

The SiLA Connection



STANDARDIZATION IN LAB AUTOMATION

JANUARY 2023

2023 New Year Address by the SiLA President

Make our robots FAIR!

Around 2008, many spirited laboratory device and software manufacturers (under the roof of toolpoint.ch) joined a group of major pharmaceutical companies to kick off the Standardization in Lab Automation Initiative - SiLA for Rapid Integration.

It may seem almost unreal today, but the idea of vendor-independent, open standards for lab device communication and experimental data exchange was by no means a no-brainer at the time. SiLA and its partner, ANIML, were pioneering - with trials and tribulations that inevitably entails.

Today, it is undisputed commonplace that all *data* must be **findable**, **accessible**, **interoperable**, and **reusable** - **FAIR**, for short. ANIML enables just that. Industrial R&D and Experimental Life Sciences labs generate their data - and hence, value - using hardware and software tools. SiLA 2 enables also these *tools* to be FAIR, so they can be easily combined as needed.

Recently, we are witnessing the advent of a new device category: Autonomously moving lab robots. Over the next few years, they will likely populate our labs. These robots can boost research productivity and reproducibility - provided they are FAIR, and only if they can connect with FAIR devices and apps!

It is no surprise, therefore, that the new SiLA Robotics Working Group attracted many bright new minds from the start and has already made big strides toward the user's need: Stationary and mobile lab robots that are FAIR.

SiLA has always been a platform bringing together vendors with customers, engineers with users. With the ongoing Board renewal NovoNordisk is joining, further strengthening the industrial users' perspective.

Encouragingly, Academia is also increasingly adopting SiLA. Notably, two large (inter-)national academic projects have chosen SiLA as their technical foundation: kiwi-biolab.de and swisscatplus.ch. They combine automated platforms with AI-guided process control, pushing today's boundaries of experimental science.

Join SiLA to enable the industrial revolution of experimental R&D. Let's make our lab robots FAIR!

I wish you a prosperous year 2023!

Oliver Peter

See us at these events:

- [IQPC smart Lab EU](#)
February 22-23, Amsterdam, NL
- [SLAS 2023](#)
February 26 - March 1, San Diego, USA
- [IQPC smart Lab](#)
March 22-23, San Diego, USA
- [Pharma Automation & Robotics 2023](#)
April 20-21, London, UK
- [BioIT US 2023](#)
May 16-18, Boston & virtual, USA
- [FutureLABS Live EU](#)
May 31- June 2, Basel, CH

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Forthcoming events: See you in sunny San Diego for SLAS 2023

The start of the year means the welcome return of the biggest show in the lab automation calendar. After two years online due to the pandemic and a stellar live return in February 2022, SiLA will also be back with a booth (#2628), a tutorial - "One Standard - an all-around perspective" on Tuesday 28th Feb 9-10am - and giveaways!

Watch out for the **SiLA splash** event post show on Thursday, 2 March 10am-4pm. Don't miss the chance to meet SiLA members, lab users & vendors and get an update on the standard with the user showcase at the tutorial.



[Sign up](#) now for the *SiLA splash!*

Review of past events FutureLabs US, laboratory automation with ELRIG and at EPFL

As long-term partners of the FutureLabs series, SiLA members were present at the first post-pandemic edition of FutureLabs LIVE US at Raleigh Convention Centre North Carolina 15-16th November running panels and round tables. The next edition in [Europe](#) is 31st May in Basel, and in the [US](#) from 4th October in Philadelphia.

We joined the [ELRIG Robotics and Automation](#) event at FESTO in Esslingen, Germany at the end of November. Great presentations and discussions in the impressive FESTO great hall. Look out for the next one in 2023?

And on 16th December [EPFL](#) ran their first workshop lab of the future today bringing together over 100 participants from industry and academia and of course SiLA with talks from Oliver Peter & Patrick Courtney.



Join [SiLA@smartab Exchange](#), February 22-23 in Amsterdam!

SiLA Director Daniel Juchli leading the Think Tank Session:
"Generating Value for the Scientist by User-Centric Digitalization"



Launch of SiLA Implementation Working Group

The first kick-off meeting of the new SiLA Implementation Working Group, lead by SiLA Director, Tim Meyer, took place on January 19th.

The various implementation showcased during the academic user meetings in 2021/22 shared two features, they were based on SiLA and their implementation depended on one or two highly talented and interdisciplinarity trained individuals. Most academic labs don't manage to recruit automation-affine students and if they do happiness maybe short-lived as projects often fade out once the person driving it finishes her or his thesis.

For labs without the financial means to hire dedicated automation experts it is therefore challenging to even test automation solutions not to speak of implementing long-term strategies.

