IRIXYS

2020 Activity Report

In Memoriam:

*Behind work, there are individuals. In 2020, **Ulli HÄRING**, Senior Solution Architect and Manager at ATOS München, was one of our network's key scientific industry partners. He supervised the PhD of Mathieu Garchery (INSA Lyon and Uni Passau student) and the Master Thesis of Alban Thaumur (ENSIIE and Uni Passau student). Ending his messages in 3 languages („Kind regards, Mit freundlichen Grüßen, Hormat saya"), Ulli was clearly committed to the promotion of cultural exchanges, the share of knowledge and the provision of high quality work. Thinking out of the box, a great professional and a gentleman, Ulli was not only a great scientist but also a person it was extremely pleasant to work with. His sudden death in November 2020 was a shock for us all.*

The purpose of this document is to report on all activities undertaken in 2020 by IRIXYS the International Research & Innovation Centre on Intelligent Digital Systems, gathering Institut National d'Etudes Appliquées (INSA) Lyon (France), Universität Passau (Germany) and Università degli Studi di Milano (Italy) – as well as Université de Päu et Pays de l'Adour as new associate partner.

In the first days of 2020, the Coronavirus was hardly spoken about in Europe. A few weeks later, it turned into a pandemic, freezing the economy and changing forever our ways of working and – even deeper - of interacting. For IRIXYS, as for all international networks, we had two options: either freeze all planned activities for 2020 and reschedule them for "after the pandemic" (although no one knew when this would take place) or maintain our plans while reshaping our modus operandi in order to adapt to the new situation. We mainly opted for the second option, not only because already then, we had the intuition we had entered into a new era, offering new communication and exchange opportunities thanks to the boost into digitalisation brought by the pandemic, but also because we were determined to maintain our cross-border scientific, academic and industry cooperation and make our network live.

This report reflects well that for IRIXYS, 2020 was certainly NOT a year "on-hold": despite the pandemic we fulfilled our ambitions. Even when our borders were closed, our academic, scientific, and industry co-operations, as well as our dialogue with society were maintained. The digital boost created by the pandemic brought new opportunities for our cross-border multi-stakeholder exchanges: thanks to Zoom, it became easier, faster, cheaper and more environmental-friendly to meet and discuss among ourselves than before. The planned IRIXYS workshop supposed to take place in France was converted into a three-day digital workshop, where our young scientists could exchange with their peers and senior researchers from the other partner institutions with the same level of quality as in a workshop "in presence". We opened to new topics and new circles (women in STEM, migrants in research, EU AI Alliance, cooperation outside Europe). And the digital French-German Summerschool with industry stimulated even more interest and attention from all stakeholders than before.

Behind these successes, there was clearly a determination, expressed by all our partners: not to isolate ourselves due to the circumstances. More than ever, 2020 was the year when we realised how our cross-border cooperation is not only great: it is also crucial for our research, our academic quality and the contribution to each of our higher-education institutions to its ecosystem.

CONTENT

1. Academic Collaborations

🞣 IRIXYS PhD track

The "IRIXYS PhD track" was conceived to stimulate a bi-national academic postgraduate path: from the start of a Masters to achieving a PhD.

On 31st January 2020, a number of IRIXYS past students (either double-Master students or "co-tutelle" PhD students INSA Lyon/Uni Passau) received their diploma in the frame of the graduation ceremony: the occasion for many IRIXYS Almuni who came back to Passau for this event to see each other again, but also to share with the other students this German tradition!

At the graduation ceremony in January 2020, Uni Passau Prof. Forster-Heinlein, PhD Coordinator, presents the focus of the research carried out by Yvan Lucas, IRIXYS co-tutelle student who successfully completed his PhD in December 2019.

Mohamed Bouzaabia, IRIXYS double-master student who passed his Master at the University of Passau in 2019, receives his diploma from Passau University Prof. Joachim Posegga, International Coordinator at the Faculty of Computer Science and Mathematics at the ceremony in January 2020.

In 2020, despite the pandemic, three French Double-Master students from INSA Lyon – Matthieu Halunka, William Occelli and Souhail Anfelouss studied at Passau to complete their Masters in computer science (photo: Matthieu Halunka, Alban Thaumur, double-Master student Uni Passau/ENSIIE who wrote his Master thesis in ATOS Munich in spring 2020 and William Occelli with Axelle Cheney, IRIXYS coordinator – at the University of Passau in early March 2020).

In 2020, Mathieu Garchery who undertook a PhD at ATOS München and Benjamin Planche who undertook a PhD at SIEMENS Munich, both after their IRIXYS double Master (INSA Lyon/Uni Passau) passed brilliantly their PhDs with the excellent grade of 1,0.

🔸 IRIXYS Young Scientists' Workshop (digital)

The IRIXYS young scientists' workshop took place fully digitally along three days - from 16th to 18th November 2020. It allowed students from Uni Passau, Milan, INSA Lyon, Uni Pau to share their findings among themselves, but also with researchers from the four higher education institutions.

