

# ETH AI Center Annual Report 2022



“ AT ETH AI Center, we foster exchange and close co-development of ML methods and applications, thereby speeding up the deployment of safe, trustworthy and inclusive AI systems. ”

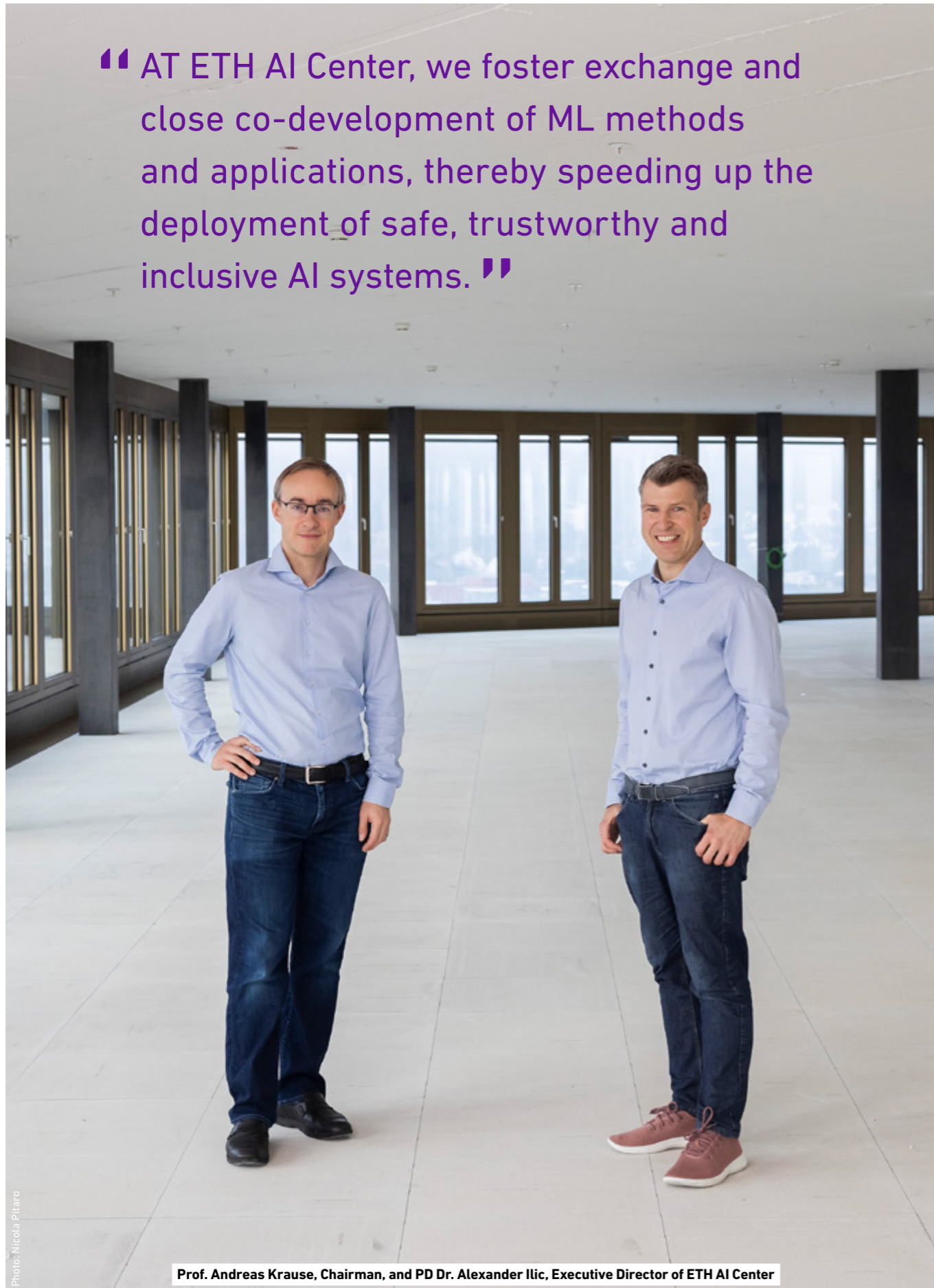


Photo: Nicola Pitaro  
Prof. Andreas Krause, Chairman, and PD Dr. Alexander Ilic, Executive Director of ETH AI Center

## Executive Summary by Chairman & Executive Director

*Dear colleagues and friends,*

Just two and a half years after its inception, the ETH AI Center can look back on a period of steady growth and seized opportunities. In 2022, the center's leadership team has grown to 10 people, reflecting the interest in our approach not only across all of ETH's departments, but also within the wider tech community in and around Zurich.

As of December 2022, 41 fellows are enrolled at the AI Center. With their interdisciplinary work, they interconnect several dozen research groups at ETH, UZH, the university hospitals and Hochschule St. Gallen (HSG) to form an AI innovations network, the conceptual center of which is the development of robust and trustworthy AI systems for applications that benefit society.

Furthermore, we have been able to continuously expand and deepen our network of partners from industry and the startup scene. Through the second cohort of Talent Kick, this time recruiting not only in the German speaking parts of Switzerland but in Romandie as well, we have supported young researchers that envision becoming founders after the completion of their academic training.

In dedicated projects, we have promoted the exchange between art and science at the multifaceted interface that artificial intelligence is. With the Swiss Artificial Intelligence Competition, we have launched a platform that makes it easier for young people to enter the fascinating field of AI even before they graduate from high school.

The great social relevance of the key technology AI is also reflected in the countless media reports published in the wake of the launch of impressive (and increasingly publicly accessible) tools such as Dall-E and ChatGPT. In this environment, the Center has succeeded in establishing itself as a reliable address for in-depth expertise and balanced commentary.

With these developments in mind, we are not only optimistic, but excited about the opportunities that the future of ETH AI Center will bring.

Prof. Dr. Andreas Krause  
Chairman

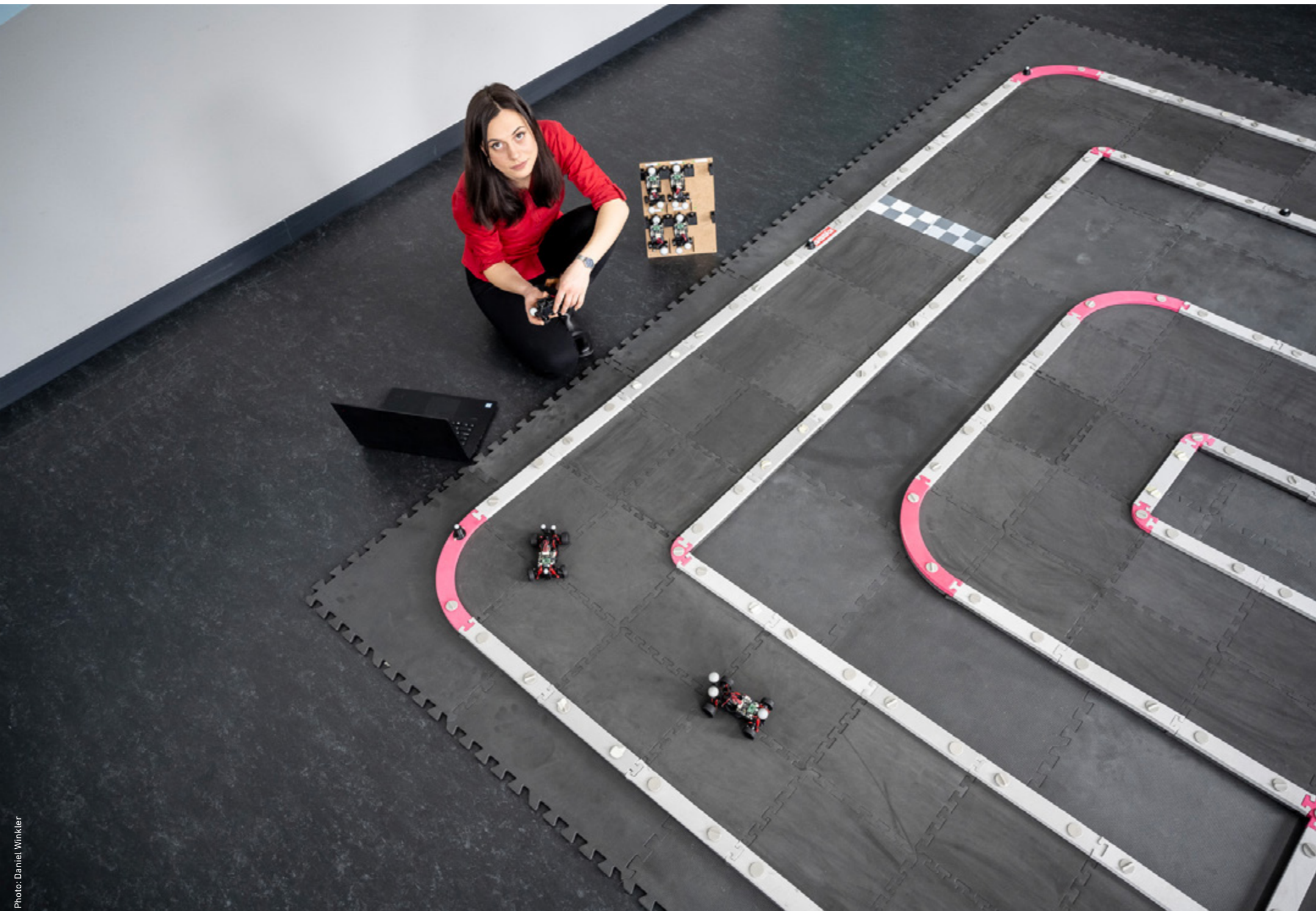
PD Dr. Alexander Ilic  
Executive Director

# Table of Content

THE ETH AI CENTER	7
Milestones in 2022	7
<hr/>	
RESEARCH	8
Interdisciplinarity is key	8
<i>Portrait Niao He</i>	9
White Paper Collaborative AI	10
Fostering an interdisciplinary research community	11
<i>Portrait Elvis Nava</i>	9
<hr/>	
FROM SCIENCE TO SOCIETY	14
Industry Partnerships	14
Entrepreneurship	15
<i>Portrait Andreas Guggenbühl and Kevin Sartori</i>	16
Events	18
Communication and Outreach	20
<hr/>	
PROJECTS	22
Talent Kick	22
AI & Art	23
AI Competition for Teenagers	26
<hr/>	
ANNEX	28
Members as of 31.12.2022	28
Sponsors and Donors	30
<hr/>	

“ I want to play my part in safely harnessing the potential of autonomous robots for society. ”

Jelena Trisovic, ETH AI Center fellow.



THE ETH AI CENTER

## Milestones in 2022

A quick look at 2022's main achievements and developments at ETH AI Center:

- › The Center has been thriving and enjoying a year of growth and accomplishments. The second cohort of fellows has been successfully onboarded, now connecting 41 research groups across all departments of ETH Zurich, University of Zurich and the local University Hospitals.
- › 14 new faculty members joined the Center, representing 9 different departments of ETH and UZH, continuously broadening the expertise and range of research interests covered at the Center.
- › Major donations by several benefactors, most notably the Dieter Schwarz Foundation, has been a tremendous asset to the Center, providing essential resources and funding for continuous research and development.
- › The move to temporary offices in Zurich Oerlikon has allowed ETH AI Center to restructure and optimize its workflow and resources.
- › The executive office of ETH AI Center has expanded its staff, hiring new members for communication, events and outreach. Also, the industry team has undergone a new setup and now comprises two full time managers and two student assistants.
- › The new hires have been instrumental in maintaining the Center's series of events, including workshops that allow faculty members to exchange with each other and with external partners.
- › The ETH AI Center's flagship event, the AI + X Summit, welcomed more than 2000 participants from academia, industry and startups, making it a major networking opportunity for the entire AI innovation community in and around Zurich. ■

At the Intelligent Control Systems group's racetrack, Jelena Trisovic tests models to improve the connection between computer vision and system control.