Most wet-lab leaders feel the urgent need for automation, but do not have the habit to download and compile programs from GitLab or fiddle with IP addresses, ports, encryption, config-files etc. Filling the unmet need for a simple "setup and use" automation suite would significantly lower entry barriers to SiLA-based automation for numerous academic groups.

Significant effort has been made to release SiLA 2 and the Universal SiLA Client (USC), the next step towards user-friendliness would be to bundle the USC, an established, open-source SiLA Manager and general-purpose server such as LIMS or electronic lab notebook (ELN) into a windows-run SiLA Demo Suite. The SiLA installer could be, for example, like the MySQL Community installer where components can be centrally and GUI-based added, configured and removed.

The first step to increase efficiency is not mechanical automation, but optimizing information flow and most labs would greatly appreciate a SiLA suite if it serves to guide through a protocol, identify samples, capture results and instrument data (e.g. by labQR) and store it to an ELN. Such workflow can do without special hardware, besides a smartphone and software and services (ELN) are available in open source or free of charge versions. Hardware such as BT-Pipettes, Pipettors, automated incubators and other may later be added via the installer.

The SiLA consortium was funded to define the standard, to succeed it must not only be good but also widespread. The aim of the SiLA Demo Workgroup is to discuss how far the SiLA consortium and community want to stretch towards implementations. If an overarching SiLA installer and demo suite are wanted the WG should name and prioritize core-features, define a demo workflow and identify funding and support for its realization.

Anyone is welcome to join, explicitly people with a strong user perspective! We also look forward to see authors of the sila_awesome implementations as they are prime candidates to be included into the demo.

If you would like to know more about the working group or how to join, [contact us](#).

Update on the SiLA Robotics Working Group

With the SiLA Robotics Working Group we are focusing on bringing the users, the integrators, the software companies and the vendors of robots and devices together. By developing common feature definitions for high-level robot capabilities (such as pick-and-place [labware transportation](#)), we are striving towards robot-agnostic plug & play integration. We successfully demonstrated the integration of two different robots into the same workflow during the last SiLA Hackathon. Here are some links to presentations and recordings:

- Intro slides ([1](#), [2](#)) and [recording](#)
- Results [slides](#) and [recording](#)
- [Source code](#) of the reference implementation
- [Project folder](#)

Next, we are planning to work on more advanced robot capabilities, including device interactions, such as opening lids and doors.

Also, to achieve true plug & play (teaching-free) integration, the Laboratory Automation Plug & Play (LAPP) concept proposes a device-centric information representation ([digital twin](#)) framework to store the robot positions for hand-over.

Very important in achieving this vision is to get the equipment vendors on board and opt-in for providing the standardized communication, information representation, and physical interfaces to their devices. Conducting collaborative proof-of-concept studies is a great way to work out the technical details and showcase what it takes to SiLA-fy or LAPP-ify a device.

If you would like to know more about the working group or how to join, [contact us](#).

BioSASH recordings available on youtube!

During the months of November and December, we weekly posted the recordings of the BioSASH hackathon #4 on [our YouTube-Channel](#).

You can find the following presentations:

- [bioSASH - Automating labs with the world's first on deck microplate reader](#)
- [bioSASH - Pick & place labware transportation with benchtop and mobile robots](#)
- [bioSASH - Devices in the local lab and LIMS in the cloud - how to build a smart data integration](#)
- [bioSASH - SiLA2: An enabler for accelerated bioprocess research and development](#)
- [bioSASH - SiLA 2 from a hardware vendor perspective](#)
- [bioSASH - How to secure quality and safety in the lab using open standards](#)
- [bioSASH final result of hackathon: Pick & place labware transportation with benchtop and robots](#)
- [bioSASH final result: Planning, execution and documenting lab workflows using open standards](#)



We would like to thank again all presenters, bioSASH partner BioLAGO and participants for their time and contribution!



Red Dot Award 2022 Winner - Deft

SiLA members [AST](#) are proud to have won a prestigious international RedDot award for 'Innovative Design 2022' for their lab of the future product [Deft](#)!

AST (or Applied Scientific Technologies) are an emerging company founded by Garry Lofthouse and Lee Raywood in 2017 Stokesley, Yorkshire UK. AST are innovative specialists in robotics, automation and hardware integration in the life and

physical sciences for laboratory and medical applications.

[RedDot](#) is an international design competition for product design, communication design and design concepts. Deft will now tour around the world at multiple Red Dot Design Award exhibitions until May 2023!

