SPARCITY

NEWSLETTER

Issue 6 | March 2024

KOÇ ÜNİVERSİTESİ · Sabancı Üniversitesi · inesc id lisboa · simula · LMU LUDWIG-MAXIMILIANS-UNIVERSITÄT MÜNCHEN · GRAPHCORE

EDITORIAL

In this issue:

Dear readers,

As the SparCity project draws to a close, we reflect on our journey since its inception in April 2021. Funded by the European High Performance Computing Joint Undertaking (EuroHPC JU), SparCity aimed to develop a supercomputing framework for maximizing the performance and energy efficiency of sparse computations on emerging HPC systems. Throughout its three-year duration, we have successfully delivered innovative algorithms and tools that enhance the efficiency of sparse computations.

We are now gearing up for the Final Review Meeting in May 2024, where we will showcase our achievements.

We extend our gratitude to all our partners, collaborators, and the community for their invaluable support. The legacy of SparCity will continue to influence the high-performance computing landscape.
Best regards,

The SparCity Coordination,
Didem Unat

In-person Meetings | June 1-3, 2022 (Istanbul, Turkey) and June 15-16, 2023 (Lisbon, Portugal)

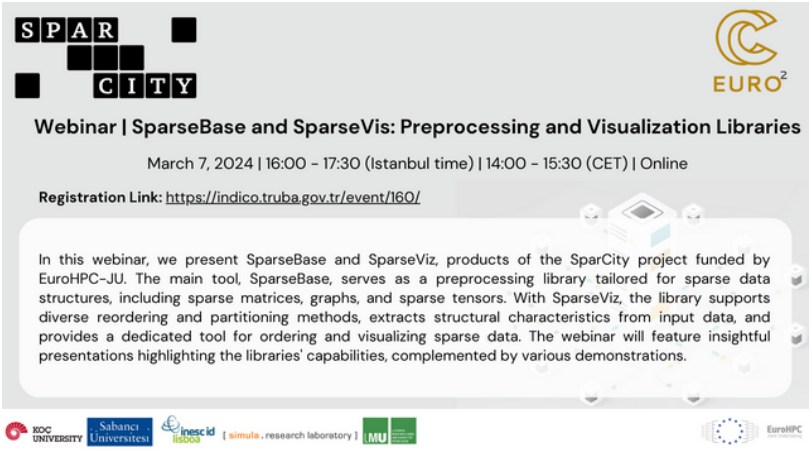
PAST EVENTS

Invited Talk at Gebze Technical University | March 1, 2024

On March 1, 2024, Dr. Didem Unat, who serves as the Coordinator of the SparCity project, was invited to speak at Gebze Technology University. During her talk, she explored the complexities involved in developing software for supercomputers, offering attendees a sneak peek into the state-of-the-art technologies that are currently influencing the domain.

SparseBase and SparseVis: Preprocessing and Visualization Libraries Webinar | March 7, 2024

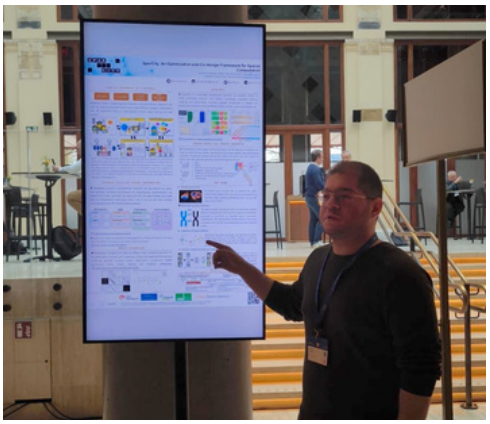
On 7 March 2024, the SparCity team, composed of Sinan Ekmekcibasi, Santiago Ledesma Frazão de Barros Quintas, Beyza Cavusoglu, and Kamer Kaya, hosted a webinar to introduce SparseBase and SparseViz, innovative tools developed for processing and visualizing sparse data structures. Attended by 27 participants from the scientific community, the event highlighted the functionalities of these tools, funded by EuroHPC-JU.



Advisory Board Meeting | March 15, 2024

On March 15, 2024, we conducted our Advisory Board Meeting to discuss the progress of our project, the steps needed for its finalization, and the results achieved so far. This meeting provided a valuable opportunity for feedback and guidance from our board members, helping us to ensure a smooth completion and meaningful impact of our work.

EuroHPC Summit 2024 | March 20, 2024



The SparCity project was prominently featured in one of the poster sessions at the EuroHPC Summit held in Antwerp, Belgium, from the 18th to the 21st of March. Osman Yasal from the ParCoreLab team presented the project's innovative optimization and co-design framework for sparse computations, showcasing the contributions of the SparCity team to the field of HPC. Dr. Are Magnus Bruaset, one of the SparCity project members, was also in attendance, further representing the project's collaborative efforts and achievements.

