VIScon 2021

Program

Welcome

Welcome to VIScon 2021

We are overwhelmed to welcome you to an entire in-person VIScon this year.

The Symposium consists of 24 talks and five fascinating workshops alongside two executions of the escape room organised by SWITCH. After last years great success of security talks, we created the Security Track, designed for those who want to have a deeper dive into Security.

Our talks will show you what is happening in the world outside the lecture hall with the knowledge of the lectures and the experience gained by industry professionals over the years. Don't hesitate to go up to a speaker after the presentation and ask questions. They are looking forward to talking to you and answering any questions you may have! Meanwhile, the workshops enable you to build or learn new topics you might not encounter until after graduating. That means, go and experience, browse, soak in as much information as possible, and enjoy the realm of computer science in a whole new hands-on way!

We want you to walk out of the building filled with motivation, inspiration and fire within to build and mould the IT world of the coming decades. Get inspired, connect, learn and most importantly:

Have fun!

David Kalchofner

Food

Breakfast 8:30 - 11:15

After registering, feel free to grab a croissant outside on the Polyterrasse in front of the building.

Lunch 11:30 - 14:00

We offer various sandwiches you can choose from. These will be presented on the Polyterrasse in front of the building or on the main floor in case of bad weather.

Please eat your lunch outside to keep some distance.

Beverages Start - Finish

There will be fridges with drinks in front of the lecture halls.

Talks

	HG D1.2	HG D7.1	HG E1.1	HG E1.2
09:00	Hello World — Audimax (HG F.30)			
	Opening Talk: Yves Brise, ipt — Audimax (HG F.30)			
10:00	Keynote: Fabian Aggeler, Ubique — Audimax (HG F.30)			
11:00	Reading Minds with Natural Language Processing *Elliot Ash, ETH*	Enterprise Recovery *Judith Mächler & Frank Walter, Deloitte*	Why *"Everything as Code"* changes everything *Matthias Geel, ipt*	Digital Identity – next generation *Thomas Grotehen, ti&m*
12:00	Passwords - a trigger topic *Katja Dörlemann, SWITCH*	Understanding the Brain: Machine Learning meets Neuroscience *Marco Lehmann, OST*	An Introduction to Fuzzing and a direct application to the real world *Leonardo Galli, VIS CTF*	Founding a startup after ETH *A journey into entrepreneurship* *Thomas Schulz, careerfairy*
13:00	How are climate change and computer sciences related? *James Heim*	Mixed Reality with Robots *Inviting our robotic counterparts into the world of mixed reality* *Patrick Misteli, Microsoft*	How to create an online-marketplace with sustainably high margins *Willy Bischofberger*	The Road to Fair Machine Learning Models *Christoph Bräunlich, BSI*
14:00	What's needed to sell 50'000 tickets online in 10 Minutes *Amelia Zgraggen, Netcetera*	Innovate on Layer 8 *Sarah Mühlemann, dsdf*	What comes after our smartphones? Spatial computing. *Daniel Neubig, Ergon*	Unplanned Side Effects *Josef Gubelmann & Michael Batel, AWK*
15:00	When hackers do good: The Future of Security Testing *Reto Ischi, Airlock*	Public Money? Public Code! *Alexander Pitsch, fsfe*	How To Fail *The Human Factor in Real World Data Science Project* *Jonas Dischl, AWK*	Building Secure Bluetooth IoT Products *Derek Yu, Zühlke*
16:00	Threat Hunting and Campaign Tracking *Chi En (Ashley) Shen, Google*	Tracking Ecosystem Trends : Profiling, Microtargetings ... Where Do We Stand? *Robert Würgler, Digi-Oek.ch*	Practical guide to a compliant AI implementation *Ilya Vasilenko, Starmind*	A way to avoid handshakes *Maciej (MJ) Jedrzejewski, Leica Geosystems*
17:00	Closing Talk: Roman Hugelshofer, Airlock — Audimax (HG F.30)			
	Goodbye World — Audimax (HG F.30)			

