Juliana Freire (New York University), Boris Glavic (Illinois Institute of Technology), Oliver Kennedy (University of Buffalo), Heiko Meller (New York University), R. Rampin (New York University), William Spoth (University at Buffalo), Ying Yang (Oracle)

CrowdGame: A Game-Based Crowdsourcing System for Cost-Effective Data Labeling

Tongyu Liu (Renmin University of China), Jingru Yang (Renmin University of China), Ju Fan (Renmin University of China), Zhewei Wei (Renmin University of China), Guoliang Li (Tsinghua University), Xiaoyong Du (Renmin University of China)

Ursprung: Provenance for Large-Scale Analytics Environments

Lukas Rupprecht (IBM Almaden Research Center), James Davis (Virginia Tech & IBM Systems), Constantine Arnold (IBM Almaden Research Center), Alexander Lubbock (Vanderbilt University), Darren

Tyson (Vanderbilt University), Deepavali Bhagwat (IBM Almaden Research Center)

BlockchainDB - Towards a Shared Database on Blockchains
Muhammad El-Hindi (TU Darmstadt), Martin Heyden (TU Darmstadt), Carsten Binnig (TU Darmstadt), Ravi Ramamurthy (Microsoft Research), Arvind Arasu (Microsoft Research), Donald Kossmann (Microsoft Research)

Fluid: A Blockchain based Framework for Crowdsourcing
Siyuan Han (Hong Kong University of Science and Technology), Zihuan Xu (Hong Kong University of Science and Technology), Yuxiang Zeng (Hong Kong University of Science and Technology), Lei Chen (Hong Kong University of Science and Technology)

MorphStore - In-Memory Query Processing based on Morphing Compressed Intermediates LIVE

Dirk Habich (Technische Universität Dresden), Patrick Damme (Technische Universität Dresden), Annett Ungethüm (Technische Universität Dresden), Johannes Pietrzyk (Technische Universität Dresden), Alexander Krause (Technische Universität Dresden), Juliana Hildebrandt (Technische Universität Dresden), Wolfgang Lehner (Technische Universität Dresden)

MapRepair: Mapping and Repairing under Policy Views

Angela Bonifati (Lyon 1 University & Liris CNRS), Ugo Comignani (Lyon 1 University & Liris CNRS), Efthymia Tsamoura (University of Oxford)

RATest: Explaining Wrong Relational Queries Using Small Examples

Zhengjie Miao (Duke University), Sudeepa Roy (Duke University), Jun Yang (Duke University)

NAVIGATE: Explainable Visual Graph Exploration by Examples

Mohammad Hossein Namaki (Washington State University), Qi Song (Washington State University), Yinghui Wu (Washington State University)

C2Metadata: Automating the Capture of Data Transformations from Statistical Scripts in Data Documentation

Jie Song (University of Michigan), George Alter (University of Michigan), H. V. Jagadish (University of Michigan)

MithraRanking: A System for Responsible Ranking Design

Yifan Guan (University of Michigan), Abolfazl Asudeh (University of Michigan), Pranav Mayuram (University of Michigan), H. V. Jagadish (University of Michigan), Julia Stoyanovich (New York University), Jerome Miklau (University of Massachusetts Amherst), Gautam Das (University of Texas at Arlington)

NEWS: News Event Walker and Summarizer

Radityo Eko Prasojo (Free University of Bozen-Bolzano), Mouna Kacimi (Free University of Bozen-Bolzano), Werner Nutt (Free University of Bozen-Bolzano)

Cost-Effective, Workload-Adaptive Migration of Big Data Applications to the Cloud

Victor Giannakouris (Unravel Data Systems), Alejandro Fernandez (Unravel Data Systems), Alkis Simitsis (Unravel Data Systems), Shivenath Babu (Unravel Data Systems)

ChronosDB in Action: Manage, Process, and Visualize Big Geospatial Arrays in the Cloud

Ramon Antonio Rodriges Zalipynis (National Research University Higher School of Economics)

Wednesday 03/07/2019 17:50-20:30

Dinner Transfer incl. Canal Cruise

Location: 20 boats (Rederij Stromma)

Wednesday 03/07/2019 20:30-23:00

SIGMOD Dinner - sponsored by Facebook

Location: Noorderlicht Cafe

Thursday 04/07/2019 08:00-08:30

Coffee + Light Breakfast

Location: Grote Zaal

Thursday 04/07/2019 08:30-10:00

Award Talks

Location: Effectenbeurszaal

Thursday 04/07/2019 10:00-11:00

Teaser Talks for all Thursday SIGMOD Research and Industrial Papers

Location: Effectenbeurszaal

Thursday 04/07/2019 11:00-11:30

Coffee

Location: Grote Zaal

Thursday 04/07/2019 11:30-12:50

SIGMOD Research 11: Systems & Machine Learning

Location: Effectenbeurszaal

Chair: TBD

DeepBase: Deep Inspection of Neural Networks

Thibault Sellam (Columbia University), Kevin Lin (Columbia University), Ian Huang (Columbia University), Michelle Yang (University of

California, Berkeley), Carl Vondrick (Columbia University), Eugene Wu (Columbia University)

BlinkML: Efficient Maximum Likelihood Estimation with Probabilistic Guarantees

Yongjoo Park (University of Michigan), Jingyi Qing (University of Michigan), Xiaoyang Shen (University of Michigan), Barzan Mozafari (University of Michigan)

SkinnerDB: Regret-Bounded Query Evaluation via Reinforcement Learning

Immanuel Trummer (Cornell University), Junxiong Wang (Cornell University), Deepak Maram (Cornell University), Samuel Moseley (Cornell University), Saehan Jo (Cornell University), Joseph Antonakakis (Cornell University)

Democratizing Data Science through Interactive Curation of ML Pipelines

Zeyuan Shang (MIT), Emanuel Zgraggen (MIT), Benedetto Buratti (Brown University), Ferdinand Kossmann (MIT), Philipp Eichmann (Brown University), Yeounoh Chung (Brown University), Carsten Binnig (TU Darmstadt), Eli Upfal (Brown University), Tim Kraska (MIT)

