

SDS

SWISS CONFERENCE
ON DATA SCIENCE

**A tribute
«Festschrift»
to the 10th SDS
Anniversary**

Impressum

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Editorial



Christoph Heitz
President data innovation alliance

When a small group of Data Science enthusiasts launched the Swiss Conference on Data Science a decade ago, it was a bold endeavor with an uncertain outcome. The vision was to create an interdisciplinary space, where academics and practitioners could not only exchange novel ideas, approaches, and solutions, but also collaborate and share experiences gained from applying cutting-edge methodologies, to often intricate real-world challenges. The conference has since evolved into Switzerland's largest annual Data Science event, attracting international participation with an ever-increasing level of quality. It remains a unique environment where individuals actively engaged in

innovation from universities and companies converge, fostering fruitful exchange.

As president of the data innovation alliance, I have had the pleasure of witnessing the SDS's tremendous growth. In my profession, it has been a personal highlight each year, providing inspiration, valuable connections, and a sense of belonging to a community shaping our world amid rapid digital transformation. I wish you all similar experiences at this year's anniversary edition of the SDS.

Enjoy the conference, gain insights and take the time to celebrate – 10 years of SDS is definitively a remarkable achievement!



Hans Peter Gränicher
Presenting Partner, CEO D ONE

In 2023, why would you care to attend a Data Science conference? After all, we can access all kinds of content from anywhere in the world, at any time we want. With the success of LLM in the last months, we can even enter a dialogue and gain access to a substantial quantity of publicly available information. Furthermore, talks and slides are also usually available online.

So what value can we obtain from physically attending such an event?

For me, it is about relationships, inspiration, and spontaneous exchanges; being surprised by perspectives not previously considered, connecting ideas to come up with something completely new, or gaining new insights into topics we are interested in.

We wish you inspiring, unexpected encounters and the building of stimulating and lasting relationships.

A LOOK BACK AT THE HISTORY OF THE SDS

Development of the SDS Conference Series

SDS is a place for spontaneous exchanges and network expansion.

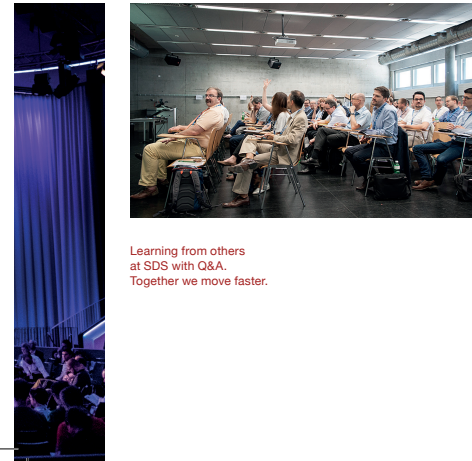


Already in its first edition in 2014, attendance more than quadrupled expectations.

Our first conference was hosted at ZHAW in Winterthur, with only four presentations. The founding members, which included ZHAW, the Swiss Alliance for Data-Intensive Services (now the data innovation alliance) and board members like La Mobilière, gave momentum to the growth of the SDS; the event expanded from a workshop to a pre-conference program in 2016 before it transitioned to a two-day event format in 2018.

The Swiss Conference on Data Science (SDS) has come a long way since its inception. Initially, the idea of creating a dedicated platform for Data Science in continental Europe was conceived by Gerold Baudinot, one of the founders of the ZHAW Datalab, in May 2013. The first workshop organized around this theme served as a litmus test for the viability of the concept. Surpassing expectations, the event garnered significant participation and marked the beginning of an exciting trajectory.

The SDS's significant accomplishments include bridging the gap between academia and industry, shaping how the expert community perceives AI through fostering practical contributions and stimulating discussions, especially around data ethics and responsible AI in Switzerland. The SDS has positioned itself at the intersection of both worlds, forming a community that previously lacked a platform for such interdisciplinary exchange.