Workshops

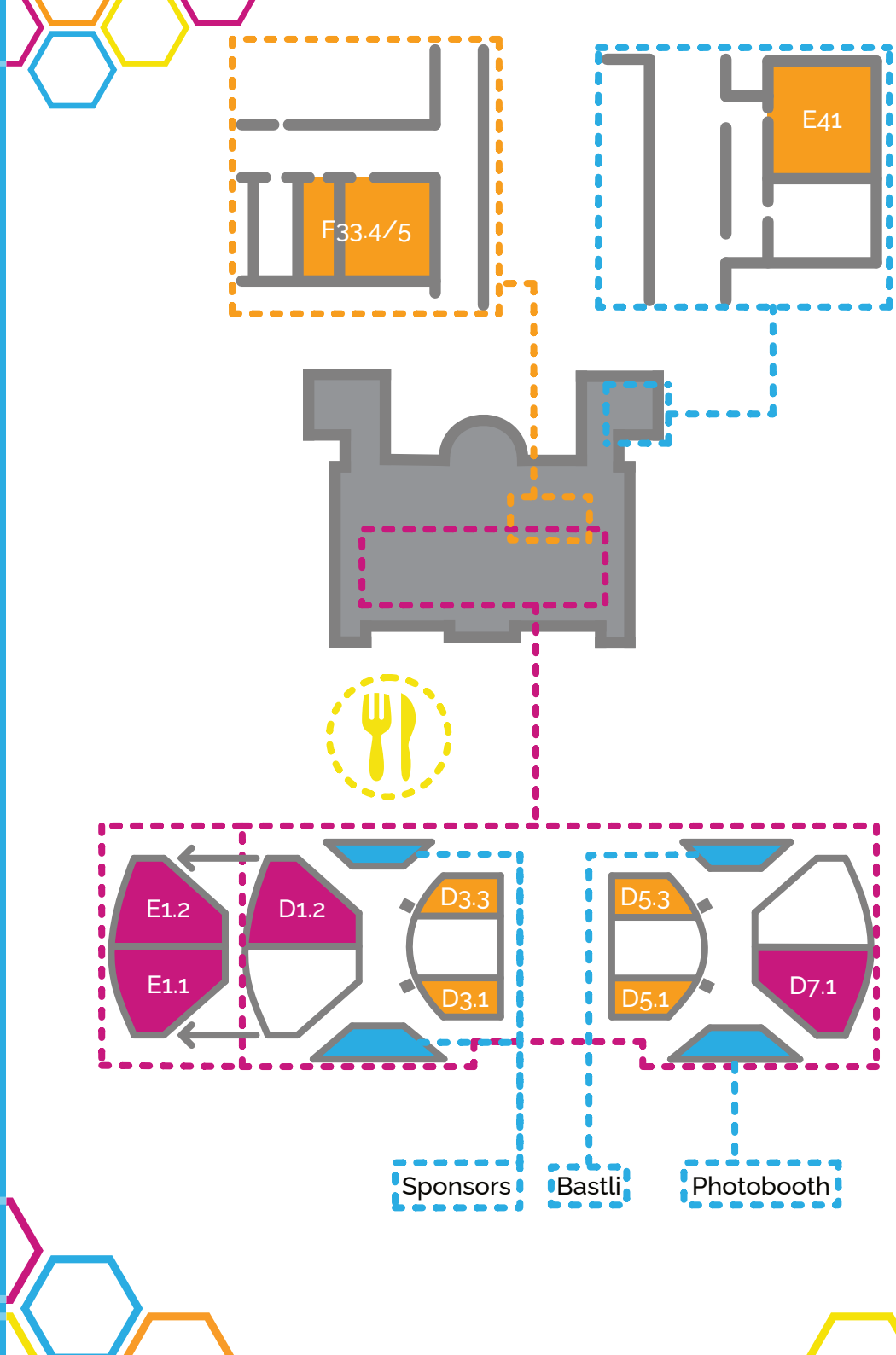
12:00				
13:00				
14:00	Network Analytics at Swisscom *IP networks are the nerve systems of today's society. Network Analytics is the key to enable visibility and increase uptime and reliability by creating a digital twin for a closed loop operation. We explore the network from a Network Analytics perspective by looking into the raw network data, demonstrate how this data can be collected at large scale, being processed, presented and visualized for humans and consumed by machine learning for anomaly detection.* D3.1 *Thomas Graf, Swisscom*	Achieve 99.999% Service Availability Like a Pro (-▪_▪) *Have you also been wondering how large organizations can provide their services to their customers 24 hours per day, 365 days a year, without any crashes and downtimes? Many large companies adopt Kubernetes to achieve highly available applications that can dynamically scale based on the needs of the customers. However, these applications and Kubernetes itself need to be monitored in order to ensure their smooth operation and security.* D5.3 *Benjamin Bürgisser & Jakob Beckmann, ipt*	Rapid Prototyping *Learn about how to find the right solution & build the right product in this Interactive Workshop.* D5.1 *Emily Hawkins, Beekeeper*	Hack the Hacker - Escape Room F33.4/33.5 SWITCH
15:00				
16:00				Hack the Hacker - Escape Room F33.4/33.5 SWITCH
17:00	Attacking and Defending Web Applications 2.0 *A lot has changed since the invention of the internet. It has become essentially impossible to imagine a setting where no web applications — such as webshops, messaging applications or social media sites — exist. With that omnipresence, it becomes increasingly important to consider security in an online world. Web applications are no longer the static pages they once were, and this opens the doors to a plethora of attacks that could endanger a business or its users.* E41 *Leonardo Galli, VIS CTF*	Build a Handheld Game Console *Become a full-stack game developer! Start by soldering your own pocket-sized console, and then program a game for it with CircuitPython. Then expand the hardware with various sensors and electronic components. Bring a laptop and a micro-USB cable, you will receive all the remaining parts and take them home with you. No prior experience with electronics required.* D3.3 *Christian Walther & Radomir Dopieralski*		
18:00				
19:00				
20:00				