SIGMOD Research 12: Indexing

Location: Graanbeurszaal

Chair: TBD

FITing-Tree: A Data-aware Index Structure

Alex Galakatos (Brown University), Michael Markovitch (Brown University), Carsten Binnig (TU Darmstadt), Rodrigo Fonseca (Brown University), Tim Kraska (MIT)

Hyperion: Building the Largest In-memory Search Tree

Markus Mäsker (Johannes Gutenberg University Mainz), Tim Süß (University of Applied Science Fulda), Lars Nagel (Loughborough Uni-

versity), Lingfang Zeng (Huazhong University of Science and Technology), André Brinkmann (Johannes Gutenberg University Mainz)

Designing Succinct Secondary Indexing Mechanism by Exploiting Column Correlations

Yingjun Wu (IBM Almaden Research Center), Jia Yu (Arizona State University), Yuanyuan Tian (IBM Almaden Research Center), Richard Sidle (IBM), Ronald Barber (IBM Almaden Research Center)

AI Meets AI: Leveraging Query Executions to Improve Index Recommendations

Bailu Ding (Microsoft Research), Sudipto Das (Microsoft Research), Ryan Marcus (Brandeis University), Wentao Wu (Microsoft Research), Surajit Chaudhuri (Microsoft Research), Vivek Narasayya (Microsoft Research)

SIGMOD Research 13: Fairness, Uncertainty

Location: Administratiezaal

Chair: TBD

Designing Fair Ranking Schemes

Abolfazl Asudeh (University of Michigan), H. V. Jagadish (University of Michigan), Julia Stoyanovich (New York University), Gautam Das (University of Texas at Arlington)

Anti-Freeze for Large and Complex Spreadsheets: Asynchronous Formula Computation

Mangesh Bendre (University of Illinois Urbana-Champaign), Tana Wattanawaroон (University of Illinois Urbana-Champaign), Kelly Mack (University of Illinois Urbana-Champaign), Kevin Chang (University of Illinois Urbana-Champaign), Aditya Parameswaran (University of Illinois Urbana-Champaign)

Anytime Approximation in Probabilistic Databases via Scaled Dissociations

Maarten Van den Heuvel (University of Antwerp), Peter Ivanov (North-eastern University), Wolfgang Gatterbauer (Northeastern University), Floris Geerts (University of Antwerp), Martin Theobald (University of Luxembourg)

Uncertainty Annotated Databases - A Lightweight Approach for Approximating Certain Answers

Su Feng (Illinois Institute of Technology), Aaron Huber (University at Buffalo), Boris Glavic (Illinois Institute of Technology), Oliver Kennedy (University at Buffalo)

SIGMOD Research 14: Graphs 2

Location: Berlage Zaal

Chair: TBD

Efficient Estimation of Heat Kernel PageRank for Local Clustering

Renchi Yang (Nanyang Technological University), Xiaokui Xiao (National University of Singapore), Zhewei Wei (Renmin University of China), Sourav Bhowmick (Nanyang Technological University), Jun Zhao (Nanyang Technological University), Rong-Hua Li (Beijing Institute of Technology)

Fractal: A General-Purpose Graph Pattern Mining System

Vinicio Dias (Universidade Federal de Minas Gerais), Carlos Teixeira (Universidade Federal de Minas Gerais), Dorgival Guedes (Universidade Federal de Minas Gerais), Wagner Meira (Universidade Federal de Minas Gerais), Srinivasan Parthasarathy (Ohio State University)

Experimental Analysis of Streaming Algorithms for Graph Partitioning

Anil Pacaci (University of Waterloo), Tamer Özsu (University of Waterloo)

Interactive Graph Search

Yufei Tao (Chinese University of Hong Kong), Yuanbing Li (Tsinghua University), Guoliang Li (Tsinghua University)

Thursday 04/07/2019 12:50-14:20

Lunch

Location: Grote Zaal

Thursday 04/07/2019 14:20-16:20

SIGMOD Research 15: Graphs 3

Location: Effectenbeurszaal

Chair: TBD

Optimizing Declarative Graph Queries at Large Scale

Qizhen Zhang (University of Pennsylvania), Akash Acharya (University of Pennsylvania), Hongzhi Chen (The Chinese University of Hong Kong), Simran Arora (University of Pennsylvania), Ang Chen (Rice University), Vincent Liu (University of Pennsylvania), Boon Loo (University of Pennsylvania)

Efficient Subgraph Matching: Harmonizing Dynamic Programming, Adaptive Matching Order, and Failing Set Together

Myoungji Han (Seoul National University), Hyunjoon Kim (Seoul National University), Geonmo Gu (Seoul National University), Kunsoo Park (Seoul National University), Wook-Shin Han (Pohang University of Science and Technology (POSTECH))

CECI: Compact Embedding Cluster Index for Scalable Subgraph Matching

Bibek Bhattacharai (George Washington University), Hang Liu (University of Massachusetts Lowell), H. Howie Huang (George Washington University)

Efficiently Answering Regular Simple Path Queries on Large

Labeled Networks

Sarish Wadhwa (IIT Delhi), Anagh Prasad (IIT Delhi), Sayan Ranu (IIT Delhi), Amitabha Bagchi (IIT Delhi), Srikanta Bedathur (IIT Delhi)

Answering Why-questions by Exemplars in Attributed Graphs

Mohammad Hossein Namaki (Washington State University), Qi Song (Washington State University), Yinghui Wu (Washington State University), Shengqi Yang (WeWork Technology)

An Efficient Index for RDF Query Containment

Theofilos Mailis (Athena Research Centre & University of Athens), Yannis Kotidis (Athens University of Economics and Business), Vaggelis Nikolopoulos (University of Athens), Evgeny Kharlamov (University of Oslo & Bosch Center for AI), Ian Horrocks (University of Oxford), Yannis Ioannidis (Athena Research Centre & University of Athens)

SIGMOD Research 16: Machine Learning

Location: Graanbeurszaal

Chair: TBD

Tuple-oriented Compression for Large-scale Mini-batch Stochastic Gradient Descent

Fengan Li (University of Wisconsin, Madison), Lingjiao Chen (University of Wisconsin, Madison), Yijing Zeng (University of Wisconsin, Madison), Arun Kumar (University of California, San Diego), Xi Wu (University of Wisconsin, Madison), Jeffrey Naughton (University of Wisconsin, Madison), Jignesh Patel (University of Wisconsin, Madison)