## RESEARCH

# Interdisciplinarity is key

As a competence center of ETH Zurich, the ETH AI Center's core mission is to foster exchange and collaboration across disciplines and departments. This approach is particularly promising in the context of AI and ML.



One pillar of Prof. Siyu Tang's research is how autonomous devices can correctly perceive and predict human pose and motion.

Photo: Nicola Pitaro

In recent years, we have seen major advancements in AI methodology: AI systems are no longer incomprehensible black boxes whose output users can only accept or reject. Quite the contrary is true today, with a wide range of methods to scrutinize, critically examine and verify the results of ML algorithms available.

This brings applications that were long considered too sensitive to the attention of developers. One example is the domain of medical AI, where doctors need to understand the results of an AI that supports them in choosing the best therapy options for their patients. In the area of jurisdiction and administration, ML applications should be free of biases and discrimination in order to comply with European democratic principles. And autonomous systems should demonstrably pose minimal risks only to the people around them before being deployed in public spaces.

The ETH AI Center's mission is to support and speed up this development, first and foremost by training young scientists that work at the intersection of ML methods and applications. To this end, the ETH AI Center is the academic home to a group of doctoral and post-doctoral fellows that each work with two principal investigators from different backgrounds to foster exchange and close co-development of methods and applications.

Partly financed through the ETH AI Center, the fellowships encourage faculty members to reach out to and collaborate with researchers from other disciplines. Serendipitous and/or risky research projects that might not be carried out without similar incentive become more likely, while faculty members coalesce into a network of domain experts collaborating across the boundaries of their respective fields. ■

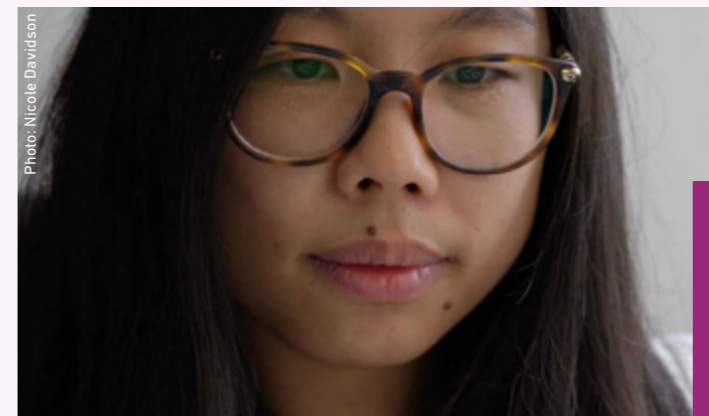


Photo: Nicole Davidson

"When it comes to fairness, trust, and collaboration with AI, it really is essential that different people bring their perspectives to the development of AI."

Niao He

## The dawn of trustworthy and cooperative artificial intelligence

Are we witnessing the rise of a different, adaptive artificial intelligence (AI) that works with humans and supports them with smart decisions? Computer scientist Niao He is investigating how this kind of AI can be theoretically underpinned so that it really does provide benefits.

> by Florian Meyer

As a researcher, Niao He has both people and technology in mind. Her inaugural lecture was telling in this regard, when she outlined in a few words the ways in which self-learning computer software is already changing our everyday lives: "We're now entering a new age of artificial intelligence where we're constantly amazed at what AI can do and how well it can do it, and also how it hugely impacts our daily life." In the lecture, the Professor of Computer Science at the ETH Zurich Institute for Machine Learning likened the current state of development of artificial intelligence to the dawn, when the breaking day promises great things and we sense that much work still awaits us.

Today, computers are capable of machine learning using statistical and data-driven methods. They supplement human knowledge by automatically picking out patterns and regularities from huge data sets that are too complex and too voluminous for humans to handle. For example, this is how AI can discover new protein structures, and thus play a part in the development of new medications. Niao He wants to go one step further and develop AI that can do more than recognise patterns. In accordance with the values of the ETH AI Center, where she is a member of the core faculty, she envisages trustworthy and collaborative artificial intelligence that works not in competition with humans but with them and supports them with intelligent, transparent decisions.

The long-term goal of her research is to develop adaptable AI that – like humans themselves – adjusts quickly and flexibly to changing environmental conditions and acts as an advisor to humans when they need to make unusually difficult decisions. Niao He's group is investigating which principles can be used to design algorithms – the calculation rules on the basis of which intelligent software is programmed – that are mathematically sound for AI to work reliably at all times and that enable data-driven problem solving and intelligent decision-making. To ensure that AI actually complements

rather than replaces the work of humans, Niao He's team is looking for new AI approaches and alternative machine learning methods. "These days, it's almost become routine for us to develop intelligent programs that sift through huge amounts of data to solve real-world problems of extremely high complexity," she explains.

Ultimately, most of today's AI methods improve the quality of their results by learning what works from large training data sets, thereby becoming more reliable. "In day-to-day operations, though, the problems AI is designed to solve are subject to many uncertainties," Niao He points out. These uncertainties can be of a technical or human nature. They can concern data and data security, the use of shared platforms, or human bias.

"For artificial intelligence to work reliably in the face of uncertainty and changing conditions, it's important that we formulate the uncertainties mathematically and integrate them into our learning algorithms. That's what we're working on," Niao He says, adding: "We need AI systems that can make consistent decisions over time, that can learn to deal with uncertainty or unknown environments, and that can adapt to new tasks."

For Niao He, one thing is clear: "AI should essentially be 'human-centric' – that is, it needs to focus on people, express our values and work in a trustworthy way." She shares the view that values such as trustworthiness, transparency, privacy, fairness, ethics and accountability should be the guiding principles for AI deployment in practice. "Trusted AI is AI that works reliably over a long period of time. Reliability over time creates trust," Niao He says. ■

This story has been abbreviated from the original version for ETH News. Read the full story here:



# White Paper “Collaborative AI”

Promoting a shift of perspective in AI research – towards human and artificial intelligence working together in synergy rather than competing with one another.

At the World Economic Forum held in May 2022 in Davos, ETH AI Center co-hosted a workshop with Merantix, Berlin's AI Campus. The event invited participants to discuss the potential of AI made in Europe, and what measures would be necessary on the academic, industrial and political levels to unleash fruitful collaboration and a rapid transfer of new technologies into the commercial sphere.

The idea of “Collaborative AI” served as a guideline for the discussion at the WEF session:

At its core, it promotes a shift away from the challenges that have driven AI research more than almost any other field of research – from the seminal Turing Test in the early days of AI, “human vs. machine”-competitions in games, to the well-known robotics challenges staged by DARPA.

We should no longer focus on machines either outperforming humans or on autonomously solving real-world tasks without human intervention, but turn towards a new perspective – one where

human intelligence and AI work together in synergy rather than competing with one another. With this new direction, we aim to achieve groundbreaking results that neither AI nor humans can accomplish alone.

Seamless collaboration between humans and machines is, however, far from straightforward. It requires nothing short of a paradigm shift for current AI research, including new foundational methods that enable AI systems to keep pace with ever-changing conditions, resulting in a shared, human-like perception and understanding of the world and efficient communication that allows tasks to be solved in synergy.

The white paper presented at the WEF session provides an initial sketch of what the members of AI Center's core faculty consider to be the core challenges and perspectives around this form of next-level collaborative AI. ■

*A copy of the White Paper is available on request.*

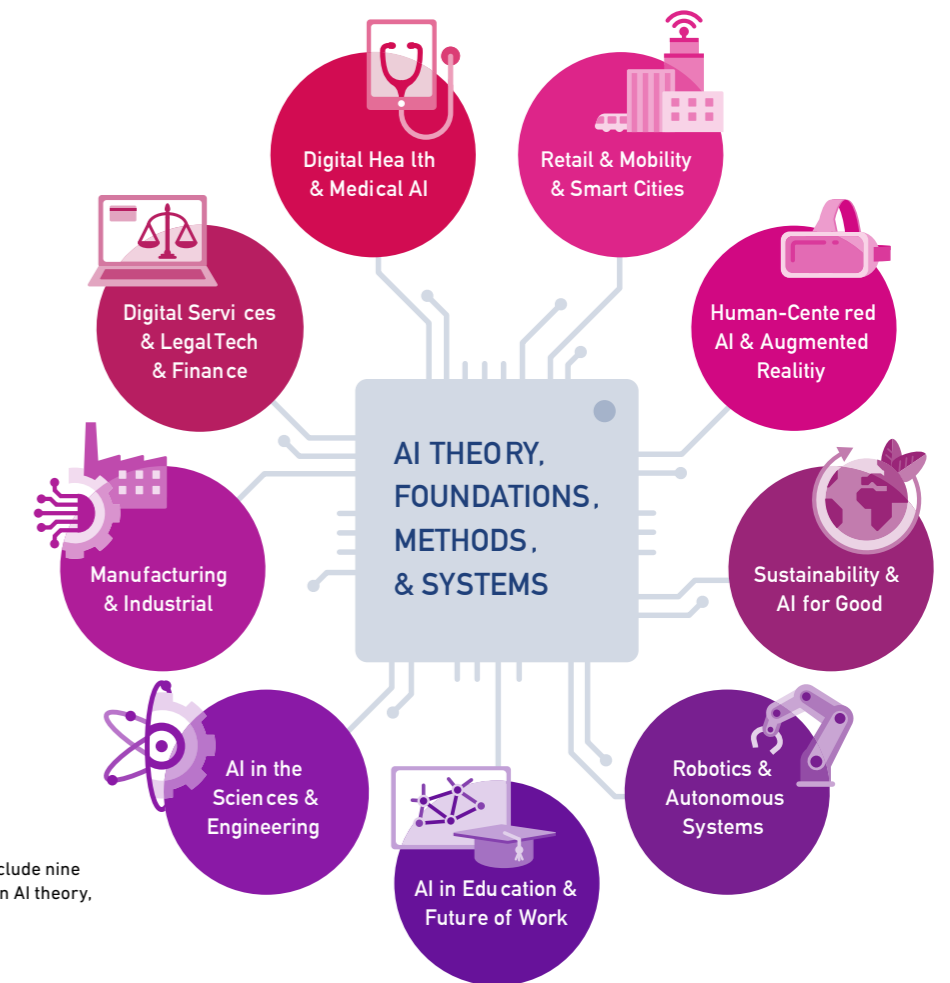


Doctoral fellows Jakub Macina, Afra Amini and Kenza Amara exchange over a cup of coffee at the center.

Photo: Judith Stadler / Andrea Uster

# Fostering an interdisciplinary research community

ETH AI center acts as an overarching unit at ETH Zurich to bring together researchers working on ML methods and foundations and those who apply them in a broad range of fields.



Core research activities at ETH AI Center include nine interdisciplinary areas and a strong focus on AI theory, foundations, methods and systems.

As one of ETH Zurich's competence centers, connecting researchers from different departments and fields of research is at the core of our mission.

However, the Center's impact extends far beyond the faculty and fellows directly enrolled: Although only a small percentage of the applicants for a fellowship are accepted, many applicants are offered a PhD/Post-doc position with individual faculty members.