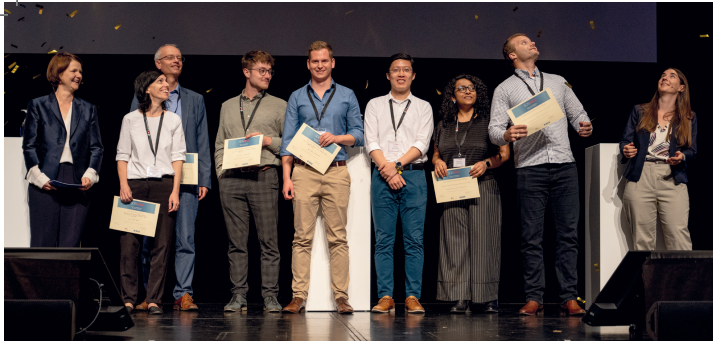


Learning from others at SDS with Q&A. Together we move faster.

CONFERENCE ORGANIZERS

The conference has been organized by different parties: ZHAW for the first few years and the Swiss Alliance for Data-Intensive Services since 2017, now called the data innovation alliance.





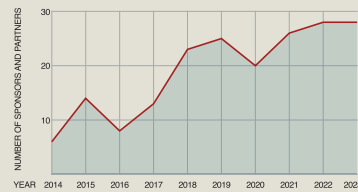
The ethics poker was one of the building blocks of what was later released as the ethics codex.

A LOOK BACK AT THE HISTORY OF THE SDS

Throughout the years, SDS has witnessed a leap in development. The SDS's responsibility seamlessly transitioned from ZHAW to the data innovation alliance in 2017, coinciding with Gundula Heintz Bürki assuming the role of Managing Director of the alliance in 2018. Under Gundula's expert guidance, the conference's professionalism was elevated to a new level with high-quality videography and strategic advertising. The conference attracted more sponsors as the alliance and its membership grew, reaching 80 members and 25 research groups. A notable milestone was the collaboration with IEEE, resulting in the publication of proceedings in a professional setting.

CONFERENCE SPONSORS AND PARTNERS

Our sponsors and partners have shown unwavering support throughout the years and their commitment continues to be a cornerstone of this event. We thank you for your contributions as we strive to advance the field of Data Science together.



Long-term Presenting Partner D ONE, CEO Hans Peter Gränicher.

Throughout the ten-year journey of the SDS, one aspect has remained constant, namely the presence of exceptional keynote speakers. A hallmark of SDS's success, these distinguished individuals have consistently enriched the conference with their expertise and insights from the forefront of their respective fields.

The choice of focus themes and topics has been pivotal in shaping the conference's success. Societally relevant as well as controversial themes have been the red thread connecting various editions. With astute foresight, the committee consistently identified the most compelling and timely themes for the conference, often over half a year in advance, ensuring that the topics discussed would resonate deeply with attendees and address pressing issues in the field of Data Science. For instance, the SDS2019 at the Kursaal in Bern was notable. Its discussion on ethics and the risks of large-scale analysis, led by Christoph Heitz, didn't end in the conference hall; attendees carried on the conversations organically during breaks in hallways, demonstrating the depth of engagement and shared concerns about the future direction of the Data Science field.

A LOOK BACK AT THE HISTORY OF THE SDS

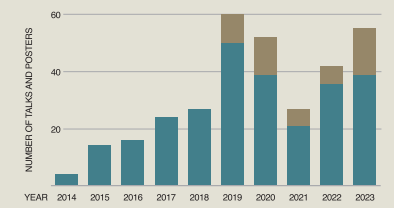
The SDS's journey has been adorned with remarkable highlights. Memorable moments include the impactful session by Taavi Kotka, the former CIO of Estonia, on the digitalization of his country. Moreover, the SDS has continuously served as a magnet for top-tier professionals from both academia and industry. This convergence of expertise provided participants with unparalleled opportunities for absorbing insights from visionary industry leaders and cutting-edge researchers alike. The dynamic blend has played a significant role in driving science-based innovation for the Swiss economy.