Towards Model-based Pricing for Machine Learning in a Data Marketplace

Lingjiao Chen (University of Wisconsin, Madison), Paraschos Koutris (University of Wisconsin, Madison), Arun Kumar (University of California, San Diego)

DBEst: Revisiting Approximate Query Processing Engines with Machine Learning Models

Qingzhi Ma (University of Warwick), Peter Triantafillou (University of Warwick)

Enabling and Optimizing Non-linear Feature Interactions in Factorized Linear Algebra

Side Li (University of California, San Diego), Lingjiao Chen (University of Wisconsin, Madison), Arun Kumar (University of California, San Diego)

Incremental and Approximate Inference for Faster Occlusion-based Deep CNN Explanations

Supun Nakandala (University of California, San Diego), Arun Kumar (University of California, San Diego), Yannis Papakonstantinou (University of California, San Diego)

MNC: Structure-Exploiting Sparsity Estimation for Matrix Expressions

Johanna Sommer (IBM Germany), Matthias Boehm (Graz University of Technology), Alexandre Evfimievski (IBM Almaden Research Center), Berthold Reinwald (IBM Almaden Research Center), Peter Haas (University of Massachusetts Amherst)

SIGMOD Research 17: Scalability

Location: Administratiezaal

Chair: TBD

A Scalable Index for Top-k Subtree Similarity Queries

Daniel Kocher (University of Salzburg), Nikolaus Augsten (University of Salzburg)

A Layered Aggregate Engine for Analytics Workloads

Maximilian Schleich (University of Oxford), Dan Olteanu (University of Oxford), Mahmoud Abo Khamis (RelationalAI), Hung Ngo

(RelationalAI), XuanLong Nguyen (University of Michigan)

Towards Scalable Hybrid Stores: Constraint-Based Rewriting to the Rescue

Rana Alotaibi (University of California, San Diego), Damian Bursztyn (Thales), Alin Deutsch (University of California, San Diego), Ioana Manolescu (Inria & Ecole polytechnique), Stamatis Zampetakis (Orchestra Networks)

MIFO: A Query-Semantic Aware Resource Allocation Policy

Prajakta Kalmegh (Duke University), Shivnath Babu (Unravel Data Systems)

Dissecting the Performance of Strongly-Consistent Replication Protocols

Ailidani Ailijiang (Microsoft), Aleksey Charapko (University at Buffalo, SUNY), Murat Demirbas (University at Buffalo, SUNY)

FishStore: Faster Ingestion with Subset Hashing

Dong Xie (University of Utah), Badrish Chandramouli (Microsoft Research), Yinan Li (Microsoft Research), Donald Kossmann (Microsoft Research)

SIGMOD Industry 3: Data Platforms

Location: Berlage Zaal

CFS: A Distributed File System for Large Scale Container Platforms

Haifeng Liu (University of Science and Technology of China), Wei Ding (JD.com), Yuan Chen (JD.com), Weilong Guo (JD.com), Shuoran Liu (JD.com), Tianpeng Li (JD.com), Mofei Zhang (JD.com), Jianxing Zhao (JD.com), Hongyin Zhu (JD.com), Zhengyi Zhu (JD.com)

Socrates: The New SQL Server in the Cloud

Panagiotis Antonopoulos (Microsoft), Alex Budovski (Microsoft), Cristian Diaconu (Microsoft), Alejandro Hernandez (Microsoft), Jack Hu

(Microsoft), Hanuma Kodavalla (Microsoft), Donald Kossmann (Microsoft Research), Umar Farooq Minhas (Microsoft Research), Naveen Prakash (Microsoft), Vijendra Purohit (Microsoft), Hugh Qu (Microsoft), Chaitanya Sreenivas Ravella (Microsoft), Krystyna Reisteter (Microsoft), Sheetal Shrotri (Microsoft), Dixin Tang (University of Chicago), Vikram Wakade (Microsoft)

One SQL to Rule Them All - an Efficient and Syntactically Idiomatic Approach to Management of Streams and Tables

Edmon Begoli (Oak Ridge National Laboratory), Tyler Akidau (Google), Fabian Hueske (Ververica), Julian Hyde (Looker Inc.), Kathryn Knight (Oak Ridge National Laboratory), Kenneth Knowles (Google)

Apache Hive: From MapReduce to Enterprise-grade Big Data Warehousing

Jesús Camacho-Rodríguez (Hortonworks), Ashutosh Chauhan (Hortonworks), Alan Gates (Hortonworks), Eugene Koifman (Hortonworks), Owen O'Malley (Hortonworks), Vineet Garg (Hortonworks), Zoltan Haindrich (Hortonworks), Sergey Shelukhin (Hortonworks), Prasanth Jayachandran (Hortonworks), Siddharth Seth (Hortonworks), Deepak Jaiswal (Hortonworks), Slim Bouguerra (Hortonworks), Nishant Bangarwa (Hortonworks), Sankar Hariappan (Hortonworks), Anishek Agarwal (Hortonworks), Jason Dere (Hortonworks), Daniel Dai (Hortonworks), Thejas Nair (Hortonworks), Nita Dembla (Hortonworks), Gopal Vijayaraghavan (Hortonworks), Günther Hagleitner (Hortonworks)

FoundationDB Record Layer: A Multi-Tenant Structured Datastore

Christos Chrysafis (Apple), Ben Collins (Apple), Scott Dugas (Apple), Jay Dunkelberger (Apple), Moussa Ehsan (Apple), Scott Gray (Apple), Alec Grieser (Apple), Ori Herrnstadt (Apple), Kfir Lev-Ari (Apple), Tao Lin (Apple), Mike McMahon (Apple), Nicholas Schiefer (Apple),

Alexander Shraer (Apple)

Data Platform for Machine Learning

Pulkit Agrawal (Apple), Rajat Arya (Apple), Aanchal Bindal (Apple), Sandeep Bhatia (Apple), Anupriya Gagneja (Apple), Joseph Godlewski (Apple), Yucheng Low (Apple), Timothy Muss (Apple), Mudit Manu Paliwal (Apple), Sethu Raman (Apple), Vishrut Shah (Apple), Bochao Shen (Apple), Laura Sugden (Apple), Kaiyu Zhao (Apple), Ming-Chuan Wu (Apple)

Thursday 04/07/2019 16:20-17:50

Poster & Demo Groups A and C

Location: Grote Zaal

One poster for each SIGMOD paper presented on Thursday.