By the end of 2022, the associated researchers community included 145 doctoral students and 47 post-doctoral researchers across all departments at ETH Zurich. Many of them got actively involved in the center's activities, for example as workshop-hosts and speakers at the AI+X Summit. The monthly “associated re-

searchers meetup” acts as a catalyst and meeting point for the community. A lively Slack channel fosters regular exchange and a quick route to all kinds of information on upcoming lectures, workshops, summer schools and opportunities for young researchers.

The profoundly collaborative and interdisciplinary nature of research at the ETH AI Center trains young researchers during their academic qualification phase as “bilinguals”: they have both insight into the “engine room” of AI / ML systems and a deeper understanding of the requirements and needs of the disciplines in which their applications will play a prominent role in the next decade. Every one of them multiplies their background and knowledge in the collaborations they form with members of their closer research communities. ■

Graphic: Lucy Kägi

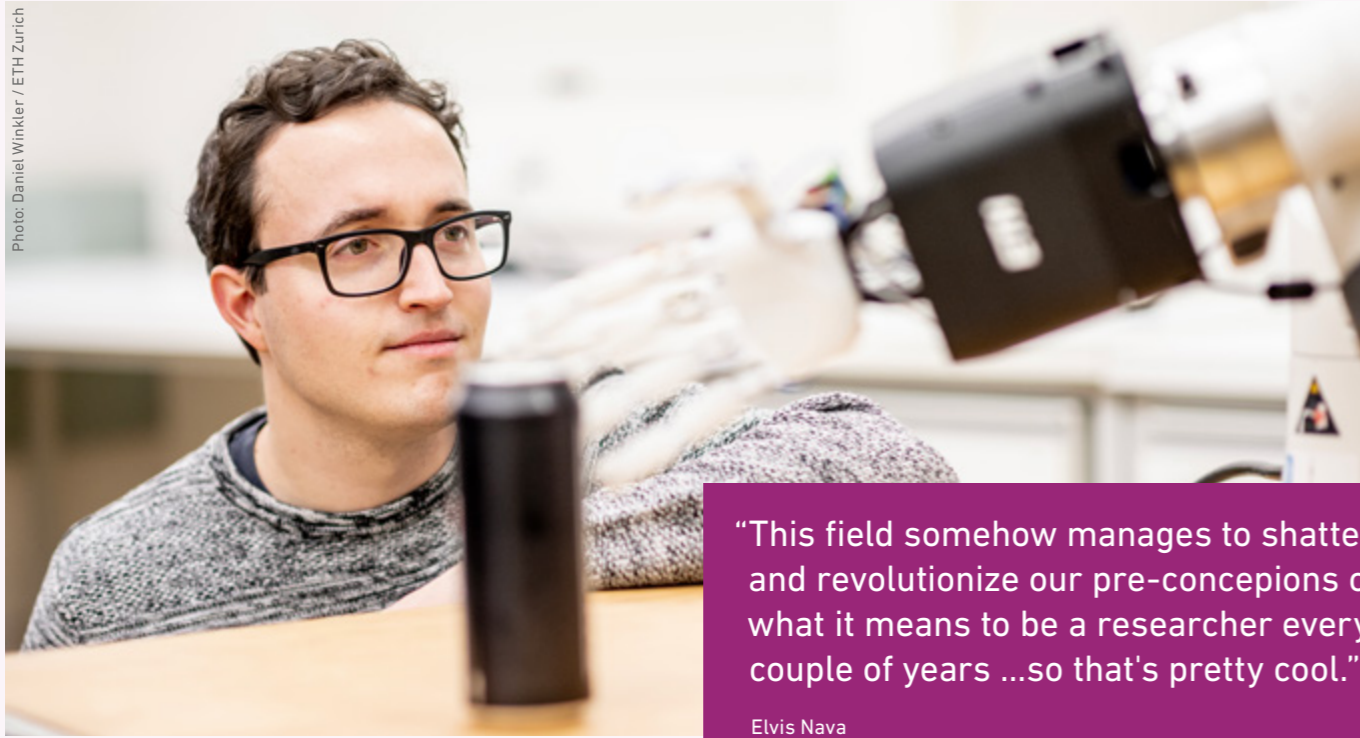


Photo: Daniel Winkler / ETH Zürich

“This field somehow manages to shatter and revolutionize our pre-conceptions of what it means to be a researcher every couple of years ...so that's pretty cool.”

Elvis Nava

## In search of the intelligent machine

Elvis Nava teaches robots to carry out oral and written commands. To this end, he sends them to “training camps” where they learn to combine image, text and motion data.

› by Christoph Elhardt

In ETH Zurich's Soft Robotics Lab, a white robot hand reaches for a beer can, lifts it up and moves it to a glass at the other end of the table. There, the hand carefully tilts the can to the right and pours the sparkling, gold-coloured liquid into the glass without spilling it. Cheers!

Computer scientist Elvis Nava is the person controlling the robot hand developed by ETH start-up Faive Robotics. The 26-year-old doctoral student's own hand hovers over a surface equipped with sensors and a camera. The robot hand follows Nava's hand movement. When he spreads his fingers, the robot does the same. And when he points at something, the robot hand follows suit.

But for Nava, this is only the beginning: “We hope that in future, the robot will be able to do something without our having to explain exactly how,” he says. He wants to teach machines to carry out written and oral commands. His goal is to make them so intelligent that they can quickly acquire new abilities, understand people and help them with different tasks.

Functions that currently require specific instructions from programmers will then be controlled by simple commands such as “pour me a beer” or “hand me the apple”. To achieve this goal, Nava received a doctoral fellowship from ETH Zurich's AI Center in 2021: this program promotes talents that bridges different research disciplines to develop new AI applications. In addition, the Italian – who grew up in Bergamo – is doing his doctorate at Ben-

jamin Grewe's professorship of neuroinformatics and in Robert Katzschmann's lab for soft robotics.

### Combining sensory stimuli

But how do you get a machine to carry out commands? What does this combination of artificial intelligence and robotics look like? To answer these questions, it is crucial to understand the human brain.

We perceive our environment by combining different sensory stimuli. Usually, our brain effortlessly integrates images, sounds, smells, tastes and haptic stimuli into a coherent overall impression. This ability enables us to quickly adapt to new situations. We intuitively know how to apply acquired knowledge to unfamiliar tasks.

“Computers and robots often lack this ability,” Nava says. Thanks to machine learning, computer programs today may write texts, have conversations or paint pictures, and robots may move quickly and independently through difficult terrain, but the underlying learning algorithms are usually based on only one data source. They are – to use a computer science term – not multimodal.

For Nava, this is precisely what stands in the way of more intelligent robots: “Algorithms are often trained for just one set of functions, using large data sets that are available online. While this enables language processing models to use the word ‘cat’ in a grammatically correct way, they don't know what a cat looks like.

And robots can move effectively but usually lack the capacity for speech and image recognition.”

This is why Nava is developing learning algorithms for robots that teach them exactly that: to combine information from different sources. “When I tell a robot arm to ‘hand me the apple on the table,’ it has to connect the word ‘apple’ to the visual features of an apple. What's more, it has to recognise the apple on the table and know how to grab it.”

But how does the Nava teach the robot arm to do all that? In simple terms, he sends it to a two-stage training camp. First, the robot acquires general abilities such as speech and image recognition as well as simple hand movements in a kind of preschool. Open-source models that have been trained using giant text, image and video data sets are already available for these abilities. Researchers feed, say, an image recognition algorithm with thousands of images labelled ‘dog’ or ‘cat.’ Then, the algorithm learns independently what features – in this case pixel structures – constitute an image of a cat or a dog.

### A new learning algorithm for robots

Nava's job is to combine the best available models into a learning algorithm, which has to translate different data, images, texts or spatial information into a uniform command language for the robot arm. “In the model, the same vector represents both the word ‘beer’ and images labelled ‘beer,’” Nava says. That way, the robot knows what to reach for when it receives the command “pour me a beer”.

Researchers who deal with artificial intelligence on a deeper level have known for a while that integrating different data sources and models holds a lot of promise. However, the corresponding models have only recently become available and publicly accessible. What's more, there is now enough computing power to get them up and running in tandem as well.

When Nava talks about these things, they sound simple and intuitive. But that's deceptive: “You have to know the newest models really well, but that's not enough; sometimes getting them up and running in tandem is an art rather than a science,” he says. It's tricky problems like these that especially interest Nava. He can work on them for hours, continuously trying out new solutions. Once the robot arm has completed preschool and has learnt to understand speech, recognise images and carry out simple movements, Nava sends it to special training. There, the machine learns to, say, imitate the movements of a human hand when pouring a glass of beer. “As this involves very specific sequences of movements, existing models no longer suffice,” Nava says.

Instead, he shows his learning algorithm a video of a hand pouring a glass of beer. Based on just a few examples, the robot then tries to imitate these movements, drawing on what it has learnt in preschool. Without prior knowledge, it simply wouldn't be able to imitate such a complex sequence of movements.

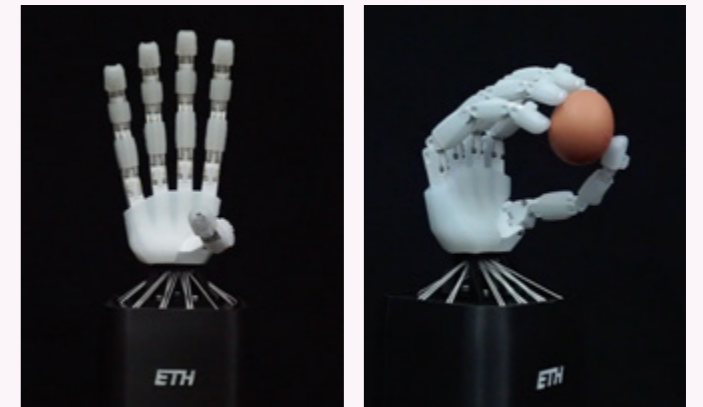
“If the robot manages to pour the beer without spilling, we tell it ‘well done’ and it memorises the sequence of movements,” Nava says. This method is known as reinforcement learning in technical jargon.

### Foundations for robotic helpers

With this two-stage learning strategy, Nava hopes to get a little closer to realising the dream of creating an intelligent machine. How far it will take him, he does not yet know. “It's unclear whether this approach will enable robots to carry out tasks we haven't shown them before.”

It is much more probable that we will see robotic helpers that carry out oral commands and fulfil tasks they are already familiar with or that closely resemble them. Nava avoids making predictions as to how long it will take before these applications can be used in areas such as the care sector or construction.

Developments in the field of artificial intelligence are too fast and unpredictable. In fact, Nava would be quite happy if the robot would just hand him the beer he will politely request after his dissertation defence. ■



Snippets Video: Faive Robotics

FROM SCIENCE TO SOCIETY

# Industry Partnerships

The input and active engagement from the private sector is key for our goal to successfully translate ETH research achievements into meaningful societal and economic impact.

At the ETH AI Center, we are committed to establishing and growing a network of industry partners who work collaboratively and share insights with our faculty members. To achieve this, Dr. Jennifer Wadsworth and Andrej Kulikov joined the AI Center's Industry team as Partnership Managers in late 2022 to support and further develop our fast-growing Partnership Program.

The AI Center offers our Partners access to talent, exclusive events including problem seeding, and insight into the cutting edge research of our faculty and fellows. From start-ups to large corporations, we actively engage and exchange with partners to ensure a mutual benefit from each person's domain-specific insight and expertise. Through the Partnership Program, we welcomed 15 new Partners: Unique AG, Vu Engineering, Lakestar, D One Solutions AG, AI Retailer Systems, Modulos, Ethon AI, Wenger Vieli, Kaiko, Lakera, Syntheticus, YData Labs Inc., Walden Catalyst Ventures, Magic Leap, and Insights.MD. They and our existing Partners were offered free booths and workshop hosting/participation at our annual flagship event, the 2022 AI+X Summit. We welcomed over 2000 visi-

tors from various stakeholder groups and were able to generate amazing exposure for the Center and Partners, as well as make many new connections in our ecosphere.