This year's Summit attracted a record attendance of over 700 participants, with more than 650 attending in person. The event saw a diverse group of attendees from 45 different countries, including Europe, the United States, and Brazil. The Summit provided a vibrant platform for policymakers, industry representatives, researchers, students, and tech start-ups to engage in dynamic discussions and exchanges, further enriching the European HPC ecosystem.

COMMUNICATION, DISSEMINATION & OUTREACH

⊠# Project's Second Press Release

The second press release of our project has been issued upon its finalization. This press release showcases the results and impressions gathered throughout the duration of our project, highlighting the key achievements and milestones reached.

⊠# #OutcomeVideos & #CodeVideos

New videos were published where you can learn more about a different team member and the work developed within SparCity.

⊠# Didem Unat on Para Magazine's Cover

Dr. Didem Unat was featured on the cover of Para Magazine's March 2024 issue, dedicated to International Women's Day. The issue, titled "60 Müthiş Kadın" (60 Amazing Women), celebrates the remarkable contributions of women across various fields.

PUBLICATIONS

Afonso Coutinho, Diogo Marques, Leonel Sousa and Aleksandar Ilic (2023). Sparse-aware CARM: Rooflining locality of sparse computations. In the 1st International Workshop on Tools for Data Locality, Power and Performance (TDLPP/EuroPar), 2023 (to be published).

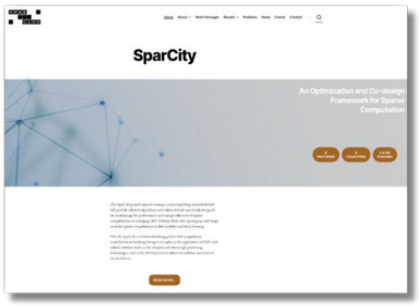
Sergej Breiter, James D. Trotter, and Karl Fürlinger (2023). Modelling Data Locality of Sparse Matrix-Vector Multiplication on the A64FX. In Proceedings of the SC '23 Workshops of The International Conference on High Performance Computing, Network, Storage, and Analysis (SC-W '23). Association for Computing Machinery, New York, NY, USA, 1334–1342.
DOI: 10.1145/3624062.3624198.

Mustafa Orkun Acar, Fatma Güney, and Didem Unat (2023). Optimizing GNN-based Multiple Object Tracking on a Graphcore IPU. In The HPC on Heterogeneous Hardware (H3) Workshop 2023 (to be published).

Gökhan Göktürk, and Kamer Kaya (2024). Fast and error-adaptive influence maximization based on Count-Distinct sketches. Information Sciences, Volume 655, 119875.
DOI: https://doi.org/10.1016/j.ins.2023.119875.

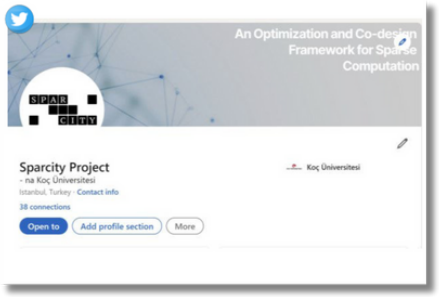
Ricardo Nobre, Aleksandar Ilic, Sergio Santander-Jiménez, and Leonel Sousa (2024). IPU-EpiDet: Identifying Gene Interactions on Massively Parallel Graph-Based AI Accelerators. In the 38th IEEE International Parallel and Distributed Processing Symposium (IPDPS 2024), San Francisco, California USA, 2024 (to be published).

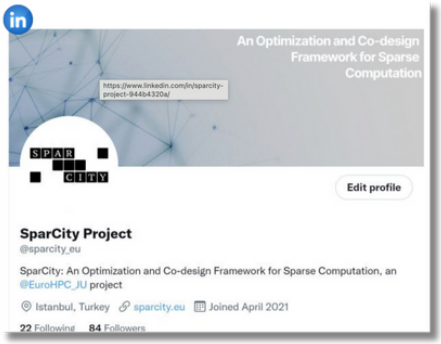
WEBSITE



https://sparcity.eu

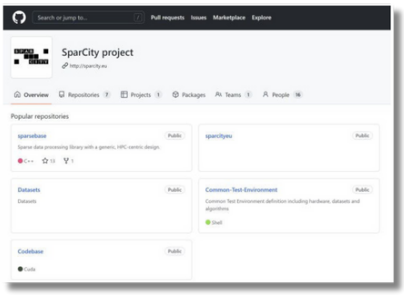
SOCIAL MEDIA





PROMOTIONAL

REPOSITORY



https://github.com/sparcityeu

MORE INFORMATION

https://sparcity.eu

sparcity-project-group@ku.edu.tr