The SDS has consistently attracted experts from academia and industry.



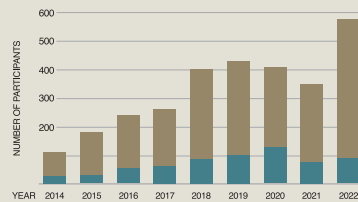
CONFERENCE PRESENTATIONS

While talks have been a consistent feature throughout the conference's history, the introduction of posters in 2019 highlights the valuable platform provided for experts to showcase their work. This significant expansion in presentation formats reflects the conference's commitment to embracing diverse forms of knowledge sharing.



TALKS / POSTERS

CONFERENCE PARTICIPANTS



BUSINESS / ACADEMICS

A progressive trajectory of engagement: despite the COVID-19 pandemic temporarily impacting participation, the SDS demonstrated a resilient resurgence in interest, demonstrating persisting relevance. While the goal of achieving a balanced representation of academics and industry attendees has yet to be fully realized, the data highlights a steady commitment to fostering collaboration and knowledge exchange between the two sides of the (data) coin.

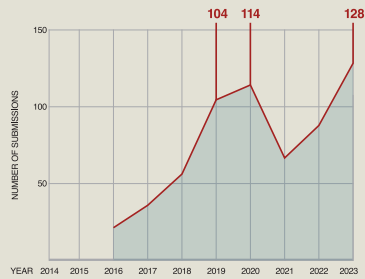


Looking ahead, maintaining the unique blend of academic and industry participation remains a crucial aspect of the SDS's identity. The conference aspires to continue raising its level of excellence, drawing inspiration from successful IEEE proceedings. With an ambitious outlook, the SDS may consider exploring avenues to expand its horizons beyond Swiss borders, envisioning the possibility of becoming established as a continental European event. This way, the scientific goal is to establish the SDS as an internationally recognized conference and position Switzerland as a prominent hub in the field of Data Science and data-driven value creation. This will enable the enhancement of international industry collaborations and connections, as well as the leveraging of current research advancements outside of Switzerland. As part of this effort, we also aspire to be included in the well-known CORE ranking in the medium term.

A LOOK BACK AT THE HISTORY OF THE SDS

Since becoming more widely known from 2016 to 2023, the conference has shown a positive trend in the number of submissions, providing researchers and business experts with a powerful platform to share their contributions to Data Science.

CONFERENCE SUBMISSIONS



In the early years of the conference, we handpicked speakers based on our familiarity with their expertise to ensure exceptional quality. From a humble less-than-25 submissions, the introduction of IEEE Proceedings in 2019 sparked a leap in submission numbers, first peaking in 2020 with 114 submissions before reaching new heights after the pandemic with 128 submissions.



Embracing further new possibilities, the SDS may broaden its reach in the coming decade to facilitate knowledge transfer to the general public. One potential approach for this growth is the inclusion of a dedicated third day in the conference series, inviting the public to partake in, and gain firsthand insights directly from, the expert community. This extension would provide a platform for experts to address AI misconceptions and foster a deeper understanding of Data Science among a wider audience. By fostering an inclusive environment which bridges the gap between academia, industry, and the general public, the SDS would aim to cultivate a shared appreciation for the transformative power of Data Science and its impact on Swiss society.

Participants profited particularly from discussing the presentations and pondering potential collaborations.

337
Number of Citations of Proceeding Papers

A Decade of SDS

2014

The SDS' journey begins as a knowledge transfer workshop at ZHAW with 80 enthusiastic participants.

1 Track



80

Number of participants

2015

Continuing the series, the conference now includes two parallel tracks at ZHAW, attracting the notable participation of 181 attendees.

2 Tracks

181

241

2016

Introducing a pre-conference workshop, thereby moving away from passively consuming information into actively learning together. The community's involvement is now integral, with a review process that selects the best content from 21 submissions for the program.

3 Tracks
Deep Learning Day



280

2017

The conference leaves its 'nest' in Winterthur and takes place at the Kursaal Bern. Moreover, the conference is conducted in the name of the Swiss Alliance for Data-Intensive Services for the first time.