IRIXYS @irixys · Nov 18, 2020

We finished the IRIXYS Young Scientists' Workshop 2020 today with the presentations from Rémi Canillas, Zahy Shamy, Sebastian Wilhelm and Ashish Ashutosh. We are thankful for all the participation and hope everyone could make use of this exchange! 💡

IRIXYS @irixys · Nov 17, 2020

Second day of the IRIXYS young scientists' winter workshop today with great presentations from Thomas Veran (INSA Lyon), Julian Stier (Uni Passau), Dietmar Jakob (Uni Passau/TH Deggendorf) and Faisal Shahzad (Uni Pau)!

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IRIXYS @irixys · Nov 16, 2020

The 3-day IRIXYS winter young scientists' workshop started today, fully digitally. Felix Boelz (Uni Passau), Stefan Becher (Uni Passau), Ghalia Tello (Uni Milan/Abu Dhabi) and Elie Chicha (Uni Pau) shared this morning their latest findings with a French/Italian/German audience.

♡ 1

IRIXYS @irixys · Nov 14, 2020

See you soon at the Winter IRIXYS Young Scientists' Workshop 2020 where our PhD students from @insadelyon @LaStatale @universite_uppa @UniPassau will discuss their latest research findings online. 🎓 irixys.uni-passau.de/de/home-2/

✦ Scientific results

In 2020, our IRIXYS researchers kept on publishing **a plethora of new results** in various famous international conferences, journals and books. Among these, the following publications and presentations were made (non-exhaustive list):

- Romain Mathonat, Diana Nurbakova, Jean-François Boulicaut & Mehdi Kaytoue **: « Anytime mining of sequential discriminative patterns in labeled sequences ».** Knowledge and Information Systems (KAIS) 2020, pp. 439-476.

- Elöd Egyed-Zsigmond, Amine Nahid, Sylvie Calabretto: **Labelling Companies Referred to in Newspaper Articles.** CIRCLE 2020, http://ceur-ws.org/Vol-2621/CIRCLE20_36.pdf

- Rémi Canillas, Omar Hasan, Laurent Sarrat & Lionel Brunie : **« GraphSIF: analyzing flow of payments in a Business-to-Business network to detect supplier impersonation ».** Applied Network Science. doi : 10.1007/s41109-020-00283-1.

- Yvan Lucas, Pierre-Edouard Portier, Léa Laporte, Liyun He-Guelton, Olivier Caelen, Michael Granitzer & SylvieCalabretto : **Towards automated feature engineering for credit card fraud detection using multi-perspective HMMs**. Future Generation Computer Systems (2020) vol. 102, pp. 393-402.

- Vikas Jaiman, Sonia Ben Mokhtar & Etienne Rivière : **TailX: Scheduling Heterogeneous Multiget Queries to Improve Tail Latencies in Key-Value Stores**. 20th International Conference on Distributed Applications and Interoperable Systems, 19 June 2020, Valetta (Malta).

- Lu Gan, Diana Nurbakova, Léa Laporte & Sylvie Calabretto : **Enhancing Recommendation Diversity using Determinantal Point Processes on Knowledge Graphs**. 43rd International ACM SIGIR Conference on Research and Development in Information Retrieval, 25 July 2020, Virtual (Chine).

- Rania Talbi : **Towards Practical Privacy-Preserving Collaborative Machine Learning at a Scale**. 2020 50th Annual IEEE/IFIP International Conference on Dependable Systems and Networks, 29 June 2020, València (Espagne).

- Rémi Canillas, Omar Hasan, Laurent Sarrat & Lionel Brunie : **Supplier Impersonation Fraud Detection using Bayesian Inference**. 6th IEEE International Conference on Big Data and Smart Computing (IEEE BigComp 2020), Busan (Corée du Sud).

- Irina Ovchinnikova, Liana Ermakova & Diana Nurbakova : **Sentiments in Russian Medical Professional Discourse during the Covid-19 Pandemic**. 3rd Workshop on Computational Modeling of People's Opinions, Personality, and Emotions in Social Media (PEOPLES) collocated with COLING-2020, 13 December 2020, Barcelona (Espagne).

- Liana Ermakova, Diana Nurbakova & Irina Ovchinnikova : **« Covid or not Covid? Topic Shift in Information Cascades on Twitter ».** 3rd International Workshop on Rumours and Deception in Social Media (RDSM) Collocated with COLING 2020, 13 December 2020, Barcelona (on line) (Espagne), pp. 32-37.

- Georgios Damaskinos, Rachid Guerraoui, Anne-Marie Kermarrec, Vlad Nitu, Rhicheek Patra & François Taïani : **FLeet: Online Federated Learning via Staleness Awareness and Performance Prediction**. ACM/IFIP Middleware conference, 9 December 2020, Delft (Pays-Bas).

- Paul Lachat, Nadia Bennani & Veronika Rehn-Sonigo : **Towards an Inference Detection System Against Multi-database Attacks**. New Trends in Databases and Information Systems (2020).

- Omar Hasan, Lionel Brunie & Elisa Bertino : **Privacy Preserving Reputation Systems based on Blockchain and other Cryptographic Building Blocks: A Survey**. Rapport de recherche (2020).