FindYourFavorite: An Interactive System for Finding the User's Favorite Tuple in the Database

Min Xie (Hong Kong University of Science and Technology), Tianwen Chen (Hong Kong University of Science and Technology), Raymond Chi-Wing Wong (Hong Kong University of Science and Technology)

Large Scale Graph Mining with G-Miner

Hongzhi Chen (The Chinese University of Hong Kong), Xiaoxi Wang (The Chinese University of Hong Kong), Chenghuan Huang (The Chinese University of Hong Kong), Juncheng Fang (The Chinese University of Hong Kong), Yifan Hou (The Chinese University of Hong Kong), Changji Li (The Chinese University of Hong Kong), James Cheng (The Chinese University of Hong Kong)

ANMAT: Automatic Knowledge Discovery and Error Detection through Pattern Functional Dependencies

Abdulhakim Qahtan (QCRI, HBKU), Nan Tang (QCRI, HBKU), Mourad Ouzzani (QCRI, HBKU), Yang Cao (University of Edinburgh),

Michael Stonebraker (MIT)

Estimating Cardinalities with Deep Sketches

Andreas Kipf (Technische Universität München), Dimitri Vorona (Technische Universität München), Jonas Müller (Technische Universität München), Thomas Kipf (University of Amsterdam), Bernhard Radke (Technische Universität München), Viktor Leis (Technische Universität München), Peter Boncz (CWI), Thomas Neumann (Technische Universität München), Alfons Kemper (Technische Universität München)

Unit Testing Data with Deequ

Sebastian Schelter (Amazon Research), Felix Biessmann (Amazon Research), Dustin Lange (Amazon Research), Tammo Rukat (Amazon Research), Phillip Schmidt (Amazon Research), Stephan Seufert (Amazon Research), Pierre Brunelle (Amazon Research), Andrey Taptunov (Amazon Research)

DuckDB: an Embeddable Analytical Database

Mark Raasveldt (CWI), Hannes Mühleisen (CWI)

CLASH: A High-Level Abstraction for Optimized, Multi-Way Stream Joins over Apache Storm

Manuel Dossinger (TU Kaiserslautern), Sebastian Michel (TU Kaiserslautern), Constantin Roudsarabi (TU Kaiserslautern)

PgCuckoo: Laying Plan Eggs in PostgreSQL's Nest

Denis Hirn (Universität Tübingen), Torsten Grust (Universität Tübingen)

Demonstration of ModelarDB: Model-Based Management of Dimensional Time Series

Søren Kejser Jensen (Aalborg University), Torben Bach Pedersen (Aalborg University), Christian Thomsen (Aalborg University)

NEURON: Query Execution Plan Meets Natural Language Processing For Augmenting DB Education

Siyuan Liu (Nanyang Technological University), Sourav Bhowmick (Nanyang Technological University), Wanlu Zhang (Nanyang Technological University), Shu Wang (Nanyang Technological University), Wanyi Huang (Nanyang Technological University), Shafiq Joty (Nanyang Technological University)

PIClean: A Probabilistic and Interactive Data Cleaning System

Zhuoran Yu (Georgia Institute of Technology), Xu Chu (Georgia Institute of Technology)

Apollo: A Dataset Profiling and Operator Modeling System

Tasos Bakogiannis (National Technical University of Athens), Ioannis Giannakopoulos (National Technical University of Athens), Dimitrios Tsoumakos (Ionian University), Nectarios Koziris (National Technical University of Athens)

Peering through the Dark: An Owl's View of Inter-job Dependencies and Jobs' Impact in Shared Clusters

Andrew Chung (Carnegie Mellon University), Carlo Curino (Microsoft), Subru Krishnan (Microsoft), Konstantinos Karanasos (Microsoft), Panagiotis Garefalakis (Imperial College London), Gregory Ganger (Carnegie Mellon University)

Visual Exploration of Time Series Anomalies with Metro-Viz

Philipp Eichmann (Brown University), Franco Solleza (Brown University), Nesime Tatbul (Intel Labs and MIT), Stan Zdonik (Brown University)

Data Debugging and Exploration with Vizier

Mike Brachmann (University at Buffalo), Carlos Bautista (New York University), Sonia Castelo (New York University), Su Feng (Illinois Institute of Technology), Juliana Freire (New York University), Boris Glavic (Illinois Institute of Technology), Oliver Kennedy (University of Buffalo), Heiko Müller (New York University), Rémi

Rampin (New York University), William Spoth (University at Buffalo), Ying Yang (Oracle)

CrowdGame: A Game-Based Crowdsourcing System for Cost-Effective Data Labeling

Tongyu Liu (Renmin University of China), Jingru Yang (Renmin University of China), Ju Fan (Renmin University of China), Zhewei Wei (Renmin University of China), Guoliang Li (Tsinghua University), Xiaoyong Du (Renmin University of China)

Ursprung: Provenance for Large-Scale Analytics Environments

Lukas Rupprecht (IBM Almaden Research Center), James Davis (Virginia Tech & IBM Systems), Constantine Arnold (IBM Almaden Research Center), Alexander Lubbock (Vanderbilt University), Darren Tyson (Vanderbilt University), Deepavali Bhagwat (IBM Almaden Research Center)

BlockchainDB - Towards a Shared Database on Blockchains

Muhammad El-Hindi (TU Darmstadt), Martin Heyden (TU Darmstadt), Carsten Binnig (TU Darmstadt), Ravi Ramamurthy (Microsoft Research), Arvind Arasu (Microsoft Research), Donald Kossmann (Microsoft Research)

Fluid: A Blockchain based Framework for Crowdsourcing

Siyuan Han (Hong Kong University of Science and Technology), Zihuan Xu (Hong Kong University of Science and Technology), Yuxiang Zeng (Hong Kong University of Science and Technology), Lei Chen (Hong Kong University of Science and Technology)

