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TABLE OF CONTENTS

Front Matter

Copyright Notice	i
Table of Contents	ii
PVLDB Organization and Review Board – Vol. 19	iv

Research Papers

TVA: A Version-aware Temporal Graph Storage System for Real-time Analytics.....	2536
<i>Wenhao Li, Zhanhao Zhao, Jinhao Dong, Jiamin Hou, Wei Lu, Yunhai Wang, Xiaoyong Du</i>	
Efficient Hyper-truss Decomposition over Hypergraphs.....	2549
<i>Haozhe Yin, Kai Wang, Wenjie Zhang, Xuemin Lin</i>	
dpKernels: Harvesting DPU Compute Resources for Data-path Efficiency in Cloud Data Processing.....	2563
<i>Jiasheng Hu, Kaiwen Zheng, Anna Li, Sidharth Sankhe, Philip Bernstein, Qizhen Zhang</i>	
Efficient Locally h-Clique Densest Subgraph Discovery via Divide-and-Conquer.....	2577
<i>Yingli Zhou, Taohua Huang, Yixiang Fang</i>	
GPU-Accelerated η -threshold Decomposition for Uncertain Graphs.....	2591
<i>Yu Chen, Chong Liu, Qing Liu, Zhonggen Li, Yifan Zhu, Yunjun Gao</i>	
V3DB: Audit-on-Demand Zero-Knowledge Proofs for Verifiable Vector Search over Committed Snapshots	2604
<i>Zipeng Qiu, Wenjie Qu, Jiaheng Zhang, Binhang Yuan</i>	
Unbiased Binning for Fairness-aware Attribute Representation	2617
<i>Abolfazl Asudeh, Zeinab Asoodeh, Bitia Asoodeh, Omid Asudeh</i>	
A Practical Sublinear Approximation for Group Steiner Tree.....	2630
<i>Yuxuan Yang, Sirui Chen, Zhuolin He, Gong Cheng</i>	
X-Wim: Massive Parallelization of Weighted Matching in Bipartite Graphs.....	2643
<i>Dayi Fan, Simon Zhang, Rubao Lee, Hanqi Guo, Xiaodong Zhang</i>	
CRAFT: Corpus Relatedness Analysis Using Fourier Transforms.....	2658
<i>Kaiwen Chen, Nick Koudas</i>	
FedAugment: Table Augmentation Search over Decentralized Data Repositories.....	2672
<i>Lennart Behme, Emil Badura, Leonard Geißler, Matthias Boehm, Ziawasch Abedjan, Volker Markl</i>	
A Unified Query Planning Framework for Conjunctive Regular Path Queries.....	2686
<i>Yue Pang, Lei Zou, Angela Bonifati, M. Tamer Özsu, Xiaofang Zhou</i>	
ThunderGNN: Unlocking Tensor Cores for Graph Neural Networks	2699
<i>Yuang Chen, Siyi Teng, Wenqi Weng, Jeffrey Xu Yu</i>	
PrivSTD: Differentially Private Spatio-temporal Trajectory Density Data Publication	2713
<i>Shuzhan Ye, Yujia Hu, Lu Chen, Yangyang Wu, Zhikun Zhang, Tianyi Li, Christian S. Jensen</i>	
Aker: Density-Aware Approximate Caching for Vector Search	2727

Sukjoon Oh, Minki Kang, Dohyun Kim, Baotong Lu, Jing Liu, Qianxi Zhang, Qi Chen, Youjip Won

Data-efficient Online Training for Direct Alignment in LLMs.....2741
Chi Zhang, Jiacheng Wang, Kun He, Chengliang Chai, Yunpeng Zhang, Yuping Wang, Xu Zhou, Linan Zheng, Lijun Wu, Conghui He, Lei Cao

Decisionhouse: Prescriptive Analytics in the Data Stack.....2755
Matteo Brucato, Fjodor Kholodkov, Soren Little, Jakob Mayer, Duc Nguyen

Revisiting Filtered ANN Benchmarks: A Hardness-Controlled Benchmark Generator for Realistic Evaluation2763
Mintaek Lim, Dogeun Kim, Minwoo Kim, Jaeyoung Do

CaSh: Shapley Value Computation with Cache Optimization.....2777
Jiajun Tang, Xiaokai Mao, Ning Liu, Jinfei Liu, Kui Ren

Composition for Pufferfish Privacy2790
Jiamu Bai, Guanlin He, Xin Gu, Daniel Kifer, Kiwan Maeng

FeLoG: Scalable and Efficient Distributed Graph Embedding with Feedback Loop Mechanism2803
Peng Fang, Arijit Khan, Ziqiang Wu, Zhenli Li, Yibo Zhou, Fang Wang, Dan Feng

Sparse Neighborhood Graph-Based Approximate Nearest Neighbor Search Revisited: Theoretical Analysis and Optimization.....2817
Xinran Ma, Zhaoqi Zhou, Chuan Zhou, Zaijiu Shang, Guoliang Li, Zhiming Ma

Toward Temporal Attribution Analytics in Dataflows [Vision Paper]2831
Chrysanthi Kosyfaki, Ruiyuan Zhang, Nikos Mamoulis, Xiaofang Zhou