Tracks

- Computer Science
- Entrepreneurship
- Interdisciplinary
- Security

VIS con
SYMPOSIUM
HACKATHON

Floorplan


F33.4/5
E41
E1.2
E1.1
D1.2
D3.3
D3.1
D5.3
D5.1
D7.1
Sponsors
Bastli
Photobooth

Opening

09:20 09:30 F 30

Yves Brise

yves.brise@ipt.ch

yvesbrise

Yves is an ETH Alumnus and Associate Partner at ipt AG. He received his PhD in Prof. Dr. Emo Welzl's group of Combinatorial Algorithms working on quadratic optimization problems and generalisations thereof. After finishing his PhD in 2012, he went to work for the Swiss based IT service provider ipt in the private sector. He has been working as a consultant for large Swiss companies such as SBB, Swisscom, Helsana, Helvetia, Postfinance. His main area of work is bringing AI- and data-driven decisions to those enterprises.

Keynote

09:30 10:20 F 30

Fabian Aggeler

aggeler@ubique.ch

fabian-aggeler-16174968

Fabian helps building mobile apps while paying attention to security and privacy challenges. Having started with the development of ETH Zürich and ASVZ apps during his studies at ETH, he co-founded Ubique. Since graduating with a M.Sc. degree in Computer Science, he continues to push the most used apps in Switzerland like SBB Mobile, SwissCovid and many more to become more useful while not sacrificing users' privacy. Apart from CTO duties he leads the security team @ Ubique.

ubique

Closing

16:30 16:40 F 30

Roman Hugelshofer

Roman Hugelshofer has been in the field of security of critical web applications and identities for more than 12 years. He knows the challenges and goals of companies dealing with the digitization of their business. He is currently responsible within the Ergon board for the further development of the products and the expansion of the Airlock Suite into new markets. In addition to managing the entire division, he is responsible for strategic partnerships in Germany and abroad. Previously, Roman Hugelshofer worked for Verizon Business and Alcatel.