MorphStore - In-Memory Query Processing based on Morphing Compressed Intermediates LIVE

Dirk Habich (Technische Universität Dresden), Patrick Damme (Technische Universität Dresden), Annett Ungethüm (Technische Universität Dresden), Johannes Pietrzyk (Technische Universität Dresden),

Alexander Krause (Technische Universität Dresden), Juliana Hildebrandt (Technische Universität Dresden), Wolfgang Lehner (Technische Universität Dresden)

MapRepair: Mapping and Repairing under Policy Views

Angela Bonifati (Lyon 1 University & Liris CNRS), Ugo Comignani (Lyon 1 University & Liris CNRS), Efthymia Tsamoura (University of Oxford)

RATest: Explaining Wrong Relational Queries Using Small Examples

Zhengjie Miao (Duke University), Sudeepa Roy (Duke University), Jun Yang (Duke University)

NAVIGATE: Explainable Visual Graph Exploration by Examples

Mohammad Hossein Namaki (Washington State University), Qi Song (Washington State University), Yinghui Wu (Washington State University)

C2Metadata: Automating the Capture of Data Transformations from Statistical Scripts in Data Documentation

Jie Song (University of Michigan), George Alter (University of Michigan), H. V. Jagadish (University of Michigan)

MithraRanking: A System for Responsible Ranking Design

Yifan Guan (University of Michigan), Abolfazl Asudeh (University of Michigan), Pranav Mayuram (University of Michigan), H. V. Jagadish (University of Michigan), Julia Stoyanovich (New York University), Gerome Miklau (University of Massachusetts Amherst), Gautam Das (University of Texas at Arlington)

NEWS: News Event Walker and Summarizer

Radityo Eko Prasojo (Free University of Bozen-Bolzano), Mouna Kacimi (Free University of Bozen-Bolzano), Werner Nutt (Free University of Bozen-Bolzano)

Cost-Effective, Workload-Adaptive Migration of Big Data Applications to the Cloud

Victor Giannakouris (Unravel Data Systems), Alejandro Fernandez (Unravel Data Systems), Alkis Simitsis (Unravel Data Systems), Shivanath Babu (Unravel Data Systems)

ChronosDB in Action: Manage, Process, and Visualize Big Geospatial Arrays in the Cloud

Ramon Antonio Rodriges Zalipynis (National Research University Higher School of Economics)

Friday 05/07/2019 08:30-09:00

Coffee + Light Breakfast

Location: Grote Zaal

Friday 05/07/2019 09:00-10:30

Tutorial 4: part 1

Location: Effectenbeurszaal

Classical and Contemporary Approaches to Big Time Series Forecasting

Christos Faloutsos (Carnegie Mellon University & Amazon), Jan Gasthaus (AWS AI Labs), Tim Januschowski (AWS AI Labs), Yuyang Wang (AWS AI Labs)

Tutorial 6: part 1

Location: Administratiezaal

From Auto-tuning One Size Fits All to Self-designed and Learned Data-intensive Systems

Stratos Idreos (Harvard University), Tim Kraska (MIT)

HILDA 2019: Session 1

Location: Berlage Zaal

HILDA 2019: the International Workshop on Human-In-the-Loop Data Analytics

Leilani Battle (University of Maryland), Surajit Chaudhuri (Microsoft), Arnab Nandi (The Ohio State University)

aiDM 2019: Session 1

Location: Veilingzaal

aiDM 2019: the 2nd International Workshop on Exploiting Artificial Intelligence Techniques for Data Management

Rajesh Bordawekar (IBM T. J. Watson Research Center), Oded Shmueli (Computer Science Department, Technion)

SBD 2019: Session 1

Location: Mendes da Costa Kamer

SBD 2019: the Fourth International Workshop on Semantic Big Data

Sven Groppe (University of Lübeck), Le Gruenwald (University of Oklahoma)

Friday 05/07/2019 11:00-12:30

Tutorial 4: part 2

Location: Effectenbeurszaal

Classical and Contemporary Approaches to Big Time Series Forecasting

Christos Faloutsos (Carnegie Mellon University & Amazon), Jan Gasthaus (AWS AI Labs), Tim Januschowski (AWS AI Labs), Yuyang Wang (AWS AI Labs)

Tutorial 6: part 2

Location: Administratiezaal

From Auto-tuning One Size Fits All to Self-designed and Learned Data-intensive Systems

Stratos Idreos (Harvard University), Tim Kraska (MIT)

HILDA 2019: Session 2

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SBD 2019: Session 2

Location: Mendes da Costa Kamer

SBD 2019: the Fourth International Workshop on Semantic Big Data

Sven Groppe (University of Lübeck), Le Gruenwald (University of Oklahoma)

Friday 05/07/2019 12:30-14:00

Lunch

Location: Grote Zaal

Friday 05/07/2019 14:00-15:30

Tutorial 5: part 1

Location: Effectenbeurszaal

Data Pipelines for User Group Analytics

Behrooz Omidvar-Tehrani (University of Grenoble Alpes), Sihem Amer-Yahia (University of Grenoble Alpes and CNRS)

Tutorial 7

Location: Administratiezaal

Schemas and Types for JSON Data: From Theory to Practice

Mohamed-Amine Baazizi (Sorbonne Université, LIP6 UMR 7606), Dario Colazzo (Université Paris-Dauphine, PSL Research University), Giorgio Ghelli (Università di Pisa), Carlo Sartiani (Università della Basilicata)

HILDA 2019: Session 3

Location: Berlage Zaal

HILDA 2019: the International Workshop on Human-In-the-Loop Data Analytics

Leilani Battle (University of Maryland), Surajit Chaudhuri (Microsoft), Arnab Nandi (The Ohio State University)

aiDM 2019: Session 3

Location: Veilingzaal

aiDM 2019: the 2nd International Workshop on Exploiting Artificial Intelligence Techniques for Data Management

Rajesh Bordawekar (IBM T. J. Watson Research Center), Oded Shmueli (Computer Science Department, Technion)

SBD 2019: Session 3

Location: Mendes da Costa Kamer

SBD 2019: the Fourth International Workshop on Semantic Big Data

Sven Groppe (University of Lübeck), Le Gruenwald (University of Oklahoma)