RNSG: A Range-Aware Graph Index for Efficient Range-Filtered Approximate Nearest Neighbor Search2839
Zhiqiu Zou, Ziqi Yin, Rong-Hua Li, Hongchao Qin, Qiangqiang Dai, Guoren Wang

Bridging the Indexing Gap in Fused GPU Query Engines.....2853
Tianjun Bu, Gaoyuan Zhou, Xuhui Li, Qiusong Yang

PrepBench: How Far Are We from Natural-Language-Driven Data Preparation?2866
Jingzhe Xu, Rui Wang, Jiannan Wang, Guoliang Li

ReSequel: Robust LLM-assisted Query Rewriting and Optimization using Templatization and Sampling2880
Saeed Fathollahzadeh, Essam Mansour, Matthias Boehm

BtrLog: Low-Latency Logging for Cloud Database Systems.....2894
Maximilian Kuschewski, Lam-Duy Nguyen, Matthias Jasny, Tobias Ziegler, Viktor Leis, Muhammad El-Hindi

Sankofa: Online Query-adaptive Dynamic Graph Summaries.....2908
Ama Bembua Bainson, Kasper Overgaard Mortensen, Klim Zaporozhets, Davide Mottin, Panagiotis Karras

HEXA: A Disjoint-Subgraph-Based Indexing Framework for Approximate Nearest Neighbor Search at Billion Scale2922
Yifei Xu, Yanyan Shen, Youmin Chen, Linpeng Huang

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LETTER FROM THE EDITORS IN CHIEF

We are pleased to present Issue 10 of Volume 19 of the Proceedings of the VLDB Endowment (PVLDB), which includes 30 papers spanning a broad range of topics in data management. The contributions in this issue address both longstanding challenges in database systems and emerging opportunities arising from new hardware, large-scale vector data, graph analytics, and AI-driven data applications.

By primary subject area, this issue includes 8 papers on Graph and Network Data, 6 on Novel Database Architectures, 4 on Information Integration and Data Quality, 3 on Data Privacy and Security, 2 on Database Engines, 2 on Distributed Database Systems, 2 on Specialized and Domain-Specific Data Management, and one paper each on Database Performance and Manageability, Machine Learning, AI, and Databases, and Provenance and Workflows.

Graph and network data constitute the largest thematic area in this issue, encompassing contributions that investigate various graph data models such as node-labeled graphs, hypergraphs, and uncertain graphs, and address key challenges in graph algorithms, query processing, and scalable graph analytics. One group of papers develops more efficient methods for fundamental structural problems, including cohesive-subgraph discovery in graphs and hypergraphs, Group Steiner Tree approximation, and weighted bipartite matching. A second group advances graph data management through cost-based optimization of expressive path queries and query-adaptive summarization of evolving knowledge graphs. The remaining works address the systems challenges of large-scale graph analytics and learning, using GPU acceleration and feedback-driven distributed execution to reduce computation and communication costs. Together, these papers show how advances in algorithms, query optimization, and system design are extending the scale and complexity of graph data that can be effectively analyzed.

A prominent theme in this issue is the extension of data management techniques to high-dimensional vector workloads. Several papers advance approximate nearest-neighbor search through density-aware caching, improved sparse-neighborhood graph methods, range-aware filtering, and disjoint-subgraph indexing at billion scale. Complementary contributions strengthen the evaluation and deployment of vector-search systems by introducing hardness-controlled benchmarks for filtered search. Together, these works address the growing need for vector-search techniques that are efficient, scalable, and rigorously evaluated across increasingly diverse workloads.

The issue also includes contributions that adapt database architectures to emerging hardware, cloud environments, and modern analytical workflows. These works explore indexing in fused GPU query engines, the use of tensor cores to accelerate graph neural networks, and the use of DPU computing resources to improve cloud data-processing efficiency. Other contributions introduce low-latency logging for cloud database systems and version-aware temporal graph storage for real-time analytics. Another paper integrates prescriptive analytics directly into the modern data stack, enabling data-driven decision optimization to become part of the broader analytical workflow.

The issue also reflects the continuing interaction between data management and AI. The contributions include robust LLM-assisted query rewriting, a benchmark for natural-language-driven data preparation, and data-selection techniques that reduce the cost of preference alignment for large language models. Other papers address scalable relationship discovery in large text corpora, table-augmentation search across decentralized and heterogeneous data repositories, and cache-based acceleration of Shapley-value computation for data valuation and model interpretation. Together, these works demonstrate how data-management techniques can improve the preparation, optimization, discovery, and evaluation processes underlying AI-driven applications.

Finally, several papers address the reliability, privacy, and responsible use of data. The issue includes new results on compositional guarantees for Pufferfish privacy, differentially private publication of high-resolution spatio-temporal trajectory data, verifiable vector search over committed data snapshots, and fairness-aware attribute representation. A vision paper on temporal attribution analytics further explores how provenance can support understanding and auditing of continuously evolving dataflows.

We thank the authors, reviewers, meta-reviewers, and members of the PVLDB editorial board whose efforts made this issue possible. We hope that readers will find the breadth of ideas represented in this issue both valuable and inspiring.

Sincerely,

Ashraf Aboulnaga, Sourav S Bhowmick, Yannis Velegrakis, and Steven Whang
Associate Editors of PVLDB Vol. 19

Yanlei Diao and Xiaokui Xiao

Editors-in-Chief of PVLDB Vol. 19
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