




Konstantinos Karatsenidis

Computer Science PhD Researcher

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EDUCATION

- **Boston University, USA – Computer Science PhD** SEP 2022 – PRESENT
- **KAUST, Saudi Arabia – Computer Science MSc** AUG 2019 – DEC 2020
- **University of Athens, Greece – Informatics and Telecommunications BSc** JAN 2014 – FEB 2018

PUBLICATIONS

- **QuIT your B+-tree for the Quick Insertion Tree** EDBT 2025
K. Karatsenidis, A. Raman, S. Xie, M. Olma, S. Sarkar, M. Athanassoulis
- **Effortless Locality on Data Systems Using Relational Fabric** TKDE 2024
T. I. Papon, J. H. Mun, K. Karatsenidis, S. Roozkhosh, D. Hoornaert, A. Sanallah, U. Drepper, R. Mancuso, M. Athanassoulis
- **On-the-fly Data Transformation in Action** *Best Demo Award* VLDB 2023
J. H. Mun, K. Karatsenidis, T. I. Papon, S. Roozkhosh, D. Hoornaert, U. Drepper, A. Sanallah, R. Mancuso, M. Athanassoulis
- **BoDS: A Benchmark on Data Sortedness** TPCTC 2022
A. Raman, K. Karatsenidis, S. Sarkar, M. Olma, M. Athanassoulis
- **GRACE: A Compressed Communication Framework for Distributed Machine Learning** ICDCS 2021
H. Xu, C. Ho, A. Abdelmoniem, A. Dutta, E. Bergou, K. Karatsenidis, M. Canini, P. Kalnis

RESEARCH

- **Sortedness-Aware B+ Tree Index**
Developed a B+-tree optimization that achieves up to 3.2× faster ingestion for near-sorted workloads. It also reduces the memory footprint by up to 28%, resulting in 1.36× faster range lookup queries.
- **On-the-fly Data Transformation**
Relational Memory bridges transactional and analytical database systems, using specialized hardware for the on-the-fly transformation of row tables into column groups at query time.
- **GRACE – Gradient Compression Framework**
Developed a Horovod extension that supports various compression methods for distributed data-parallel deep-learning training. GRACE integrates communication methods provided by MPI and NCCL. Implemented and compared various compression, communication, and memory compensation methods from literature using PyTorch, TensorFlow (v1/v2), and GRACE. The experiments were performed on NVIDIA V100 GPUs, and the results were visualized with WandB.

WORK EXPERIENCE

- **ScaleTorch, Remote – Software Engineer** AUG 2021 – OCT 2021
Automating integration with various cloud computing providers and concurrent backup checkpoints for cloud storage.
- **Atyon Systems, Greece – Software Engineer** FEB 2019 – JUL 2019
Developed features on the company’s main product, and deployed progressively with feature flags. Resolved issues, fixed bugs, and participated in team meetings. Automated procedure that created SEO-friendly sitemaps for clients.
- **Hellenic Army, Greece – Backend Engineer (Java)** MAY 2018 – FEB 2019
Developed web apps used by the Army Control & Information Management System (Hellenic Ministry of National Defence).
- **Interamerican, Greece – Android Developer** FEB 2017 – MAY 2017
Developed an application that downloads and manages company reports using SOAP web services.

SKILLS

C/C++	STL, threads, atomics
Python	AI, ML, Data Mining
Java/Go	Production applications
PyTorch/TensorFlow	Deep learning training
Docker	Portable training environments
AWS/Azure	Cloud computing
SQL	DBA, DBMS
Languages	Greek, English, Russian

TEACHING ASSISTANT

- **Graduate Introduction to Database Systems** 2023 – 2024
- **Introduction to Database Systems** 2023 – 2024
- **Object-Oriented Programming** 2015 – 2018
- **Introduction to Programming** 2014 – 2018

ACTIVITIES

- **Microsoft Student Partner** 2015 – 2018