- Minale Ashagrie Abebe , Joe Tekli, Fekade Getahun, Richard Chbeir, Gilbert Tekli: **Generic metadata representation framework for social-based event detection, description, and linkage. Knowl. Based Syst. 188** (2020)

2. **Industry and Policy Collaborations**

🞦 Canada-Bavarian Symposium on AI for Medical Applications

The Symposium organised by the International Bavarian Research Alliance (Bayfor) at Institut Francais in Munich on 21st January 2020 aimed at gathering academics, researchers and decision-makers from Québec, France and Bavaria so as to stimulate synergies and possible co-operations: AI developments, in particular in the field of healthcare, are a priority for Canada, France and Bavaria, with massive funding available to support progress in this direction. Axelle Cheney and Dr. Armin Gerl presented IRIXYS in this frame; our network raised a lot of interest from Canadia participants.

🞦 Fit Europe Project

The 2nd transnational meeting of the Fit Europe project took place in Milan on 4th and 5th February 2020. This meeting gave the involved academic and industry partners the opportunity to discuss and agree on the philosophy of the strategic partnership's project and the content and methodology to be implemented. Aspects related to management, communication and dissemination were also agreed upon. All partners from France, Italy, Germany and Romania started working on designing further the high-quality, innovative and disruptive educational package 20 selected students would benefit from, starting in February 2021 in Passau.

All through the year, intensive work followed among all partners to make the Fit Europe innovative package a reality. Transnational meetings were converted into a digital format.

✦ Summerschool on AI with Industry 2020

Initially planned to take place in France (Clermont-Ferrand) in Spring 2020, the French-German Summerschool was converted into a fully digital event – a change made possible thanks to the involvement and support from the SIEMENS AI Lab in Munich.

As a results, the 4th French-German Summerschool on Artificial Intelligence with Industry took place fully digitally on 24th June 2020.

As the time, it is one of the very few international conferences that was not cancelled, and one of the first to take place digitally, which was still very innovative at the time!

The 160 registered participants included:

- **50 French and German postgraduate students** (PhD and Master students) from France, Germany and elsewhere
- **45 Professors and post-doc researchers** from academic institutions and research centres in France, Germany and elsewhere
- **65 Representatives from Industry and Policy**

Participants from academia came from:
Passau Uni, ENSIIE Evry, ENS Paris, INSA Lyon (IRIXYS partner), Paris Sorbonne (France), Paris Nanterre (France), Ecole des Mines de Saint-Etienne (France), Grenoble University (France), University IMT Atlantique (France), Ecole Polytechnique Paris (France), Technische Hochshule Deggendorf (Germany), TU München (Germany), University College of London (UK), Southampton University (UK), Brussels University (Belgium), ENSI (Tunisia), Asian Institute of Technology (Thailand), Polish Academy of Science (Poland), …and prestigious research centers (CEA, INSERM, CNRS in France; SCCH in Austria, etc.)

Industry representatives came from very various companies, including **ATOS**, **Siemens** (Germany), **Worldline** (France), **Bertin** (France), **BMW** (Germany), **Deloitte** (France), **Banque de France** (France), **Société générale** (France), **SNCF** (France), **Réseau Electricité de France,** etc.

The full report is in Annex.

Below a few quotes from participants:

> "Why is this Summerschool so important? Because AI is a key issue for the future: challenges are great-protecting our planet, strengthening cohesion in Europe, supporting resilience in a pandemic, maintaining economic prosperity." Michael Jaspers @AllemagneDiplo #DFGSS2020

> "If we want to keep human at the core of the digital transformation, we have to join and associate all talents from the public and private sectors." Hervé Martin, scientific advisor French Consulate in Munich at the FR/DE AI Summerschool

"The topics you deal with at the Summerschool remind us that Europe is in the forefront in AI and that thanks to the French-German cooperation, research can defend its place on the international scene." Philippe Greciano, Vice-President of @DFHUFA #DFGSS2020

"Today, this is a truly unique set up" said Marco Alexander Breit (Bundesministerium KI Taskforce) at the FR/DE AI Summerschool. "I think it is of utmost importance that we cooperate in Europe on the level of companies, academic structures and people with great minds & ideas."

Marco-Alexander Breit
Head of Task Force on Artificial Intelligence
Federal Ministry for Economic Affairs and Energy

"I thank @Atos & @SiemensDE for hosting this event with @UniPassau & @ENS_ParisSaclay . It is very important that companies are working with you here because they make sure that the transfer of good ideas in business models & in European economy is covered." M.A Breit