Friday 05/07/2019 15:30-16:30

Coffee + Workshop Posters

Location: Grote Zaal

Friday 05/07/2019 16:30-18:00

Tutorial 5: part 2

Location: Effectenbeurszaal

Data Pipelines for User Group Analytics

Behrooz Omidvar-Tehrani (University of Grenoble Alpes), Sihem Amer-Yahia (University of Grenoble Alpes and CNRS)

HILDA 2019: Session 4

Location: Berlage Zaal

HILDA 2019: the International Workshop on Human-In-the-Loop Data Analytics

Leilani Battle (University of Maryland), Surajit Chaudhuri (Microsoft), Arnab Nandi (The Ohio State University)

aiDM 2019: Session 4

Location: Veilingzaal

aiDM 2019: the 2nd International Workshop on Exploiting Artificial Intelligence Techniques for Data Management

Rajesh Bordawekar (IBM T. J. Watson Research Center), Oded Shmueli (Computer Science Department, Technion)

Location: Mendes da Costa Kamer

SBD 2019: the Fourth International Workshop on Semantic Big Data

Sven Groppe (University of Lübeck), Le Gruenwald (University of Oklahoma)

Workshops

Monday 01/07/2019 08:30-17:00

FADS

Location: Auditorium 602

Failed Aspirations in Database Systems

Spyros Blanas (Ohio State University), Justin Lewandoski (Microsoft Research), Andy Pavlo (CMU)

BIRTE

Location: Auditorium 606

Eleventh International Workshop on Real-Time Business Intelligence and Analytics

Malu Castellanos (Teradata Aster), Panos K Chrysanthis (University of Pittsburgh)

TPCTC

Location: Auditorium 601

Ninth TPC Technology Conference on Performance Evaluation & Benchmarking

Raghunath Niambur (Cisco), Meikel Poess (Oracle)

VLIoT

Location: Auditorium 670

The International Workshop on Very Large Internet of Things

Sven Groppe (University of Lübeck), Carlo Alberto Boano (Graz University of Technology)

PhD Workshop

Location: Auditorium 1601

VLDB PhD Workshop

Peter Christen (The Australian National University), Bettina Kemme

(McGill University), Erhard Rahm (University of Leipzig)

Friday 05/07/2019 08:30-17:00

MATES

Location: Auditorium 602

Workshop on Mobility Analytics for Spatio-temporal and Social Data

Christos Doulkeridis (University of Piraeus), Qiang Qu (Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences)

ADMS

Location: Auditorium 606

Eight International Workshop on Accelerating Analytics and Data Management Systems Using Modern Processor and Storage Architectures

Rajesh Bordawekar (IBM Watson), Tirthankar Lahiri (Oracle)

DMAH

Location: Auditorium 601

The Third International Workshop on Data Management and Analytics for Medicine and Healthcare

Fusheng Wang (Stony Brook University), Gang Luo (University of Washington), Edmon Begoli (Oak Ridge National Laboratory)

DBPL

Location: Auditorium 670

The Sixteenth International Symposium on Database Programming Languages

Tiark Rompf (Purdue University), Alexander Alexandrov (TU Berlin)

BOSS

Location: Auditorium 1601

Third Workshop on Big Data Open Source Systems

Tyson Condie (UCLA), Tilmann Rabl (TU Berlin)

THE WORLD'S FIRST ENGAGEMENT DATABASE

Today's customers aren't just shoppers. They're seekers. That means they spend a lot more time interacting than transacting. **And you have only 8 seconds to grab their attention** before they start looking somewhere else.

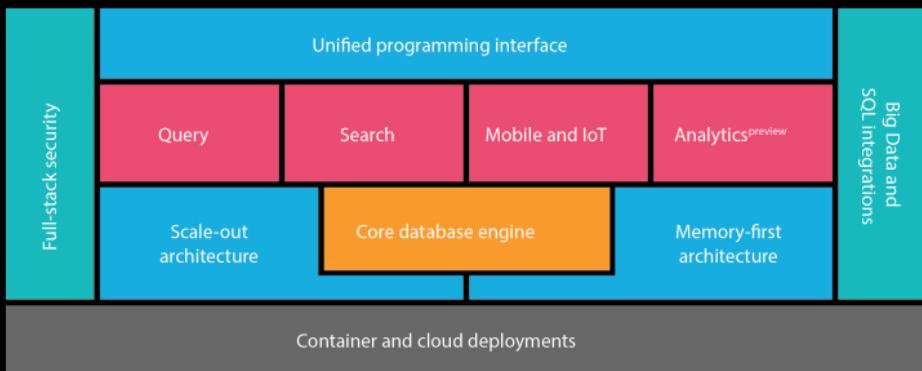
The Couchbase Data Platform makes every interaction count.

To make the most of every moment, you need an **Engagement Database** that delivers an amazing customer experience (CX) every time.

HERE'S WHY

- 1 By 2020, CX will overtake price and product as the key brand differentiator
- 2 Strong CX companies will retain 89% of customers versus 33% for weak CX companies
- 3 70% of Global 500 brands already have dedicated digital experience teams in place

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Google

Software Engineering



Google's software engineers develop the next-generation technologies that change how billions of users connect, explore, and interact with information and one another. Our products need to handle information at massive scale, and extend well beyond web search. We're looking for engineers who bring fresh ideas from all areas, including information retrieval, distributed computing, large-scale system design, networking and data storage, security, artificial intelligence, natural language processing, UI design and mobile; the list goes on and is growing every day. As a software engineer, you will work on a specific project critical to Google's needs with opportunities to switch teams and projects as you and our fast-paced business grow and evolve. We need our engineers to be versatile, display leadership qualities and be enthusiastic to tackle new problems across the full-stack as we continue to push technology forward.

As a Software Engineer working on Google's infrastructure, you have the opportunity to work on everything from the core platform that runs the world's largest distributed network to redefining the systems that allow applications and services to provide useful information to billions of users around the globe. From our Data Center software groups to Google's Cloud Platform, Gmail to YouTube, our infrastructure engineers across departments wrestle with the vast scale of a ubiquitous system, its products, and services and revolutionize industry leading technologies to handle the sheer magnitude at which Google operates.