4 Tracks
Data Science
Bootcamp

410

2018

After five years, this two-day conference has experienced significant growth, attracting over 400 participants. Taavi Kotka's presence inspires the attendees, and Naftali Tishby's information theory of Deep Learning provides profound insights.

5 Tracks
14 Roundtables
Deep Learning
Workshop



2020

The corona pandemic changes everything at the last minute. Within two months, the physical conference was seamlessly transformed into an online event, streamed from a TV studio. It's unfortunate to acknowledge that the pandemic deprived us of the chance to engage in a captivating coffee talk with Pieter Abbeel.

3 Tracks
5 Workshops

420

2019

In a noteworthy collaboration with IEEE, the technically co-organized conference had its proceedings published in IEEE Xplore. The overwhelming response from the community resulted in a diverse and enriching program comprising seven tracks and three parallel workshops on the first day.

7 Tracks
5 Roundtables
3 Workshops
(GeoSummit)

413

350

2021

A mid-pandemic hybrid conference with two separate physical wings at KKL Luzern, accommodating 50 and 100 participants respectively, ensuring the safety of their health through limited interaction. Another 200 participants joined online.

4 Tracks
4 Workshops



580

2022

The Luzernersaal Foyer at KKL was buzzing with energy from participants, sponsors, and catering, almost bursting at the seams. While the conference continued to adopt a hybrid format, the majority of attendees chose to join in person, reigniting the long-awaited focus on networking.

4 Tracks
6 Workshops



2023

Marking a significant milestone, the SDS conference celebrates its 10th anniversary with a special edition, taking place at the esteemed Kongresshaus in Zurich for the first time. With an impressive turnout of over 350 participants, the co-located workshops at JED in Schlieren enhance the program's richness. Notably, the conference proudly collaborates with IEEE CIS, solidifying its position as a respected gathering known as the IEEE Swiss Conference on Data Science, underscoring the commitment to fostering innovation.

4 Tracks
15 Workshops



Matthias
Brändle

The SDS offers a comprehensive view of the maturity of Data Science in Swiss businesses, which is particularly relevant for us to gain visibility as an employer in this field. Having three inputs from our company in one event was also a notable achievement.

In the future, I hope to see the conference gain more international recognition by attracting renowned keynote speakers and establishing academically recognized proceedings. We hope to see the SDS address the challenges of competition and collaboration with other conferences. Also, striking a balance between contributions from big players and local businesses is crucial for its success.

la Mobilière

Industry
Relevance

MIGROS

The most valuable benefit we find in participating in the SDS year after year is the chance to showcase our practical application of Data Science at Migros.

By demonstrating how our work generates real-world impact for our customers, we attract top talent and create exciting prospects within the Migros group. Winning the best presentation award three times in a row stands out as a major highlight from the first decade of the SDS. It reflects the quality and recognition of our work within the conference community.

In the next five years, we hope to see the SDS address the challenges of leveraging Data Science to tackle significant societal issues such as climate change and sustainability. Looking ahead, we hope to see the SDS continue to strike the right balance between being large enough to bring all relevant stakeholders together while maintaining a sense of community. As the field rapidly develops, we trust that SDS will stay at the forefront of these advancements.



Bojan
Škerlak



Henning
Müller

The SDS holds a unique position and emphasizes practical applications in a Swiss context, offering valuable networking opportunities with regional and national partners.

Personally, the highlight of participating at the SDS is the insightful discussions with local partners rather than purely focusing on scientific novelty.

One of the challenges the SDS faces is maintaining a balance between practice-oriented papers and industry participation while ensuring high-quality reviews. Attracting participants amidst competition from scientific conferences requires demonstrating the conference's ongoing value. I would also like to see the SDS foster collaboration and project ideas through optimized networking and public-private partnerships.