"We believe this Summerschool's topic is particularly interesting and is a good ground for future Franco-german projects thanks to the participation of industry, academic partners and cross-boarder participants." Lionel Grotto, CEO @ChooseParisReg at the FR/DE AI Summerschool
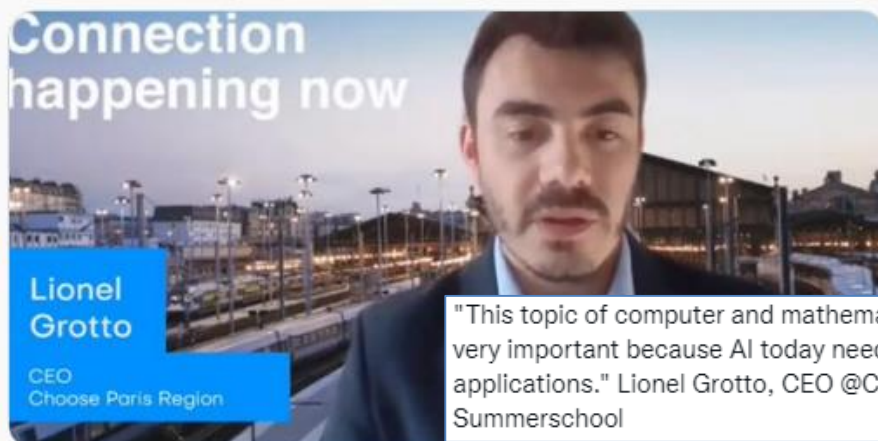
Connection happening now

Lionel Grotto
CEO
Choose Paris Region

"This topic of computer and mathematical applications of AI to industry is very important because AI today needs to be put into concrete applications." Lionel Grotto, CEO @ChooseParisReg at the FR/DE AI Summerschool

"I welcome the fact that your FR/DE Summerschool on AI echoes the comprehensive approach the European Commission has adopted, because it is both on the technological aspects & on AI for the Good, highly recommandable in our view." @Juha_Heikkila, AI Head of Unit @EU_Commission

"Future resilience to another crisis will depend, for SMEs and even big groups, on their overall capacity to prepare themselves and include "digital" in their strategy as a tool but also as mindset." Juliette Jarry, Vice President @auvergnerhalpes at FR/DE AI Summerschool

"Everything is going on an international scale and we have to be competitive to maintain the industry on our territory. Clearly "digital" can help providing a better supervision of quality, responsibility and responsiveness."Juliette Jarry, VP @auvergnerhalpes FR/DE Summerschool
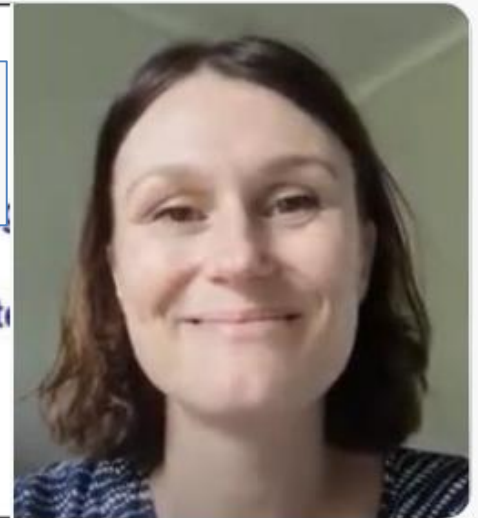
"For us, it was a question of sticking to our values. Despite the pandemic, all participants had with us 1 shared determination: to pull up our sleeves and make the French-German Summerschool on AI with industry work" say the organisers in their Report mlmda.cmla.fr/french-german-...

"We had to find a way, despite the global pandemic"
The 2020 (Digital) French-German Summer-school
on Artificial Intelligence with Industry

- Summary Report -

Gathering industry players, researchers, academics and policy makers on Artificial Intelligence, from France and from Germany in a time of a Corona pandemic: for many, mission impossible? Not for the organisers, who hold the French-German Summerschool on Artificial Intelligence with Industry, on last 24th June.

"For us, it was a question of sticking to our values: we had to show that a virus cannot get rid of innovation and our French-German partnership. We had to show that despite a global pandemic, research does move on, innovations in AI and Big Data keep coming up, and European cooperation lives" have declared the