AIRLOCK®

Talks

- Interdisciplinary Track
- Computer Science Track
- Security Track
- Entrepreneurship Track

10:30 11:10 D1.2

Elliot Ash

Elliott Ash centers his research around the possibility and problem of "building a robot judge." As a professor at ETH Zurich's Center for Law & Economics, Elliott investigates the workings of law and policy through the lens of data science. Using natural language processing to sift through legal texts, and with natural experiments to get at causation, this research produces evidence to better understand how legal decisions are made. In the future, this work will provide a framework to support fairer decisions. Prior to joining ETH, Elliott held academic positions at University of Warwick and Princeton University, and before that earned a Ph.D. in economics and a J.D. from Columbia University.

Reading Minds with Natural Language Processing

This talk will introduce some recent lines of research in social science that apply natural language processing to analyze beliefs and attitudes using observational data. When do politicians use more emotion, rather than logic, in their rhetoric? When do judges use notions of economic efficiency, rather than fairness or justice, in their written opinions? What can language tell us about political views or social attitudes?

ETH zürich

Enterprise Recovery

Helping Organizations Recover From Large-Scale Destructive Cyber Attacks

Countless organizations across all sectors have been hit by large-scale and destructive cyber attacks, for example involving ransomware. Increasingly sophisticated attacks occur more frequently, and attackers are leveraging capabilities previously only known to nation states that are not just a nuisance, but that are threatening the very existence of a particular organization. Regular recovery measures typically employed by organizations, such as classical Business Continuity Management and IT Disaster Recovery, have become ineffective in the light of such attacks. In our talk, we will explore how organizations can adapt and improve their ability to recover from such catastrophic cyber attacks.

Judith Mächler

Judith is a manager in the Vigilant & Resilient team within Deloitte's Cyber Risk Services practice in Switzerland with experience in Operational Resilience, Business Continuity Management, Enterprise Recovery and Crisis Management.

Frank Walter

Frank, an alumnus of ETH Zurich, leads the Vigilant & Resilient team within Deloitte's Cyber Risk Services practice in Switzerland. He helps clients sustain their critical business services by preparing for, responding to, and recovering from disruptions.

Matthias Geel

matthias.geel@ipt.ch

Matthias Geel is an ETH Alumnus with a PhD in Computer Science. He is currently working as a Principal Architect @ ipt AG on projects that develop information systems with a high degree of distribution and concurrency. His technological focus includes building scalable systems using container technologies, service orchestration, infrastructure as code and event-driven architecture.

Why "Everything as Code" changes everything

Infrastructure as code, a technique that treats infrastructure configuration the same way as code, has become widely adopted and is considered best practice to manage highly dynamic infrastructure, especially in the cloud.

But the "as code" paradigm does not have to stop with infrastructure.

Whether it is security policies, network rules, deployment pipelines, documentation or even architectural diagrams, the ability to express all elements of an IT system as code allows system engineers to apply established principles of software development (e.g. source control, reproducibility, maintainability, etc.) to literally all aspects of a software system.

This talk introduces the principles of "Everything as code", explains the fundamental ideas behind the approach and illustrates its many applications based on real-world examples from industry and the open source community. It also highlights the skill set that every computer scientist should acquire in order to participate in that paradigm shift.

Deloitte.

ipt

E1.2 10:30 11:10

11:20 12:15 D1.2

Thomas Grotehen

Dr. Thomas Grotehen helps banks and insurance companies employing advanced concepts and technologies since 1993. He constructed first-of-a kind internet and Java-based private banking and health insurance systems. Thomas designed the virtualization of the national health insurance card and architected an industry-wide multiprocess peer-to-peer communication platform used by the Swiss insurance industry. He is senior Software Architect at ti&m and one of his main interests is SSI and Identity Centered Architectures.

Katja Dörlemann

katja.doerlemann@switch.ch

Being an Awareness Specialist at SWITCH, Katja Dörlemann is engaged in promoting information security among Swiss universities, hosters and citizens. She started working as a Security Awareness consultant for Swiss IT companies in 2010. In 2018 she completed her PhD in General and Comparative Literature at the University of Zurich.

Digital Identity – next generation

«The Internet was built without a way to know who and what you are connecting to. This limits what we can do with it and exposes us to growing dangers. If we do nothing, we will face rapidly proliferating episodes of theft and deception that will cumulatively erode public trust in the Internet" — Kim Cameron, 2005 then Microsoft Chief Identity Architect.