AST is focused specifically on the laboratory and digitalization markets to help support customer's automation journeys. The team have decades of knowledge in the field of automation and control experience. Specializing in Laboratory 4.0, Digital Twins, Collaborative and Autonomous Robots, System Integration, Internet of Things (IoT), SiLA and Artificial Intelligence. AST use all the emerging technologies of the digital world available and apply them to the unique challenges faced by laboratory businesses to improve transparency and productivity. See more at <https://www.red-dot.org/>



FutureLabs EU returns to Basel in '23

Following on from the 2022 event in Basel last June and the US edition in November, [Future Labs](#) returns to Basel this time running for 3 days from 31 May to 2nd June.

SiLA and members will be there in force, with sessions, panels, discussions, booths and demos. Not to be missed, so book your place now!

Congratulations to our “speak-SiLA-to-me” Winners!

We would like to congratulate UniteLabs and the University of Athens / Dr. Elias Chatzitheodoridis.

Let the two winners of the free SiLA Observing Membership introduce themselves.

We at [UniteLabs](#) are thrilled to announce that we have officially become a SiLA member! Thanks for the warm welcome and the opportunity we’re getting with the 1 year observing membership that we won in the “Speak SiLA to me” campaign last year.



Our co-founder Lukas Bromig first heard about SiLA back in May 2019, when he started his PhD thesis at the Technical University of Munich.

His department, the Chair of Biochemical Engineering, was already an academic member of the SiLA Consortium and his working group was using SiLA 2 in their research project. The project “Digitalization in Industrial Biotechnology*”, funded by the German Ministry of Education and Research, aimed to decrease the development time of bioprocesses through digitalization. As experimental setups change frequently in academia, a big step towards this goal was the flexible and sustainable integration of devices and software in this dynamic environment. SiLA 2 enabled them to do just that.

At [UniteLabs](#) we are bringing cloud connectivity to hard- and software for labs in the industry. Our platform provides users with access to all their systems’ APIs, eliminating the need for one-on-one integrations with hundreds of systems. We want to empower companies to leverage internal IT proficiency and efficiently map their business logic. By using the SiLA standard for laboratory hardware interfaces, we can provide rapid integration and connectivity to all systems, allowing companies to build a digital infrastructure that is organized and manageable.

We’re thankful for all the help and the stimulating discussions we had with the other members so far and we’re happy to see the progress that was made in these past years (Interoperability!), taking SiLA to a very mature and stable level. This is only possible thanks to all the active members and contributors.

SiLA is bringing the whole digitalization and automation community closer together.

We are a part of this and are looking forward to what 2023 has in store for us and SiLA!

National Technical University of Athens / Dr. Elias Chatzitheodoridis:

CEO of NoRCEL (<http://www.norcel.net>)
Management Committee of EANA (<http://www.eana-net.eu/>)
President of Stellar Discoveries (<http://stellardiscoveries.gr>)



I am professor in Mineralogy-Petrology at the School of Mining and Metallurgical Engineering of the National Technical University of Athens, Greece. I am also director of the Mineralogy, Petrology, Economic Geology laboratory and Chief Executive Officer of the [NoRCEL](#) Network.

My first degree was in Earth Sciences, while my MSc and PhD degrees on cosmochemistry and mass spectrometry. For a decade, I worked in photonics, lithography, micro and nanotechnologies. My current research is on Astrobiology, investigating the origins of life, leading to discoveries that relate to the habitable environments on Mars. For this, I work on the development of instrumentation methods and software for the automated interpretation of scientific data acquired from analytical instruments, such as instrumentation for biosignature detection.

I realized early on that standardizing the description of information from analytical instruments, is a necessity to convert it into dense knowledge. This can enhance scientific interpretation, reduce research costs, and improve peer review. This can also enable machines to exchange information make decisions unattended and integrate to achieve certain tasks allowing humans to occupy themselves in more intellectual activities. This is particularly important for planetary exploration with rovers and eventually robotic swarm operations with wide geographical coverage, enabling new findings and discoveries.

Meet SiLA@SLAS2023

WIN a SiLA
membership
@SLAS!

Step by at our **booth #2628** and let us do a short recording of you telling the world about your experience with SiLA or why SiLA is important to you. In exchange **we reward you with a cool «speak SiLA to me» shirt** and join the «tombola» for a **free observing membership!**

Don't miss the opportunity to become a corporate member of the community!

[SiLA 2 Training Videos](#)
available for free on youtube!

FOR MORE INFORMATION

Visit us at www.sila-standard.org

Email us at info@silastandard.org

Spinnereistrasse 38, 8645 Rapperswil-Jona, CH

Call +41 55 210 01 19 (Switzerland)

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