Aside from the Summit we also offered continuous engagement opportunities for Partners, such as the Data Science Lab, which enables Partners to submit 'challenges' to Computer Science Master students and familiarize them with data sets and problems from their own industry domain. This often leads to students interning and writing Masters Theses with Partner companies, which was also the case in 2022.

Concurrently, the industry team showcased the AI Center's thought leadership by hosting and participating in events with major technology contributors such as Amazon Web Services, as well as highlighting topics on fairness and inclusiveness in events such as "The Secrets of Successful Women in Tech". We look forward to further expanding our Partner base and to increasing the connectivity between academia and industry to maximize the potential of Switzerland in the global AI landscape. ■



Though populated by just over 400 thousand inhabitants, the city of Zurich and it's surroundings is a hotspot of research especially in the domains of deep tech and medicine.

Graphic: Lucy Kägi

# Entrepreneurship

Start-ups often spearhead the digital transformation and create new jobs. The entrepreneurial journey and career path provides one of the most exciting learning curves for developing a leadership personality, getting hands-on experience for turning ideas into products, working with other highly talented people and creating real-life impact.

Committed to equipping student not only for a career in academi, but also for leadership positions in business and society in general, the ETH AI Center strongly supports Entrepreneurship. Under the leadership of Viviana Gropengiesser, the entrepreneurship team extends support to students and researchers and closely works with the professors and partners at the ETH AI Center and beyond to create a vivid ecosystem supporting the creation of startups and entrepreneurial leaders.

Furthermore, we are strongly driven to create an active and visible community around entrepreneurship in the field of AI to equip the best talents and researchers with tools, skills, and a network to become successful entrepreneurs. Through consulting sessions, we serve as a point of contact to help our students, researchers and faculty members navigate the support structures, lectures, funding opportunities and network available at the ETH AI Center, within ETH Zürich as a whole and in the broader Zürich and Swiss ecosystem. Through close collaboration with join-up, the ETH entrepreneur club, ETH Entrepreneurship, the Student Project House, ETH juniors and many more, we ensure that our talents, students and researchers find the best opportunities possible to learn about entrepreneurship, build up their network to startups, investors and potential customers and are supported on the entrepreneurial journey.

The Dandelion Award launched by the ETH AI Center in collaboration with the ETH Entrepreneur club in 2021, went into a second round in 2022. The award recognizes the vital role of professors in fostering the entrepreneurial career path for students and researchers and acknowledges their remarkable contributions towards fostering entrepreneurship at ETH Zurich. The professors are nominated once a year in October. In 2022, a total of fifteen professors were awarded the Dandelion Award and the dandelion award community grew to a total of 30 winners, who all share their passion for the field and have shown outstanding efforts in supporting entrepreneurship at ETH Zürich.

We are happy to share that in 2022 the community of AI start-ups that are related to the groups of our faculty members and their students has grown to 10 affiliated start-ups. In 2023 we aim to double the number of affiliated startups and strengthen and expand our events focused on AI-related entrepreneurship from and with entrepreneurs of ETH and the ETH AI Center. ■



Siddharta Mishra (middle), one of the winners of 2022's Dandelion Award, at the reception.

The primary focus is to open up the entrepreneurial career path for fellows and associated students and researchers. To achieve that, the entrepreneurial excellence program Talent Kick, piloted in 2021 between the ETH AI Center and Hochschule St. Gallen, has launched Swiss-wide in 2022 as a cross-university program and is now rolled out under the umbrella of the Kick Foundation.



# Entrepreneurs inspire PhD students to bring AI research to life

ETH Zurich alumni Kevin Sartori and Andreas Guggenbühl returned to the university as Entrepreneurs in Residence. At the ETH AI Center, they supported PhD students to found start-ups based on their artificial intelligence research.

The ETH AI Center fosters research excellence, industry innovation, and AI entrepreneurship. PhD students and PostDoctoral Fellows are working on new technology and algorithms solutions. But translating these innovations into real-world applications is often a challenge. There are big and small questions like: What does the industry need? How do I found a company? How do I get funding and how do I hire people?

To bridge the knowledge gap, Executive Director of the AI Center PD Alexander Ilic created the "Entrepreneurs in Residence" program. After all, who would be better suited to provide answers to these big and small questions than entrepreneurs themselves? That's how former ETH students and start-up founders Kevin Sartori and Andreas Guggenbühl became the first entrepreneurs in residence at the competence center.

Kevin and Andreas are both highly experienced start-up founders. After studying robotics and control Systems at ETH Zurich, Kevin worked at a drone start-up in Silicon Valley and co-founded Auterion, a company for open-source robotics. Auterion builds software for autonomous robots that can perform a broad spectrum of tasks from high-risk to mundane: deliver goods, for example, of aid in life-saving missions. Kevin immediately agreed to become an Entrepreneur in Residence: "Having learned so much from my own journey, I wanted to give back and immerse myself again at the source of AI research aiming to more closely align technological advancements with practical business outcomes," he says.

Andreas studied engineering and robotics at ETH Zurich and then founded Selfnation, a fashion-tech company. He also worked in the field of conversational AI and built a customer care voicebot that understands Swiss German.

## Innovation blocker: fear

Every Tuesday for the last year, the pair came to the AI Center and provided mentorship to the PhD students. They answered questions, probed ideas, gave feedback and encouraged them to pursue bold ideas from research to practice. "Our role was to motivate PhD students to not fear pursuing their own ideas," said Andreas, and adds: "That's actually the biggest blocker of

innovation: fear. It seems easier to join an existing company instead of founding your own."

Since Kevin and Andreas were the first Entrepreneurs in Residence, they were free to shape the program as they saw fit. They organized a number of so-called "fireside chats" where they invited entrepreneurs from their network to share their experiences. "I think listening to stories from successful founders that came out of ETH inspires the most," said Kevin. But every entrepreneurial journey is different. "It's very hard to copy someone's success or follow a path that someone else has taken. It's important to provide individual mentorship, to listen to their backgrounds, to find out what drives them to solve the problems they encounter," he added.

Andreas' and Kevin's experience as entrepreneurs helped them gauge whether a research idea was also a business idea. They saw some projects with big potential at the ETH AI Center. One group of PhD students, for example, is working on an augmented reality device to empower frontline workers to do a better and more reliable job. This could be used, for example, when an appliance repair company worker comes to your house because your heating system isn't working. If the problem turns out to be more complicated and an expert is needed, instead of having to wait for an expert to come on another day, the frontline worker puts on an augmented reality device and the expert back at the repair company can see what the problem is and help right on the spot.

Another PhD student is developing an algorithm to control a robot hand to perform different sets of tasks. This could be used to scale custom manufacturing. Right now, it's possible to automatically build 100 million identical smartphones. But this new technology could build 100 million smartphones that are different from one another. "This is a fundamental idea. We still have a long way to go until you can actually make 100 million different devices, but this algorithm is a step into that direction," said Kevin.

However, not all ideas and innovations are suitable for a start-up. "The industry is interested in efficiency, cost-effectiveness, safety,

"The ETH AI Center is a visionary place. People there think big and dream big."

Andreas Guggenbühl



Andreas Guggenbühl and Kevin Sartori, entrepreneurs in residence at the ETH AI Center, enjoy mentoring young researchers and encouraging them to embark on an entrepreneurial path.

Building AI models in a cheaper way is a big thing," said Andreas. "Sometimes the idea of a student could be turned into a company, sometimes it could support another company, and sometimes it makes more sense to continue researching", he said.

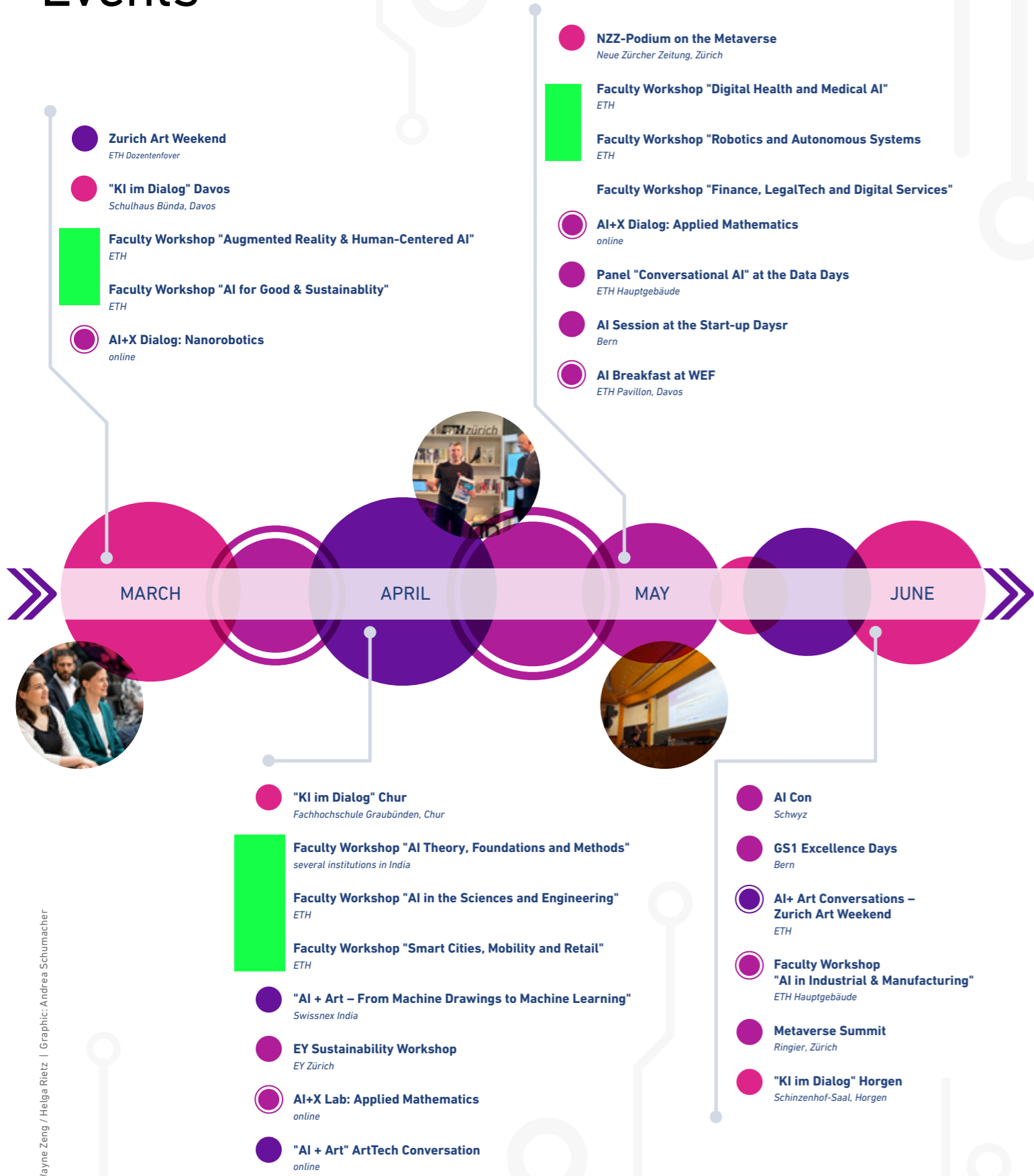
## "Visionary place"