4. Other Developments
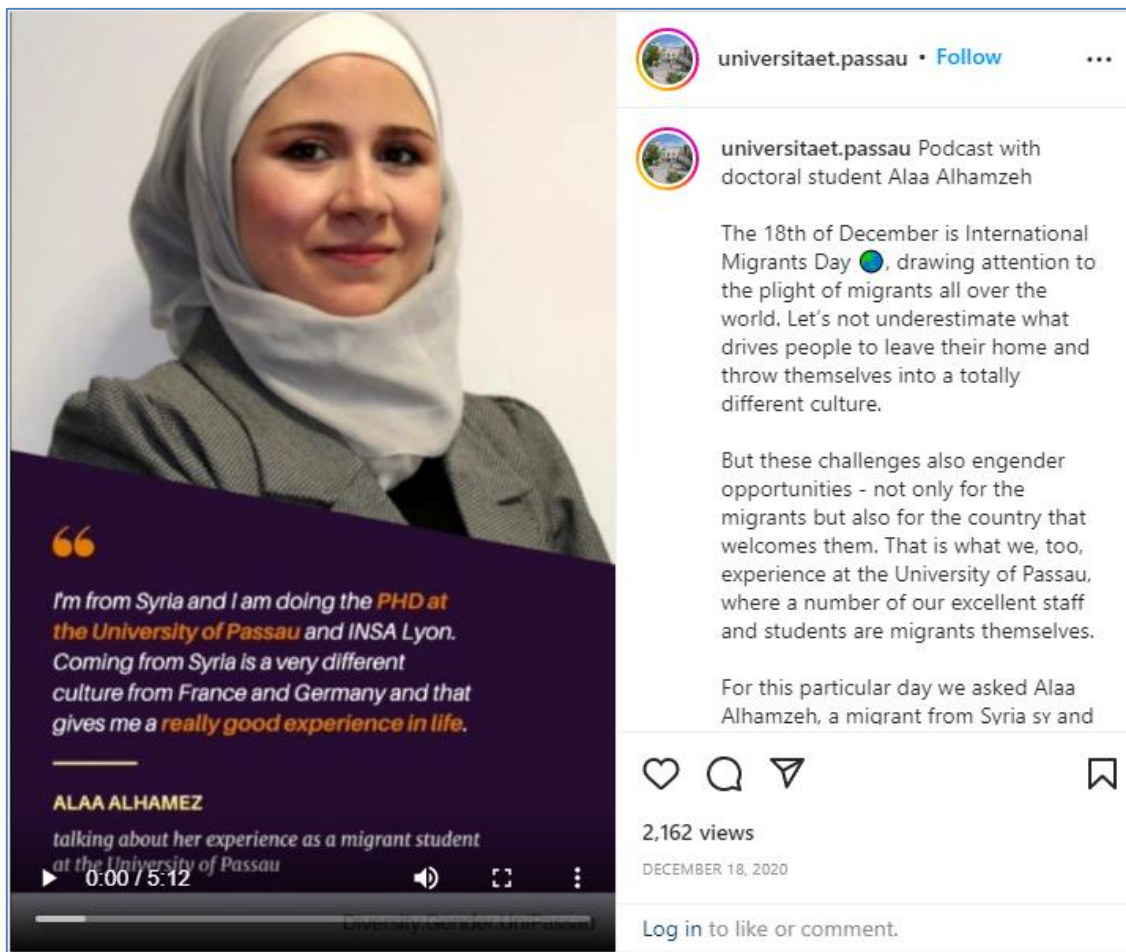
3.1 Connection with other activities

EU AI Alliance

The European AI Alliance is an initiative of the European Commission to establish an open policy dialogue on Artificial Intelligence. Since its launch in 2018, the AI Alliance has engaged around 6000 stakeholders through regular events, public consultations and online forum exchanges. Due to its activities on Artificial Intelligence, IRIXYS joined the EU AI Alliance in 2020: this has allowed IRIXYS to have access to the EU AI Alliance Platform and European AI Alliance Assembly, to network and get invited to regular meetings and to participate in consultations organised by the EU AI Alliance.

Activities related to gender-equality in STEM and migrants in science

Women are still under-represented in research and academia, including in computer science. In 2020, IRIXYS started to follow the developments in this area very closely. In November 2020, IRIXYS took part in the 3rd European Bavarian Women Summit, organised fully digitally and opened by Minister Judith Gerlach. The topic for the Summit was "digitalisation, leadership, sustainability".

On the occasion of the international migrants' day, a portray of IRIXYS PhD student Alaa Alhamzeh was disseminated.

▪ 3.2 Communication

✦ IRIXYS Newsletter

In March 2020, the first issue of the IRIXYS Newsletter was published. The aim was not only to inform about past and upcoming events, but also share information on key scientific conferences among the network.
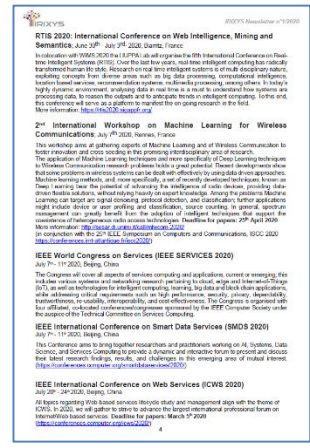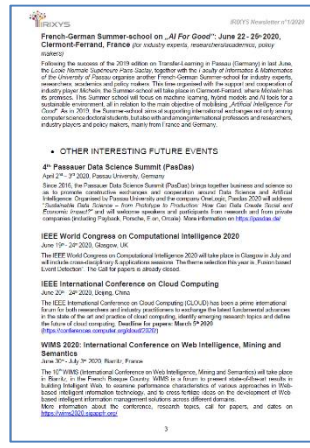
✦ IRIXYS website

The work started in 2019 to improve the IRIXYS website continued in 2020, allowing for the launch of a new website in 2020.
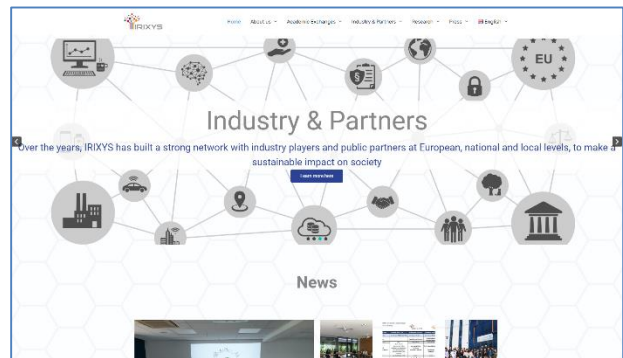
✦ IRIXYS twitter account