Hes·so
University of Applied Sciences
Western Switzerland

Scientific Knowledge Transfer



The SDS holds immense importance to me as a founder. It has grown significantly from a workshop to a nationwide conference, attracting participants globally, and establishing Data Science as a field. **I participate in this conference every year to stay updated on state-of-the-art advancements in Data Science** from both academia and industry, especially since the practical problems discussed have real-world impacts.

I envision the SDS expanding its international reach and addressing the broader aspect of Data Science beyond AI hype to convey the significance of fundamentals such as data management, cleaning, analysis, and exploration to remain relevant as data complexity increases.



Kurt
Stockinger

Industry Relevance

zühlke
empowering ideas

The SDS, Switzerland's largest Data Science conference, attracts top companies and aligns perfectly with our focus on Machine Learning and Data Science applications. **Partnering with SDS establishes new connections, refreshes old ones, and provides project showcasing, industry insights, and talent opportunities.**

The SDS holds immense potential for idea exchange and collaboration on critical topics like AI Ethics and Regulation. Since joining in 2016, we have witnessed the SDS's expansion and see it as a must-attend, multi-day event for all Swiss Data Science organizations.



Gabriel
Krummenacher



Hans Peter
Gränicher

As a leading analytics and AI consultancy, we appreciate the exchanging ideas with the data-driven value creation community. Year after year, we meet highly talented data professionals here. Also, we believe it's high time that the conference takes place in Zurich!

Seriously: **We are impressed by the transformation of the conference, which started as a basic classroom event and has evolved into an international conference featuring multiple streams.**

For the future, we wish that the SDS develops even more emphasis on business impact and value creation, thus attracting more visitors on C-level. This is especially in the context of increased awareness, driven by the currently very exciting developments, e.g. generative AI.



D ONE
WE MAKE SENSE.

HSLU Lucerne University of Applied Sciences and Arts

The SDS provides an excellent opportunity to connect with people and **stay informed about current Data Science trends among Swiss companies.**

One concern that the SDS conference could attend to is finding a balance between delivering novel and engaging content, while also managing marketing and branding aspects, particularly for sponsored talks. I hope to see the SDS conference remain consistent and continue its success.



Fabio
Siegrist



Oliver
Dürr

The conference is important for me as it allows me to meet with fellow data scientists from all over Switzerland and **get a feeling of novel applications, especially in a business context.**

In the next five years, I hope the SDS expands with more workshops and attracts participants from neighboring countries. One of the challenges the SDS should tackle is embracing the transformations brought by AI in Data Science and provide optimal methodologies and guidelines.

H T
W
G

Hochschule Konstanz
University of Applied Sciences

Scientific
Knowledge
Transfer

ANDREA DUNBAR, PHILIPP SCHMID, CSEM

A Decade of Data Science: Tracking the Evolution through a Conference



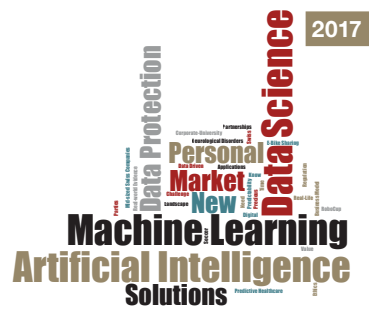
In 2014, the inaugural SDS conference was held in the form of a workshop. Esteemed speakers from prominent, Swiss-based companies like IBM, as well as start-ups, delved into societal topics such as privacy concerns. These discussions foreshadowed the introduction of GDPR two years later.



Fast forward a decade, and the SDS conference has evolved into a two-day multitrack IEEE event, with workshops spread over a week. It has expanded its influence beyond academia, business, and Swiss society, reaching an international audience. This progression mirrors the growth of Data Science itself.