And what do Andreas and Kevin take away from their residency? "The ETH AI Center is a visionary place," says Andreas. "People there think big and dream big. And the team around Alex Ilic has

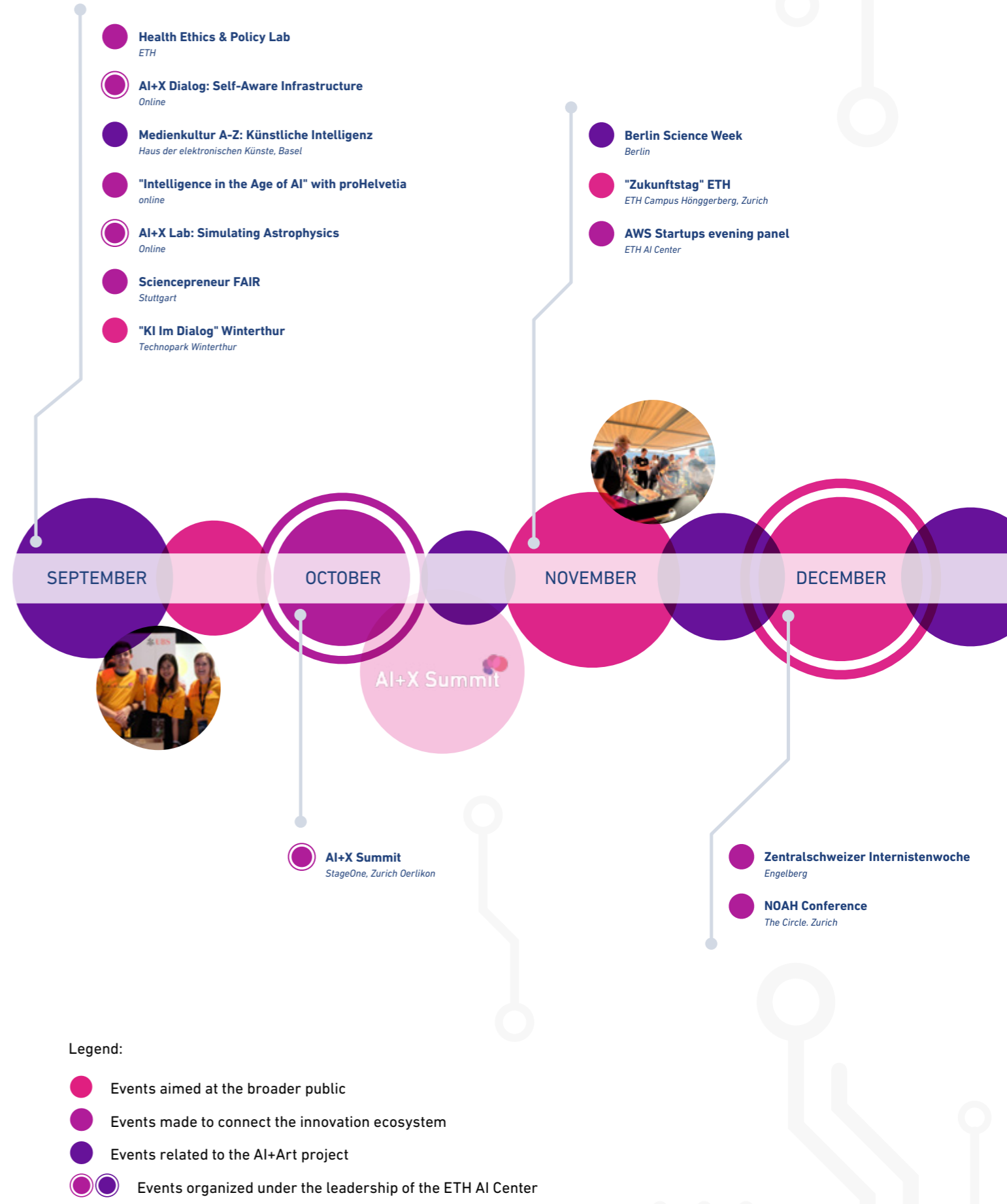
created an atmosphere that helps fellows pursue their dreams. It's a very inspiring place to be."

Kevin was surprised to see how far apart the needs of fundamental research on one hand and the industry on the other lie at times. "But I was also impressed to see how the PhD students and PostDoctoral fellows always had an eye for the real-life impact of their research," he said. "They would always ask themselves how their ideas can help shape a better society." ■

# Events



Photos: JWayne Zeng / Helga Rietz | Graphic: Andrea Schumacher



**Legend:**

- Events aimed at the broader public
- Events made to connect the innovation ecosystem
- Events related to the AI+Art project
- Events organized under the leadership of the ETH AI Center

# Communication and Outreach

The ETH AI Center's many different stakeholders require an equally broad approach to communication. AI is currently a fashionable topic, the subject of numerous media reports and a multi-voiced public discussion.

It was, above all, the launch of new applications from the field of generative AI, namely Dall-E in May 2022 and ChatGPT in November of the same year, that caused public interest in artificial intelligence to soar. This represents a great opportunity for communicating research activities at the AI Center, but also a certain risk - in that both the expectations and the fears that the general population associates with technological development are constantly accelerating beyond the state of the art.

In order to ensure effective communication with our most important stakeholder groups, these were analyzed and roughly subdivided in 2022. Based on the analysis targeted communication strategies for each key group were developed.

## 1. Young audiences, current and prospective students

A target group notoriously difficult to reach are young people, from those who have completed their high school diploma (Matura) up until those who enter their master's program. To spark their interest in artificial intelligence in general and the approach to interdisciplinary co-development of methods and applications specifically, we launched an Instagram channel in Summer 2022.

In our Instagram-Posts, we put a lot of emphasis on portraits of young researchers to create interesting role models for this target group. The recipients should understand that AI is a universal tool that they can combine with literally any topic. Whether they are interested in engineering, law, medicine or the societal impacts of new technologies, acquiring expert knowledge in the domain of ML/AI will be an asset for their career.

Furthermore, some of the events we participate in allow us to further engage with young audiences, for instance the "Zukunftstag" (Future Day) and "Data Days", an AI job fair and conference organized by the Data Analytics Club, a student association at ETH Zurich.

## 2. Deep tech & AI innovation ecosystem in Greater Zurich Area

Since AI has already found commercial applications in a wide variety of areas today, the exchange between academic and private-sector research in this field is pronounced and close-meshed. Numerous spin-offs that develop research results into market-ready products bear witness of this tight connection.

In this rapidly evolving environment, the ETH AI Center aims to establish itself as a central hub and facilitator for exchange and collaboration. In terms of communication, we achieve this through maintaining a high level of presence on LinkedIn and

through the Center's monthly newsletter, which is aimed at the entire innovation community.

Key events such as the annual AI+X Summit, which we co-organize with ETH Entrepreneur Club, serve as networking opportunities for AI innovators both in academia and the private sector.

Through the ETH's presidential office, we were given the opportunity to present a white paper on collaborative AI at the 2022 edition of the World Economic Forum in Davos, thus reaching out to an international audience of decision makers from business, policy and academia.

## 3. Critically interested public

AI technologies are sometimes met with a big deal of skepticism by the public, which is in part due to the exaggerated nature of some of the media coverage and repetitive narratives of horror in the fictional realm.

Our key message to the broader public is thus one of AI as a universal tool, the dissemination of which can be compared to the digitalization in the late 21st century and/or the industrialization in the 19th century. As the two forerunners, the technology will have both positive and negative consequences for society, making careful consideration of risks and chances a must.

The Center is therefore actively involved in information events aiming at the broader public, such as the series "KI im Dialog", organized by the Canton of Zurich's office for economy and labor. Another example is the Center's contribution to the development of the game "Morph Tales" in collaboration with the corporate communications office of ETH Zurich.

## 4. Media

The Swiss mass media write a lot and often about AI innovations; the demand for both news and background information on this topic is high. However, few editorial teams are able to commission authors who have a good overview and an understanding of the underlying technologies to produce their AI stories. In Switzerland, there are currently only about a dozen authors who specialize in the field of AI.

Therefore, ETH AI Center has started to foster a more intentional exchange with journalists and tech writers that regularly cover AI. We strictly refrain from story placement (as this would not be compatible with the ETH's media relations strategy), but instead offer support in connecting them with experts and making them aware of lesser-known applications of AI. ■

“ AI technologies are met with a big deal of skepticism by the public, in part due to the exaggerated nature of some of the media coverage. Navigating the dynamic dialogue with the public is challenging, but also a source of opportunities. ”





Photo: Wayne Zeng

Deep Judge, co-founded by Paulina Grnarova (middle), was one of the first start-ups to become affiliated with ETH AI Center. The company has seen impressive growth over the past few years.

## PROJECTS

# Talent Kick

The Swiss-wide Talent Kick launch in 2021 resulted in over 200 applications, starting into the year 2022 with two strong cohorts of 40 of the best entrepreneurial talents across the Swiss universities.

2022 marked a hugely successful year for Talent Kick, a program that guides students towards entrepreneurship and equips them with all the tools they need to start their own company. For this edition, the program was carried out in two cohorts, one for the central and eastern part of Switzerland, and another one for the Romandie. The Central/ East cohort consisted of 23 students from ETHZ, HSG, UZH, Uni Basel and USI, and the Romandie cohort consisted of 17 students from EPFL, UNIL, Uni Bern and Uni Geneva.

It was most astounding to see that the majority of the students walked the extra mile to create bridges and form interdisciplinary teams across Switzerland and across the cohorts. A total of 22 teams formed, and half of those who have team members from different universities are bridging the Romandie and the Central / East side of Switzerland.

With ETH Zürich as the first university to recognize Talent Kick with credits, an important milestone was achieved in setting a solid basis to make the combination of entrepreneurship and studies easier for students whilst creating synergies between their studies and their entrepreneurial journey.

We are excited to have successfully finished the first semester of the Swiss-wide pilot with high ratings

across all bootcamps, a very good net promoter score of positive 57 (out of a range of negative 100 to positive 100) and a total of 15 Spark Kick Winners, who are validating their products with first potential customers, received the ETH Pioneer Fellowship, got into further programs such as Venture Kick or already raised first funding.

One of the first alumni of Talent Kick, ethon.AI, already raised over 8 million USD funding in two rounds, received the prestigious ETH Pioneer fellowship grant, has now joined the affiliated Start-up Community at the ETH AI Center and has a growing team of more than 15 employees.

Starting strong into the year 2023, we received 130 applications from 17 different universities Swiss-wide for our next 2023 cohorts and are very excited to stabilize and grow Talent Kick in 2023 and beyond. With the Ernst Göhner Stiftung joining in September 2022 as a strong partner alongside the Gebert Rüt Stiftung, Fondation Botnar and ETH Domain as important organizations supporting Talent Kick, we are happy to have secured funding for the program continuation beyond the pilot phase and to have started the transition into the Kick Foundation. ■

# AI + Art

In line with ETH AI Center's mission of leading the way towards trustworthy, accessible, and inclusive AI systems for the benefit of society, the AI + Art program fosters the collaboration between artistic and scientific research.

Our aim is to establish a long term, dynamic format applying both artistic methods and perspectives as well as critical thinking and ethics in the research field of AI. The central measure of this are "Art and Science Fellowships".

In addition to existing computer science fellows researching topics related to art, we envision 2-3 artist residencies and PhD fellows in ethics. With this transdisciplinary cohort of "AI, Art and Ethics Fellows", we will build up a program of art and critical thinking in research, education and outreach.