Google is and always will be an engineering company. We hire people with a broad set of technical skills who are ready to tackle some of technology's greatest challenges and make an impact on millions, if not billions, of users. At Google, engineers not only revolutionize search, they routinely work on massive scalability and storage solutions, large-scale applications and entirely new platforms for developers around the world. From AdWords to Chrome, Android to YouTube, Social to Local, Google engineers are changing the world one technological achievement after another.

Responsibilities

- Build our platforms, systems and infrastructure using your strong background in distributed systems and large scale storage systems.
- Manage individual projects priorities, deadlines and deliverables with your technical expertise.
- Design, develop, test, deploy, maintain, and enhance software solutions.

Qualifications

Minimum qualifications:

- BA/BS degree in Computer Science or related technical field or equivalent practical experience.
- 4 years of relevant work experience, including software development experience, or 1 year of relevant work experience with a PhD in Computer Science or related technical field.
- Professional coding experience in C/C++, Java, Python or Go.
- Experience architecting and developing large scale distributed systems. Experience in concurrency, multithreading and synchronization.

Preferred qualifications:

- MS or PhD in Computer Science.
- Experience with Unix/Linux environments.
- Experience with TCP/IP and network programming.
- Experience with database internals, database language theories, database design, SQL and database programming.
- Understanding of technologies such as virtualization and global infrastructure, load balancing, networking, massive data storage, Hadoop, MapReduce and security.
- Interest or exposure to networking technologies/concepts such as Software Defined Networking (SDN) and OpenFlow.

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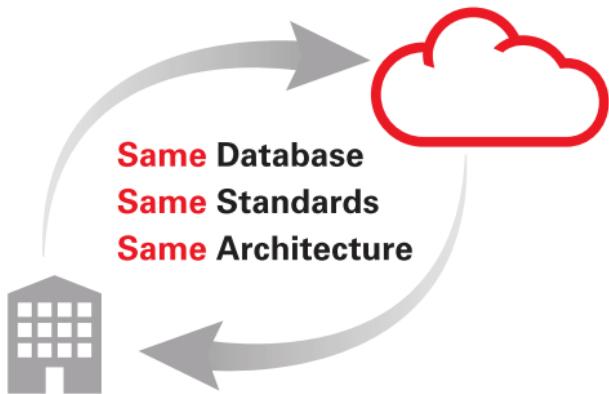
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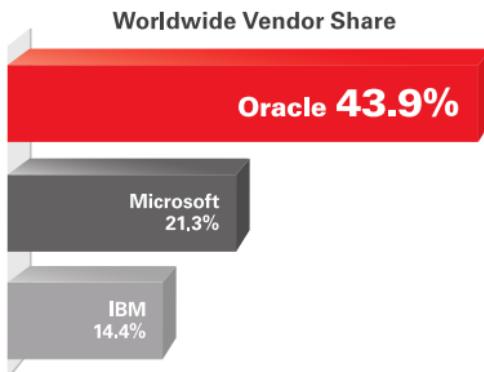
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Source: IDC, "Worldwide Relational Database Management Systems Software Market Shares, 2015: The Year of Transition to the Cloud," IDC #US41484516, June 2016; Table 1 (Worldwide Relational Database Management Systems Revenue by Vendor). Vendor share based on software license and maintenance revenue. Copyright © 2017, Oracle and/or its affiliates. All rights reserved.

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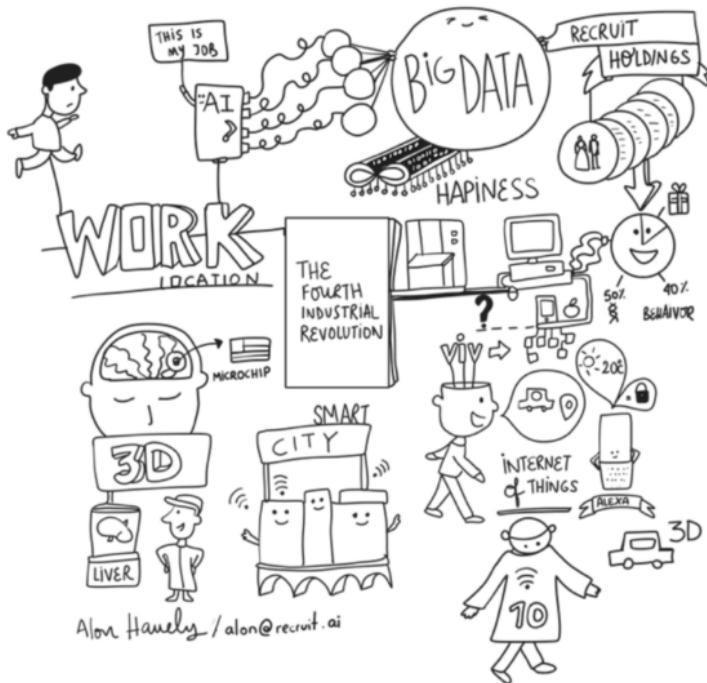
We conduct research in several areas, including data management, data integration, natural language processing, machine learning, and artificial intelligence. We collaborate with universities and publish in top-notch conferences.



Example Project: BigGorilla



BigGorilla is an open-source data integration and data preparation ecosystem (currently in Python) to enable data scientists to perform integration and analysis of data. BigGorilla brings decades of research on data integration into an open-source platform with the goal of accelerating progress in the field and adoption of its techniques. <http://www.biggorilla.org>