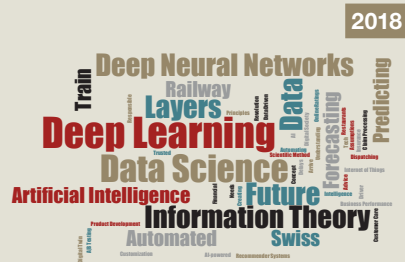
Ten years ago, Data Science was established in limited domains, such as predictive analytics, with benchmarked methods like decision trees, support vector machines, and ensembles. However, the field was still in its nascent stages. Researchers and practitioners were starting to grapple with big data handling, data mining, and privacy, although much of the focus remained on "counting clicks" on websites.





2017

In 2017, a dedicated deep learning day showcased the power-hungry nature of deep learning algorithms, which required large amounts of data. It brought attention to handling unstructured data, data transparency, and data scarcity.



2018

Techniques like federated learning and GANs gained popularity. Ethical frameworks, fairness, transparency, and inclusive datasets mitigated biases. Edge systems gained popularity, which reduced data, enhanced privacy and lowered latency. Accurate CNNs coupled with low latencies supported computer vision tasks, including autonomous driving.

The SDS showcased techniques like RNNs (specifically LSTM) for NLP, sentiment analysis, language translation, and chatbots, enabling improved customer service and task automation. Recent conferences featured transfer learning and transformer models, driving remarkable progress in LLM that impacts society.



2019

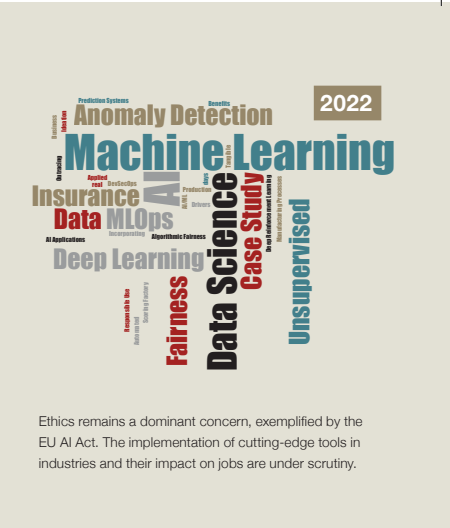
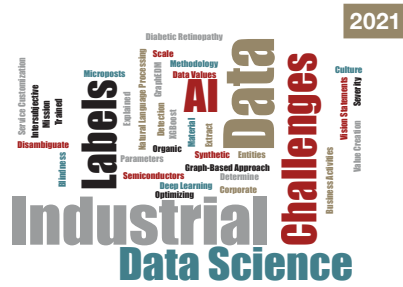


2020

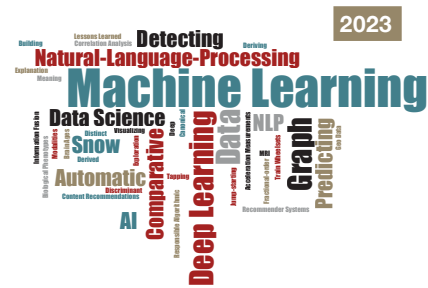
Deep learning made strides in commerce, industry, medicine, and other areas. The 2020 pandemic shifted the conference online, emphasizing the critical role of Data Science in crisis response management. It tracked the virus, predicted its impact, and allocated resources. Contact tracing apps and mobility analysis aided containment. However, challenges remained in data quality, misinformation, and ethics.



Where are we today? We advance edge- and cloud systems in optimized hierarchical computing, leveraging large-scale computing power for speed, privacy, and sustainability. We explore new frontiers, including low-power investigations with spiking neural networks, inspired by our brains.



Ethics remains a dominant concern, exemplified by the EU AI Act. The implementation of cutting-edge tools in industries and their impact on jobs are under scrutiny.




Looking ahead, Data Science will profoundly shape society and business, where the SDS serves as a forum for open discussion among business leaders, scientists, and society. The simultaneous growth trajectories of the SDS and of Data Science indicate a positive outlook for the future.