Since October 2021, we have been exploring and testing the feasibility of such a program with pilot fellows and outreach projects with four goals in mind:

1. Promote Critical Thinking + Ethics,
2. Diversify Knowledge + Intelligence,
3. Contribute New Questions + Different Perspectives
4. Provide Inspiration, Create Visions and Fictions for/ of the Future.

Our exchanges, lab visits, presentations, seminars and workshops, exhibitions and projects, collaborative artworks and research collaborations with 104 researchers and artists (50 art, 54 science) confirm that these four goals are not only achievable, but have great potential.

The pilot fellows have shown great potential for an AI + Art program to support collaborative scientific AI research and development at the ETH and beyond for a sustainable future, especially in the context of human-machine collaboration.

Beyond the research, the pilot-fellows also create new opportunities in education through seminars and workshops, teaching ethical aspects and critical thinking.

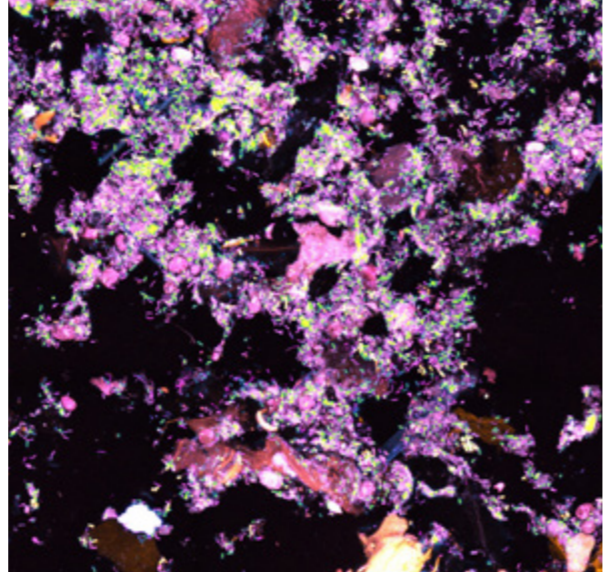
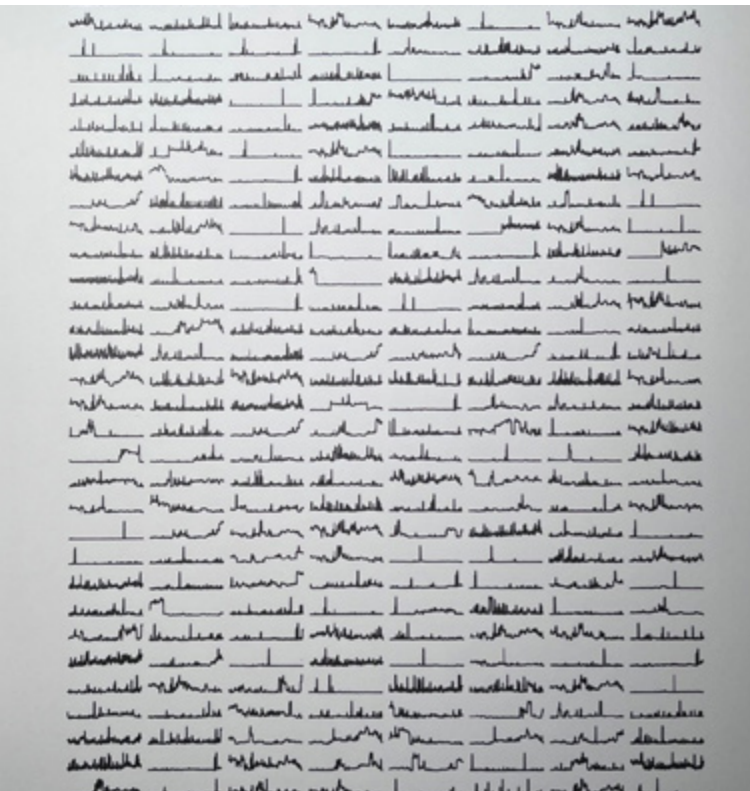
Through exhibitions, projects, publications, media contributions, lectures and conferences, AI + Art also contributes to the communication of research to the outside world. The AI + Art program encourages a change of perspective and provides internal inspiration for both research fellows and faculties.

## AI + Art Lab Visits

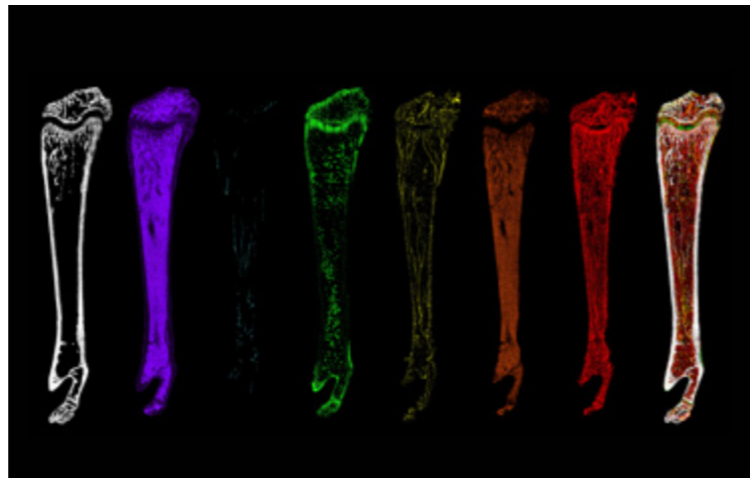
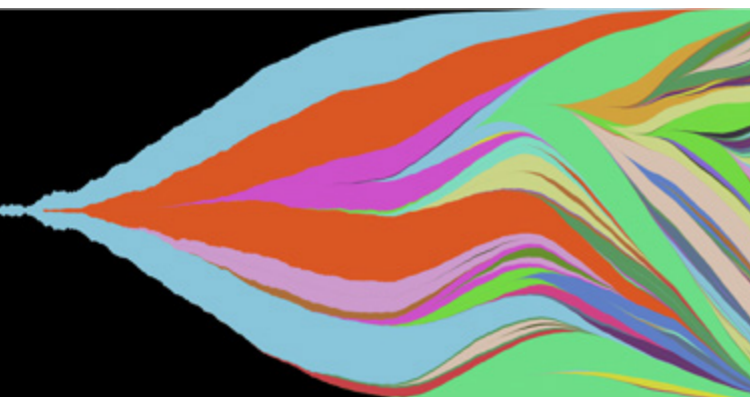
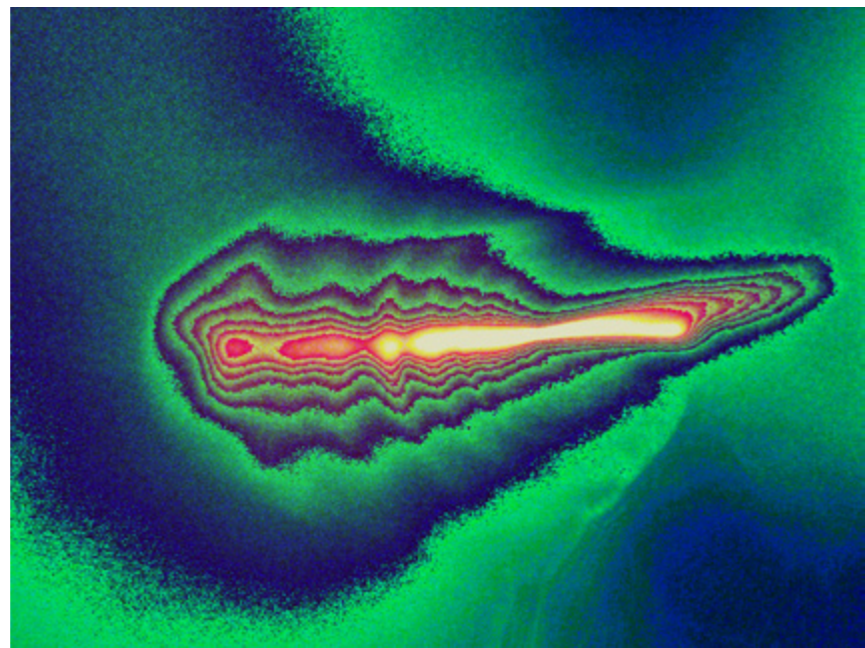
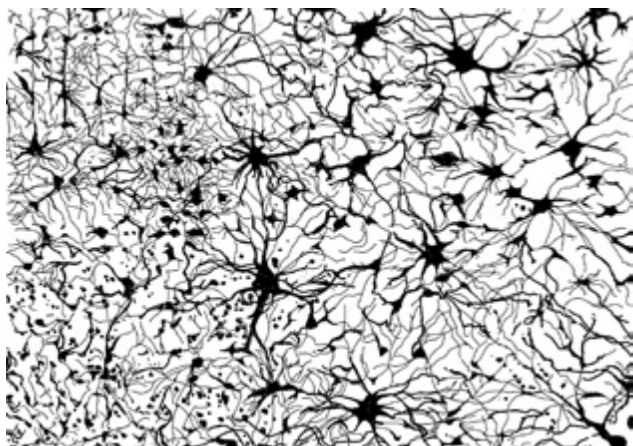
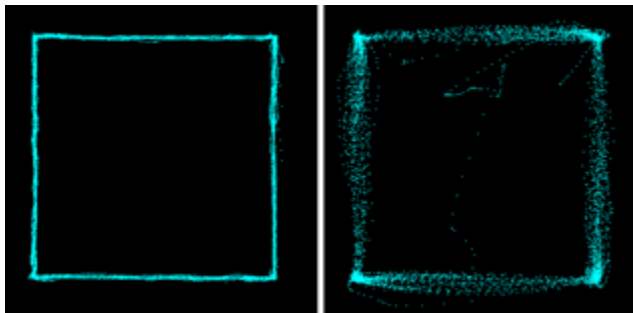
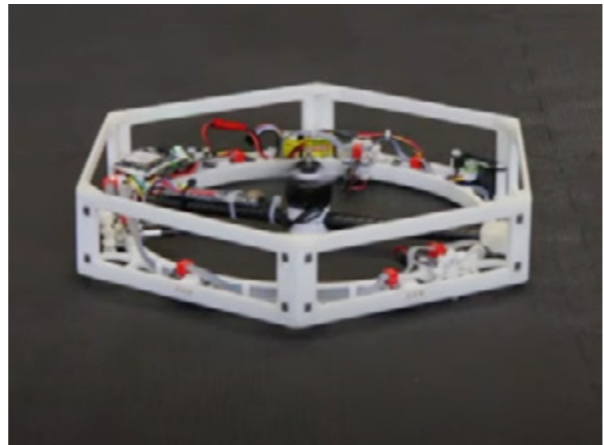
To facilitate the exchange and encounter between scientists and artists, we started to organize lab visits, where we visited different labs, centers, groups and faculties of the ETH AI Center together with artists. In four lab visits eight artists met 26 professors, PhD and post-doc fellows and researchers in the context of the AI Center. The Lab visits promote a direct exchange and rapprochement between artists and scientists. In this way, not only artists from the outside learn about research within the AI Center ecosystem, but the researchers themselves are also sensitized to art, which can lead to further AI + Art projects such as the following. ►

The Zurich Art Weekend fostered exchange and dialogue between artists and scientists.





Photos: artworks



### AI + Art Conversations

In March and June 2022, we organized the first edition of “AI + Art Conversations” together with the Zurich Art Weekend. In order to promote the dialogue between art and science, the series brings together artists and scientists in tandem presentations. Both events were very well attended with 98 and 84 visitors.