A twitter account was created to enable the rapid spread of news and information on all IRIXYS activities, but also to relay to our network in a reactive and updated manner latest key pieces of news.
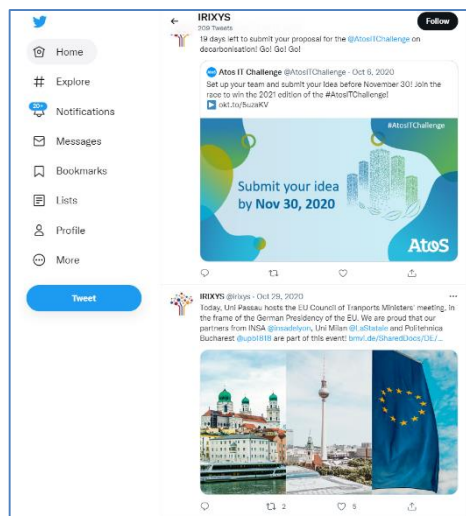
Annex – detailed report from the 2020 (Digital) French-German Summer-school on Artificial Intelligence with Industry

Gathering industry players, researchers, academics and policy makers on Artificial Intelligence, from France and from Germany in a time of a Corona pandemic: for many, mission impossible? Not for the organisers, who hold the French-German Summerschool on Artificial Intelligence with Industry, on last 24th June.

"*For us, it was a question of sticking to our values: we had to show that a virus can<u>not</u> get rid of innovation and our French-German partnership. We had to show that despite a global pandemic, research does move on, innovations in AI and Big Data keep coming up, and European cooperation lives*" declared the organisers - the University of Passau (Germany), Ecole Normale Supérieure Paris Saclay (France) and Siemens Artificial Intelligence Lab.

As a result: an event not only 100% digital but also relevant in the alternative ways put forward for people to contribute. On the day of the event, scientific, industry and policy messages from European, French and German leaders and researchers have been launched on the event website. In addition, a 4-hour live session took place including live talks, chat, active breaks and interactive questions.

This creative approach was fruitful: this year's edition – **the fourth Summerschool on Artificial Intelligence with Industry - has beaten all records.** "*Without counting all people who watched the videos on our website, more than a hundred participants joined the live session. We did not expect such interest! And after no less than 5 hours of discussion, more than three-quarter were still online: for us the best proof that what we offered has met what people needed.*" note enthusiastically the organisers.

<u>A first element</u> explains the success of this initiative: even if the prime target group have always been researchers and young scientists, this yearly event gathers also industry and policy players. Consequently, **all stakeholders** of Artificial Intelligence in France and Germany are represented, and exchanges and dialogue benefit from such complementarity.

"*Today, this is a truly unique set up!* "has praised Marco-Alexander Breit, Head of the Artificial Intelligence Taskforce in the German Ministry of Economy in a video message to the participants. *„It is of utmost importance that we cooperate in Europe on the level of companies, academic structures and people with great minds and ideas. It is very important that companies are working with you here because they make sure that the transfer of good ideas in business models and in the European economy is covered."* Hervé Martin, Scientific Advisor at the French Consulate in Munich has echoed the same enthusiasm, highlighting that "*if we want to keep human at the core of the digital transformation, we have to join and associate all talents, from the public and private sectors".*

Such an approach is natural for the University of Passau and Ecole Normale Supérieure Paris Saclay. Both institutions are known for the high level of their mathematics and computer science Masters and PhD programs; contributions from their students and researchers made live at the event or through their scientific videos reflect such high standards. But beyond this

academic performance, their International Research and Innovation Centre on Intelligence Digital Systems (led by Prof. Harald Kosch and Axelle Cheney) on the side of the University of Passau and the Chair of Industrial Data Analytics and Machine Learning (IDAML, led by Prof. Mathilde Mougeot) on the side of Ecole Normale Supérieure Paris Saclay, steering the Summerschool, are also famous for ensuring that research is strongly connected to international networks and key industry leaders in both countries.

Another explanation for the Summerschool's booming success lies on the **topics covered** - machine learning, artificial intelligence engineering and artificial intelligence „for the good". *"Why is this Summerschool so important? Because AI is a key issue for the future! Challenges are great: protecting our planet, strengthening cohesion in Europe, supporting resilience in a pandemic, maintaining economic prosperity..."* has explained Michael Jaspers, Scientific Advisor at the German Embassy in Paris. And *"This topic of computer and mathematical applications of AI to industry is very important because Artificial Intelligence today needs to be put into concrete applications"* has added Lionel Grotto, CEO of Choose Paris Region; a similar point of view was expressed on the side of research by Pascal Auscher, Director of the National Institute of Mathematics and their Interactions at the French Centre National pour la Recherche Scientifique CNRS, highlighting *"we welcome any desire to collaborate in AI!"*

It is clear that **many players see in the development of Artificial Intelligence its strong potential** for supporting economic growth in France and in Germany, in particular following the economic crisis due to the Corona pandemic. *„Future resilience to another crisis will depend, for SMEs and even big groups, on their overall capacity to prepare themselves and include "digital" in their strategy as a tool but also as a mindset"* has warned in a video message Juliette Jarry, Vice President of the Region Auvergne Rhone Alpes, in charge of Digitalisation. *„Everything is going on an international scale and we have to be competitive to maintain the industry on our territory. Clearly "digital" can help providing a better supervision of quality, responsibility and responsiveness."*