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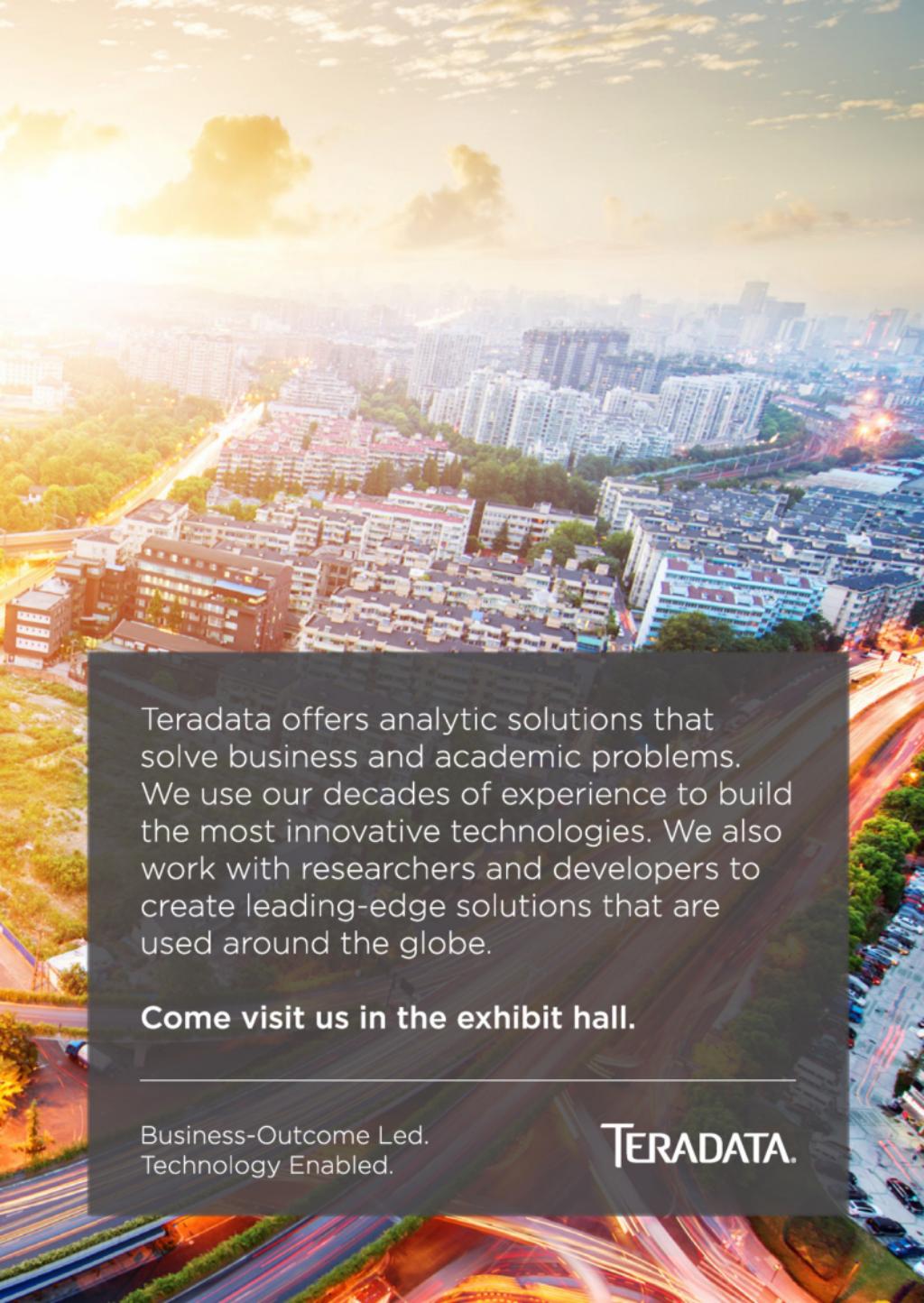
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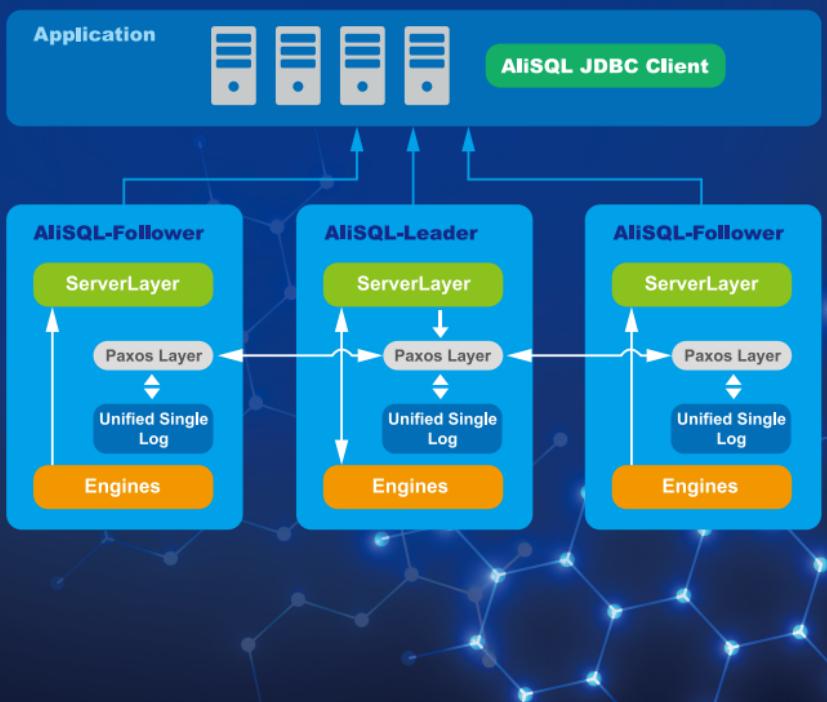
Alibaba Cloud ApsaraDB

ApsaraDB is a Database-as-a-Service platform provided by Alibaba Cloud.

It covers the mainstream database engines including the most popular open-source databases like MySQL (AliSQL), PostgreSQL and Redis, as well as commercial databases like SQL Server and PPAS. It also provides the hybrid analysis database HybridDB and off-line analysis database E-MapReduce, which are compatible with MySQL and PostgreSQL protocols.

AliSQL

AliSQL is a MySQL branch maintained by Alibaba Database team, which supports all lines of business within Alibaba group including Alibaba Cloud, Taobao, Tmall and Ant Financial. We introduced lots of features to AliSQL to support dramatic business growth. Besides providing a fantastic shopping experience in Taobao/Tmall double 11 festival, AliSQL also has more than 100, 000 running RDS instances and 50, 000 users in the cloud. To maximize the outcome we can get from MySQL, we also implemented a high performance Paxos protocol. With the help of Paxos, we can deploy our AliSQL Cluster geo-distributed. Our vision is quite clear that we want to introduce the world the fastest OLTP database at the lowest cost.



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