In addition to these self-organized events, the AI + Art pilot-fellows, faculty members and the curator were invited to give and moderate talks around the world, especially for ETH outreach events (Milan Design Week, Berlin Science Week).

### Education: “What Kind of AI Do We Want?”

In the joint seminar “What Kind of AI Do We Want? Bringing Artistic and Technological Practices Together” with Prof Felix Stalder (ZHDK) for BFA students (ZHdK) and BA students of Computer Science (ETH) we looked at “Artificial Intelligence” (AI) as a historical-material practice. Together with artists and researchers, we addressed the current discourse about trustworthy AI within our society and looked at decolonial and indigenous approaches to AI. In addition to the content input, the students from both universities enjoyed the interdisciplinary collaboration in mixed groups designing a practice-oriented project / AI + Art prototype.

### Science Artworks for a Good Cause

For an auction to benefit student scholarships, we issued an open call to all faculties of the ETH AI Center and specifically to the Departments of Biology, Chemistry, and Biosystems Science and Engineering. There was a great response, and we were able to select 10 submissions from 63 proposals to produce as artwork for the auction. All 10 artworks were sold at an auction and gala dinner at the Kunsthau Zürich. This was not only a great way to communicate scientific research, but it is also fascinating to see the huge potential of turning science into art - perhaps we will discover a next great AI artist like Refik Anadol, who will be exhibited in major art institutions worldwide.

With an expansion of the science “artwork” auction towards the ETH AI Center faculties and industry partners, the research in the field of AI + Art becomes tangible in a fun way.

### Collaborative Artworks

#### Nora Al-Badri: The (post)truth Museum:

In collaboration with postdoctoral researcher Sergey Prokudin (Prof. Siyu Tang), PhD researcher Albertino Pennino (MTC) and computer science master student Irem Kaftan, artist Nora Al-Badri is creating a deep fake media artwork. Due to Al-Badri’s maternity leave, the artwork has not yet been completed, but is planned to be exhibited at the Humboldt Forum in Berlin.

#### Liat Grayver: Blue Transmutations:

Following the idea of Prof. Inge Herrmann to create an artwork with shiny nanopigments, i.e. fluorescent nanosheets of the copper silicate Egyptian blue, the artists Liat Grayver and Marcus Nebe produced an art installation in collaboration with Dr. Robert Nissler, that will be exhibited at the 5th Art Encounters Biennial 2023 in Timisoara as well as at the exhibition “Data Alchemy” at the Collegium Helveticum.

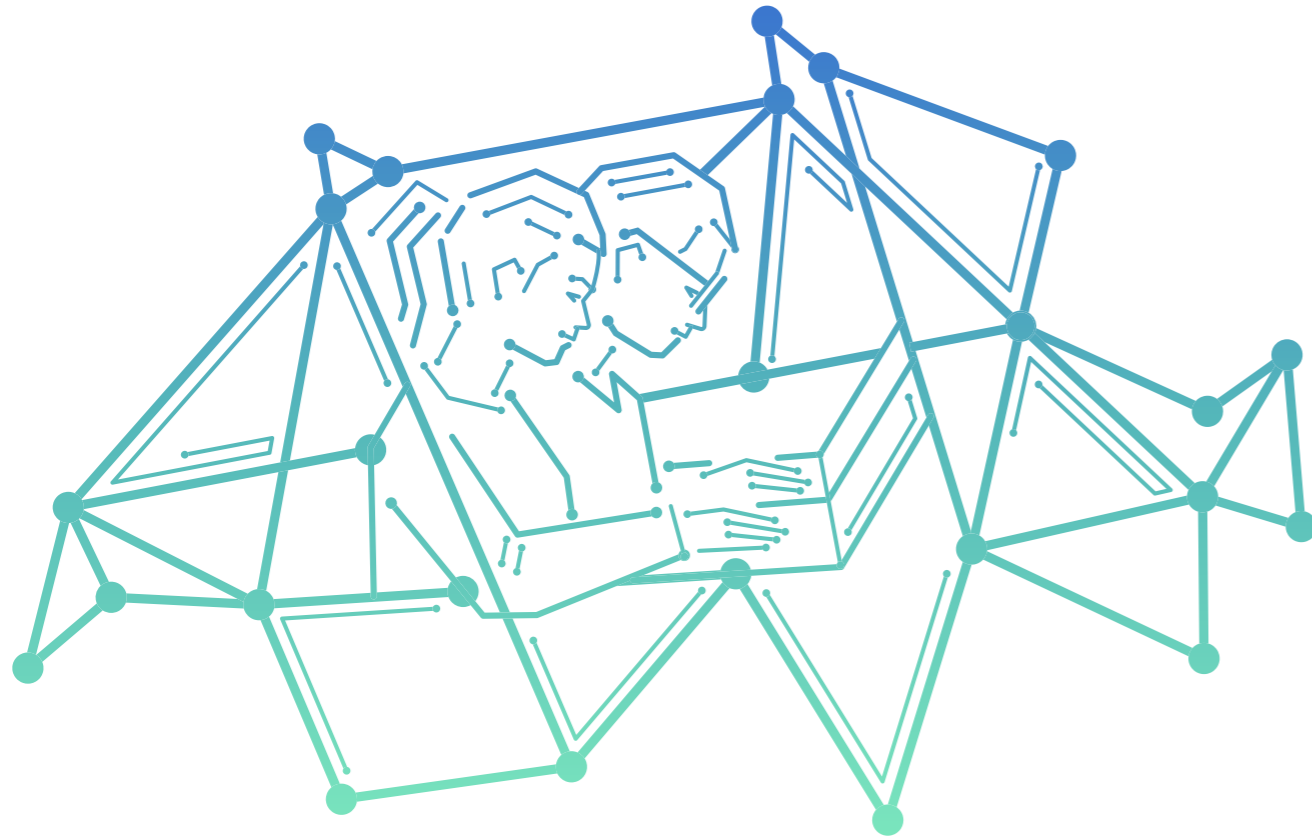
#### Research Collaboration: Liat Grayver, Prof. Giacomo Indiveri and Prof. Fabio Gramazio

In collaboration with Prof. Giacomo Indiveri and Prof. Fabio Gramazio, artist Liat Grayver initiated a research project on the development of an autonomous and collaborative robotic system that enables natural and interactive human-machine communication for the painting process (real-world interaction). This system will use brain-inspired spike-based sensors and processors, to enable intuitive and creative collaboration between artists and robotic systems. The result will be a unique, dynamic, and artistically-inspired creative process through the combined efforts of humans and machines.

The project has the potential to be extended to broader applications of human-machine creation in education, rehabilitation, and digital fabrication. It aims to provide a novel alternative approach to the use of big data in machine-learning methodologies, enabling open-ended and more artistic access for adaptive robotic behavior in human collaboration. Additionally, the system offers an ultra-low-power alternative to the unsustainable development of conventional deep learning and computing methods. ■

# AI Competition for Teenagers

The outreach project AI for teenagers at the ETH AI Center is aimed at students who are interested in computer science, want to learn programming, and are up for the challenge of seeing a project through from idea to product.



Graphic: Lucy Kägi

Initiated and launched in Germany by the AI Center Tübingen and the Carl Zeiss Foundation in 2019, the AI Competition started its first pilot phase in the German-speaking part of Switzerland in October 2022.

The Swiss Artificial Intelligence Competition promotes special achievements in and creative use of artificial intelligence and machine learning by students. Participants can submit a self-selected project for the competition in which a socially or scientifically relevant problem is tackled with machine learning. The Swiss Artificial Intelligence Competition is initiated and hosted by the ETH AI Center, the Canton of

Zurich, and the Canton of Schwyz. The competition is aimed at interested students who have strengths in computer science, mathematics or physics.

The AI course is available to anyone of any age interested in AI and provides an excellent foundation for entering the competition. Here, students learn how to program an AI and in which applications AI is already used. In addition to programming tasks, playful tasks on the history of AI development are also incorporated. The aim is to create an incentive to get to grips with the subject.

## Pilot phase

Despite a delayed start and therefore tight timeframes, we can look back on a successful pilot that has already been well received.

16 teams of two to three participants each registered with their idea (but not all of them submitted in the end). The jury decided to award a prize to two teams. One of them had demonstrated a particularly creative use of AI in that they programmed an app that makes a recommendation on which clothes to wear based on the local weather forecast. The second team that received a prize has developed an AI that tells users whether they need to stay at home or seek medical help based on symptoms of respiratory illness.

## Learnings and goals

One of the biggest learnings of the pilot phase was that we saw a significant increase in interest from November onwards, when the release of ChatGPT sparked widespread interest in AI applications in the broader population.

Teachers and schools, however, face significant hurdles explaining AI technologies to their students. We therefore expect interest in the competition to increase substantially in the coming rounds, bringing us closer to the goal of building bridges between academia and Switzerland's high schools, and giving young minds a chance to further their skills in computer science and programming outside regular school lessons. ■

The winning teams of the first round of the AI competition for teenagers received their awards at the Informatics Days in early 2023.



Photos: Andreas Eggenberger

## ANNEX

## Members as of 31.12.2022

**Steering Committee**

- Chair: Prof. Andreas Krause – D-INFK
- Prof. Effy Vayena – D-HEST
- Prof. Lothar Thiele – D-ITET
- Prof. Peter Bühlmann – D-MATH
- Prof. Roland Siegwart – D-MAVT

**Executive Office**

- PD Dr. Alexander Ilic, Executive Director
- Natalia Marciniak, Operations Manager
- Setareh Gharibi, Fellowship & Ellis Network Manager
- Dr. Jennifer Wadsworth, Industry Partnerships
- Andrej Kulikov, Industry Partnerships
- Viviana Gropengiesser, Entrepreneurship
- Dr. Helga Rietz, Science Communications Manager
- Sarah–Lee Keller, Event Manager
- Adrian Notz, Curator AI & Art
- Nora Al–Badri, Director AI & Art (on maternity leave)
- Lisa Wagner, Project Manager Swiss AI Competition

**Core Faculty (31)**

- Prof. Afonso Bandeira – D-MATH
- Prof. Andreas Krause – D-INFK
- Prof. Benjamin Grewe – D-ITET
- Prof. Bernhard Schölkopf – D-INFK
- Prof. Ce Zhang – D-INFK
- Prof. Eleni Chatzi – D-BAUG
- Prof. Fanny Yang – D-INFK
- Prof. Fisher Yu – D-ITET
- Prof. Gunnar Rätsch – D-INFK
- Prof. Helmut Bölcskei – D-ITET
- Prof. Joachim Buhmann – D-INFK
- Prof. Julia Vogt – D-INFK
- Prof. Karsten Borgwardt – D-BSSE
- Prof. Konrad Schindler – D-BAUG
- Prof. Marc Pollefeys – D-INFK
- Prof. Martin Vechev – D-INFK
- Prof. Melanie Zeilinger – D-MAVT

- Prof. Mrinmaya Sachan – D-INFK
- Prof. Niao He – D-INFK
- Prof. Niko Beerenwinkel – D-BSSE
- Prof. Otmar Hilliges – D-INFK
- Prof. Peter Bühlmann – D-MATH
- Prof. Rico Zenklusen – D-MATH
- Prof. Robert Katzschmann – D-MAVT
- Prof. Ryan Cotterell – D-INFK
- Prof. Sara van de Geer – D-MATH
- Prof. Siddhartha Mishra – D-MATH
- Prof. Siyu Tang – D-INFK
- Prof. Stelian Coros – D-INFK
- Prof. Thomas Hofmann – D-INFK
- Prof. Valentina Boeva – D-INFK