But the Summerschool was also very successful in **making priorities converge**: by raising the potential brought by Artificial Intelligence **to support a sustainable and environment-friendly society**, the Summerschool has managed to reflect that today, economic growth and environmental-friendly sustainable development go hand in hand. Natasha Eckert Siemens Head of University Relations has recalled: *"A lot of people ask for the rationale behind the technology. They want to understand the impact and the value that technology generates for society and for the world! AI is not the end! "*

This aspect has been particularly dear to the Siemens Artificial Intelligence Lab (led by Dr. Ulli Waltinger and Benno Blumoser), co-organisers, who chaired a live session where the use of AI to control wildfire, stimulate sustainable international development or support the management of pandemics by hospitals were brought forward. It fully meets the new focus put by the University of Passau and its new President, Ulrich Bartosch, on the theme of sustainability: *"one unique trend of the University of Passau is its strong attachment to the issue of sustainable development, which is increasingly evolving into a cornerstone of our University's identity: with no less than three new professorships [gained through the AI Competition organised by the Bavarian Chancellery], we will be able to establish a strong foundation for an interdisciplinary research focus on AI & sustainability"* has declared Ulrich Bartosch in a video address.

Moreover, such an approach fits in **the European Union's vision**, as recalled by Juha Heikkilä, Head of the European Commission Artificial Intelligence Unit, who in a video opening message

has welcomed „*the fact that the French-German Summerschool on Artificial Intelligence echoes the comprehensive approach the European Commission has adopted, because it is **both on the technological aspects and on AI for the Good**, highly recommendable in our view."* Accelerating jointly the ecologic and digital transitions is one of the four pillars of the Franco-German Initiative for European Recovery following the Coronavirus crisis, presented jointly by Emmanuel Macron and Angela Merkel in May, an initiative in the mind of many participants.

*"Your Summerschool is a great example of **France and Germany or France and Bavaria joining forces** in the area of high-end technology!"* has echoed enthusiastically Bernd Forster, Head of the Department international relations with West and North Europe in the Bavarian Chancellery, who joined the event live and made the official opening. "*We need more of these initiatives in the future. That was also the outcome of the meeting of President Macron and Minister President Söder just a few months ago: both leaders underlined the importance of franco-german, franco-bavarian cooperation in the field of science and technology and your Summerschool is of course an excellent example for this! All instruments of cooperation between France and Germany refer to digitalisation, refer to Artificial Intelligence."* The strong connection between France and Germany in this field has also been highlighted by Philippe Mareine, ATOS Chief Digital & Transformation Officer, Head of CSR, who expressed his wish to „*take the best out of the discussions today and **bring the French-German collaboration to the next level**, for the benefits of our people, of our customers and the society at large "*.

The **link between the French-German Summerschool and current trends at EU level** was finally brought out by Hubert Tardieu, CEO Advisor of ATOS in his live address: "*AI for Industry has become a real essential topic well recognised by the European Commission, as reflected in the Public Private Partnership in preparation"* said Hubert Tardieu, who has worked for many years with Thierry Breton, today European Commissioner in Brussels and who has supported the French-German Summerschool since its onset in 2017. Indeed, that French and German top research and industry join forces in this field, is perceived by many as the right strategy for ensuring that European players still count among tomorrow's leaders worldwide, as praised by Philippe Greciano, Vice-President of the French-German University (UFA/DFH): *"The topics you deal with at the Summerschool remind us that Europe is in the forefront in AI and that thanks to the French-German cooperation, research can defend its place on the international scene"*.

On the side of the organisers, **reflections have started regarding the 2021 edition** of the French-German Summerschool on Artificial Intelligence with Industry. Following this year's success, the format, the topics, the dates for the next edition are already being discussed. Several players have expressed the wish to patronise the initiative. Ulrich Bartosch, the new President of the University of Passau for whom this year's edition was the first experience of the French-German Summerschool in AI with Industry has emphasised the effectiveness of this initiative to strengthen European partnerships between academia, industry and public policy, recalling that "*the University of Passau is a key academic player in computer science in Bavaria thanks not only to our research and teaching but also to our fruitful cooperation on digitalisation with great academic and industry partners in the Danube valley*", a synergetic approach going even beyond the borders of Bavaria: *"much of what we do in the University of Passau is also geared towards supporting the Franco-German roadmap on Artificial Intelligence."*

On the French side, Pierre-Paul Zalio, President of the Ecole Normale Supérieure Paris Saclay and Laurent Prével, Director of the Ecole Nationale Supérieure d'Informatique pour l'Industrie et l'Entreprise, who attended the French-German Summerschool in Bavaria last year, have

both repeated this year their enthusiasm and their wish to continue with this yearly initiative. It is both in French and in German that Laurent Prével has highlighted: *"I am convinced of the success of the French-German projects in Artificial Intelligence!"* whereas Pierre-Paul Zalio brought out that *"the French-German cooperation has never been so much strategic as today. Developing this cooperation in transfer learning and machine learning is more than strategic for many reasons"* **Computer science students from these institutions already benefit from French-German academic paths**, allowing them to spend some of their postgraduate studies in Passau; thanks to such schemes some are now doing their Masters' degree or PhD within an industry partner in Bavaria.