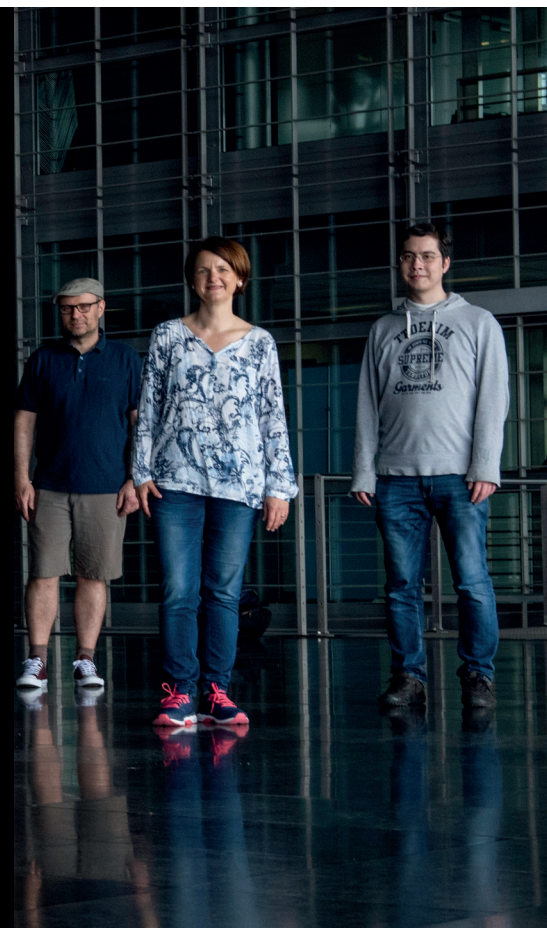
We are particularly grateful to all keynote speakers who made the conference an inspiring experience.





10 years of SDS is
definitively something
to celebrate!

Christoph Heitz
President data innovation alliance



The 10-year history of the Swiss Conference on Data Science has been shaped by remarkable individuals. We extend our heartfelt appreciation to Gerold Baudinot (formally of Applied University of Zurich), whose visionary idea brought together academia and industry and who has been our scientific partner since 2021. Special thanks goes to Hans Peter Gränicher (D ONE Solutions AG), a firmly committed Presenting Partner since 2017. Their invaluable feedback and vision have been instrumental in the conference's founding and continued success.

Acknowledgments

Our cordial thanks to all who helped make this conference a success story. Our sincere gratitude goes to the ZHAW Datalab and ZHAW School of Engineering. We are grateful to all sponsors who made the SDS possible, with notable mentions to D ONE (7 times Presenting Partner), SGAICO (9 times sponsor), Zühlke (8 times), Microsoft (7 times), La Mobilière, Migros, PwC, Raiffeisen and SAP (6 times respectively).

We extend our appreciation to the inspiring speakers who have enriched the conference experience and to all participants who helped create a vibrant, stimulating atmosphere.

Our heartfelt thanks go to the dedicated staff at ZHAW, Kursaal Bern, Habegger Studio, KKL Luzern, and Kongresshaus Zurich for their invaluable support in organizing the event.

We would like to acknowledge the rigorous evaluation and contributions of the scientific and business Program Committee members, who helped shape an exceptional program.

We would like to also express our thanks to the IEEE Switzerland Chapter on Digital Communication Systems, in particular Thomas Mittelholzer, IEEE Switzerland, notably Maria-Alexandra Paun, and IEEE Computational Intelligence Society with Marley Vellasco for their support and collaboration.

Our gratitude goes to the data innovation alliance board, particularly Christoph Heitz and Thilo Stadelmann, for their visionary guidance.

We further wish to recognize the indispensable efforts of the Organizing Committee, particularly Amrita Prasad, David Schaffner, Reik Leiterer, Melanie Geiger, and Gundula Heinatz Bürki. Their tireless dedication has been instrumental in making the conference series possible over the last 10 years.

Last but not least, we wish to extend a heartfelt thank you to our conference volunteers and outstanding moderators, photographers (Thomas Würsten, Beat Mumenthaler, Simone Frischknecht), video maker (Patrick Bürge) and designer (Christian Erni) for their invaluable contributions to the success of the event series.

data innovation alliance