**Associated Faculty (82)**

- Prof. Ana Klimovic – D-INFK
- Prof. Andrea Burden – D-CHAB
- Prof. Angelika Steger – D-INFK
- Prof. Benedikt Soja – D-BAUG
- Prof. Benjamin Dillenburger – D-ARCH
- Prof. Benjamin Stocker – D-USYS
- Prof. Bernd Gärtner – D-INFK
- Prof. Bernd Stadlinger – UZH
- Prof. Bjoern Menze – UZH and USZ
- Prof. Bruno Sudret – D-BAUG
- Prof. Cara Magnabosco – D-ERDW
- Prof. Carlo Menon – D-HEST
- Prof. Catherine De Wolf – D-BAUG
- Prof. Christian Holz – D-INFK
- Prof. Daniel Razansky – D-ITET
- Prof. Daniela Domeisen – D-USYS
- Prof. Davide Scaramuzza – UZH
- Prof. Dirk Helbing – D-GESS
- Prof. Domenico Giardini – D-ERDW
- Prof. Dominik Hangartner – D-GESS
- Prof. Effy Vayena – D-HEST
- Prof. Elgar Fleisch – D-MTEC
- Prof. Elliott Ash – D-GESS
- Prof. Ender Konukoglu – D-ITET
- Prof. Fernando Perez–Cruz – D-INFK
- Prof. Florian Dörfler – D-ITET
- Prof. Florian Tramèr – D-INFK

- Prof. Florian v. Wangenheim – D-MTEC
- Prof. Francesco Corman – D-BAUG
- Prof. Georg von Krogh – D-MTEC
- Prof. Giacomo Indiveri – D-ITET
- Prof. Gisbert Schneider – D-CHAB
- Prof. Gudela Grote – D-MTEC
- Prof. Hans–Andrea Loeliger – D-ITET
- Prof. Inge Katrin Herrmann – D-MAVT
- Prof. Jan Dirk Wegner – UZH
- Prof. Jan Vermant – D-MATL
- Prof. John Lygeros – D-ITET
- Prof. Jonas Peters – D-MATH
- Prof. Josef Teichmann – D-MATH
- Prof. Judit Szulagyi – D-PHYS
- Prof. Kjell Jorner – D-CHAB
- Prof. Klaas Enno Stephan – D-ITET
- Prof. Laura De Lorenzis – D-MAVT
- Prof. Lothar Thiele – D-ITET
- Prof. Luc Van Gool – D-ITET
- Prof. Luca Benini – D-ITET
- Prof. Manu Kapur – D-GESS
- Prof. Marco Hutter – D-MAVT
- Prof. Marina Krstic Marinkovic – D-PHYS
- Prof. Markus Gross – D-INFK
- Prof. Markus Püschel – D-INFK
- Prof. Mehmet Fatih Yanik – D-ITET
- Prof. Michael Krauthammer – UZH & USZ
- Prof. Mirko Meboldt – D-MAVT
- Prof. Mustafa Khammash – D-BSSE
- Prof. Nicola Zamboni – D-BIOL
- Prof. Nicolai Meinshausen – D-MATH
- Prof. Olga Sorkine–Hornung – D-INFK
- Prof. Patrick Cheridito – D-MATH
- Prof. Philipp Fürnstahl – UZH
- Prof. Richard Hahnloser – D-ITET
- Prof. Rima Alaifari – D-MATH
- Prof. Robert Riener – D-HEST
- Prof. Roger Gassert – D-HEST
- Prof. Roger Wattenhofer – D-ITET
- Prof. Roland Siegwart – D-MAVT
- Prof. Sascha Quanz – D-PHYS
- Prof. Sebastian Schemm – D-USYS

- Prof. Sereina Riniker – D-CHAB
- Prof. Shih–Chii Liu – UZH
- Prof. Shinichi Sunagawa – D-BIOL
- Prof. Simon Mayer – HSG
- Prof. Simone Schuerle – D-HEST
- Prof. Stefan Bechtold – D-GESS
- Prof. Stefan Wiemer – D-ERDW
- Prof. Sven Seuken – UZH
- Prof. Tobi Delbruck – D-ITET
- Prof. Torbjørn Netland – D-MTEC
- Prof. Torsten Hoeffler – D-INFK
- Prof. Ulrik Brandes – D-GESS
- Prof. Walter Kaufmann – D-BAUG

**Faculty Alumni (8)**

- Prof. Daniel Hall – D-BAUG
- Prof. Kay Axhausen – D-BAUG
- Prof. Marloes Maathuis – D-MATH
- Prof. Martin Kröger – D-MATL
- Prof. Olga Fink – D-BAUG
- Prof. Orçun Göksel – D-ITET
- Prof. Theodoros Rekatsinas – D-INFK
- Prof. Stefan Feuerriegel – D-MTEC

**Doctoral Fellows (27)**

- Afra Amini (Prof. Cotterell, D-INFK, Prof. Ash, D-GESS)
- Alice Bizeul (Prof. Vogt, D-INFK, Prof. Schölkopf, D-INFK)
- Alizée Pace (Prof. Rätsch, D-INFK, Prof. Schölkopf, D-INFK)
- Anh Duong Vo (Prof. Grewe, D-ITET, Prof. Van Gool, D-ITET)
- Barna Pasztor (Prof. Krause, D-INFK, Prof. Seuken, UZH)
- Daniil Dmitriev (Prof. Bandeira, D-MATH, Prof. Yang, D-INFK)
- Elvis Nava (Prof. Grewe, D-ITET, Prof. Katzschmann, D-MAVT)
- Emanuele Palumbo (Prof. Vogt, D-INFK, Prof. Burden, D-CHAB)
- Giulia Lanzilotta (Prof. Hofmann, D-INFK, Prof. Grewe, D-ITET)

- Hehui Zheng (Prof. Coros, D-INFK, Prof. Katzschmann, D-MAVT)
- Ilyas Fatkhullin (Prof. He, D-INFK, Prof. Corman, D-BAUG)
- Jakub Macina (Prof. Sachan, D-INFK, Prof. Kapur, D-GESS)
- Javier Abad Martinez (Prof. Yang, D-INFK, Prof. Menze, UZH and USZ, Prof. Vogt, D-INFK)
- Jelena Trisovic (Prof. Zeilinger, D-MAVT, Prof. Yu, D-ITET)
- Jiaoda Li (Prof. Cotterell, D-INFK, Prof. Feuerriegel, D-MTEC)
- Kenza Amara (Prof. Zhang, D-INFK, Prof. Brandes, D-GESS)
- Konstantin Donhauser (Prof. Yang, D-INFK, Prof. Bandeira, D-MATH)
- Malte Londschien (Prof. Bühlmann, D-MATH, Prof. Rätsch, D-INFK)
- Manish Prajapat (Prof. Zeilinger, D-MAVT, Prof. Krause, D-INFK)
- Mike Michelis (Prof. Katzschmann, D-MAVT, Prof. Mishra, D-MATH)
- Pawel Czyz (Prof. Beerenwinkel, D-BSSE, Prof. Boeva, D-INFK)
- Pragnya Alatur (Prof. Krause, D-INFK, Prof. He, D-INFK)
- Rene Zurbrügg (Prof. Yu, D-ITET, Prof. Hutter, D-MAVT)
- Samantha Biegel (Prof. Zhang, D-INFK, Prof. Stocker, D-USYS)
- Vinzenz Thoma (Prof. He, D-INFK, Prof. Seuken, UZH)
- Yarden As (Prof. Krause, D-INFK, Prof. Grewe, D-ITET, Prof. Fürnstahl, UZH)
- Yunke Ao (Prof. Fürnstahl, UZH, Prof. Grewe, D-ITET, Prof. Krause, D-INFK)

**Post–Doctoral Fellows (14)**

- Dr. Alexander Marx (Prof. Vogt, D-INFK, Prof. Bühlmann, D-MATH, Prof. Rätsch, D-INFK)

- Dr. Amartya Sanyal (Prof. Yang, D-INFK, Prof. Schölkopf, D-INFK, Prof. Alaifari, D-MATH)
- Dr. Ben Moseley (Prof. Mishra, D-MATH, Prof. Schemm, D-USYS)
- Dr. Carl Allen (Prof. Cotterell, D-INFK, Prof. Sachan, D-INFK)
- Dr. Fan Shi (Prof. Coros, D-INFK, )
- Dr. Francis Engelmann (Prof. Tang, D-INFK, Prof. Hilliges, D-INFK)
- Dr. Giorgia Ramponi (Prof. He, D-INFK, Prof. Krause, D-INFK, Prof. Grewe, D-ITET)
- Dr. Martino Sorbaro (Prof. Grewe, D-ITET, Prof. Indiveri, D-ITET)
- Dr. Menna El-Assady (Prof. Buhmann, D-INFK, Prof. Sachan, D-INFK)
- Dr. Neda Davoudi (Prof. Rätsch, D-INFK, Prof. Menze, UZH and USZ)
- Dr. Nikola Konstantinov (Prof. Vechev, D-INFK, Prof. Yang, D-INFK)
- Dr. Shkurta Gashi (Prof. Rätsch, D-INFK, Prof. Holz, D-INFK)
- Dr. Theodora Kontogianni (Prof. Schindler, D-BAUG, Prof. Hilliges, D-INFK, Prof. Tang, D-INFK)
- Dr. Xinwei Shen (Prof. Bühlmann, D-MATH, Prof. Meinshausen, D-MATH )

**Donors and benefactors**

- Dieter Schwarz Stiftung
- Heidi Ras Stiftung
- Hasler Stiftung
- Asuera Stiftung
- Gebert Rüt Stiftung
- Fondation Botnar
- Google
- Meta Platform Technologies
- ETH Zurich Escher Circle / Escher Top 100 Circle
- Prof. Roland Siegwart
- Georg Wacker, München

## Sponsors and Donors

It is both our concern and our pleasure to express our sincere gratitude for the generous support that we have received from donors and benefactors in 2022. Your dedication to fostering interdisciplinary research and nurturing young talents in computer science and ML applications has played an indispensable role in our continued success.

Without your steadfast engagement, our ability to champion the intellectual pursuits of bright, emerging scholars would be significantly diminished. Your contributions not only fuel our fellowship program, but also empower us to offer invaluable opportunities to those who aspire to make a lasting impact towards safe and trustworthy AI for the benefit of mankind. We are truly fortunate to have you as a vital part of our community.

As we move forward in our shared journey of advancing AI knowledge and fostering innovation, please know that your support is not only appreciated but also essential. Your continued partnership with ETH AI Center ensures that we can continue to nurture the next generation of interdisciplinary thinkers and researchers.

We are deeply grateful for your support, which is a cornerstone of our success. We look forward to sharing with you the remarkable achievements of our fellows and the profound impact of your contributions to advancing interdisciplinary AI research.

The ETH AI Center staff, fellows and faculty.



ETH Zürich  
ETH AI Center  
Andreasstrasse 5 / OAT X  
8092 Zürich

<https://www.ai.ethz.ch>

## **IMPRINT**

### **Publisher**

ETH AI Center

### **Editor**

Helga Rietz

### **Co-Authors**

Alexander Ilic  
Andrej Kulikov  
Jennifer Wadsworth  
Viviana Gropengiesser  
Adrian Christopher Notz  
Lisa Wagner  
Trinh Gsponer

### **Graphic Design and Layout**

Andrea Schumacher, Stefanie Hess  
Print and Publish, ETH Zurich

### **Print**

Print and Publish, ETH Zurich