Being committed to the French-German dialogue and bringing in its own strengths, this is finally maybe the ultimate key, explaining the success of the French-German Summerschool on AI with Industry. *"What is clear is that with Siemens AI Lab, the University of Passau and ENS Paris-Saclay, we had the dream team!"* confess one of the organisers. *"'Like all participants in our Summerschool, some of us are French, others are German, some work in industry, others in academia, some are mathematicians or computer-science specialists, others have a policy or communication background…This diversity is our strength and this is also what makes this initiative so powerful. And it was great to see that despite the challenges related to the Corona pandemic, all participants had with us one shared determination: to pull up our sleeves and make this joint French-German initiative work."*

Background Information

Origin

The French-German Summerschool Artificial Intelligence with Industry is an initiative jointly created by **Ecole Normale Supérieure Paris-Saclay (France)** and **the University of Passau (Germany)** aiming at gathering **researchers and industry players active in Artificial Intelligence in France and Germany/Bavaria.** The first such Summerschool on AI with Industry emerged 4 years ago. Since the 2019 edition, particularly successful, the shift moved from a purely scientific to a broader experts' event in which **public players** also take part (cf. *Annex 1 - press release 2019*). The 2020 edition of the Summerschool was supposed to take part in Clermont-Ferrand (France), on the site of Michelin, partner of this year's event.

Format

Due to the Covid-19 pandemic, this format had to be adjusted: **with the conviction that it was important to hold this event so as to give a strong signal that innovation, the European cooperation and the French-German dialogue goes on,** the organisers decided to convert the 2020 Summerschool into a 100% digital and innovative initiative (cf. *Annex 2 - Agenda*).

Siemens AI Lab accepted to support the organisation of this event; Siemens' expertise was mobilised on the one hand for the technical feasibility of the live session of the Summerschool, on the other hand on the discussions and scientific contributions related to AI & sustainability („Artificial Intelligence for the Good").

In the morning of the 24th June, participants were given free access to a number of videos and messages from academia, industry and public players; in the afternoon a live session – with a strong scientific focus – took place.

Audience

In 2019, approximately 80 participants took part in the Summerschool in Passau. For the 2020 edition, **more than 100 people joined the live session and many more have visited the event's website to watch the video messages, presentations, and scientific slides.**

Participants in the 2020 French-German Summerschool included representatives of
- ✓ **Academia** – University professors, researchers, PhD students and post-docs
- ✓ **Industry** – from BMW, the German Aerospace Center, GIZ, Siemens, Réseau Transport Electricité, SNCF, Michelin, Bertin, Banque de France, ATOS, etc.
- ✓ **Public authorities** – EU, regional and national authorities, research networks, universities

Participants sending videos or written messages come from **academia** from **industry** and from **public players.** Videos focus on various topics (*cf. Annex 3 - Document Video and Messages specifications*).

Confirmed video messages **from prominent public players** came from:
- Juha Heikkilä, **Head of Unit Robotics and Artificial Intelligence, European Commission**
- Juliette Jarry, **Vice-President of Région Auvergne Rhone Alpes** in charge of Digitalisation
- Marco Alexander Breit, **Head of Department Artificial Intelligence at the Bundesministerium** für Wirtschaft und Energie
- Lionel Grotto, **CEO Choose Paris Region**
- Dr. Michael Jaspers, **Scientific Advisor of the German Embassy** in Paris
- Prof. Hervé Martin, **Scientific Advisor of the French Consulate** in Bavaria
- Prof. Philippe Gréciano, **Vice-President of the Deutsch-Französische Hochschule DFH-UFA**
- Prof. Pascal Auscher, **Director of the CNRS National Institute for Mathematical Sciences and their Interactions**
- Prof. Pierre-Paul Zalio, **President of Ecole Normale Supérieure Paris-Saclay**
- Prof. Ulrich Bartosch, **President of Universität Passau**
- Laurent Prével, **President of Ecole Nationale Supérieure d'Informatique pour l'Industrie et l'Entreprise**
- Philippe Mareine, **ATOS Chief Digital & Transformation Officer, Head of CSR**
- Dr. Natasha Eckert**, Head of SIEMENS University Relations**

Dr. Bernd Forster, Head of the Department international relations with West and North Europe in the Bavarian Chancellery (Germany) and **Hubert Tardieu, ATOS CEO Advisor (France)** were the two officials formally opening the afternoon session, echoing the interest and active participation of both public stakeholders and industry in our event. The live opening was moderated by Anja Shuster, Head of Communication Department at the University of Passau.

More information

Organising team: Prof. Harald Kosch and Axelle Cheney (Uni Passau), Prof. Mathilde Mougeot (ENSIIE & ENS Paris-Saclay, holder of the Industrial Data Analytics and Machine Learning chair) Ulli Waltinger and Benno Blumoser (Siemens AI Lab) and their colleagues.