This prognosis has become true in many aspects of today's digital life.

Loud calls for more privacy, minimization, and data avoidance are a reaction to repeated cases of identity misuse and the ever-growing mining for our identity data.

To address these problems (while allowing to fulfill legitimate requirements) is the promise of the concept of "Self Sovereign Identity (SSI)".

Passwords - a trigger topic

Passwords are a tiresome topic: they need to be complex, long, unique... Most of us are overwhelmed by it and react with annoyance and indifference to recommendations from security experts. Who can blame them? Nevertheless, passwords are extremely important for the protection of our data. In our lecture, we will get to the bottom of the "password" phenomenon and shed light on its development in the past, its relevance in the present and its blurry future.

ti&m
big ideas. creative technology.

SWITCH

Understanding the Brain: Machine Learning meets Neuroscience

Machine Learning and Brain Research are closely related fields: artificial neural networks were inspired by biology, and neuroscience is using machine learning to understand the brain. We start with an overview of the fascinating world of brain research and then explore the intersection between neuroscience and machine learning. By covering a few key results from theoretical neuroscience and from machine learning we point out similarities and differences between the brain and computers.

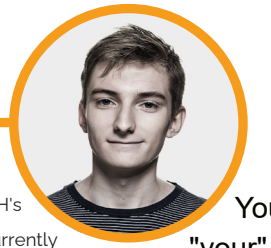
Marco Lehmann

marco.lehmann@ost.ch

Marco Lehmann is a Professor of Informatics and AI at OST (Eastern Switzerland University of Applied Sciences). He holds a PhD in Computational Neuroscience from EPFL. In his research he studied Reinforcement Learning in humans.

In his current position he applies theories of surprise and learning to improve the reliability of autonomous of robots.

Prior to his PhD, Marco Lehmann obtained a MSc in Computer Science from EPFL and has spent several years in the software industry.



Leonardo Galli

leonardo.galli@vis.ethz.ch

Leonardo Galli is the President of ETH's Capture the Flag team „Flagbot" and currently working towards his Bachelor in Computer Science at ETH Zürich.

In the beginning of 2020 he successfully organized flagbot's very first CTF event BjörnCTF.

His main research interest is cyber security, with a focus on reverse engineering and binary exploitation.

An Introduction to Fuzzing and a direct application to the real world

Are you getting tired of people reporting security issues in your software?

Do you think checking the bounds of your buffers is too much work?

You want to find bugs in "your" software, but accidentally "misplaced" the source code?

Or maybe, the source code was found again, but nobody understands what it is doing?

The answer to all of the above questions - and more - is fuzzing!

In essence, fuzzing tries to - intelligently and automatically - find bugs in software.

In this talk, you will first get to know how fuzzing actually accomplishes that and how to use it for finding bugs.

As a direct application of the first part, I will then go over the process of taking the iPhone boot loader, making it runnable on linux and finally being able to fuzz it.

OST
Ostschweizer
Fachhochschule

Flagbot

E1.2 11:20 12:15

12:40 13:35 D1.2

Thomas Schulz

thomas@careerfairy.io

Thomas is the co-founder of the ETH spinoff CareerFairy, an interactive live streaming platform on which hundreds of companies across Europe showcase their work to a community of students and graduates.

Founding a startup after ETH

A journey into entrepreneurship

Founding a startup after ETH can be both very fulfilling and challenging. How do you go about finding an idea? How do you find early adopters to test your idea with? In this session, Thomas will tell you about his journey after ETH as a co-founder of CareerFairy and the daily challenges in scaling a startup from Zurich to the world.

careerfairy

James Heim

james.heim@gmx.ch

"We shall not cease from exploration

And the end of all our exploring

Will be to arrive where we started

And know the place for the first time."

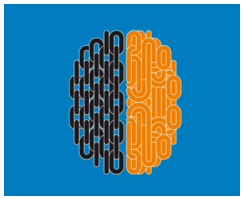
-T.S. Eliot

Lic.oec.publ. (Master of Economics) / Worked for a consulting company and then for the business development agency Greater Zurich Area, for which I relocated to San Francisco / Since 2007 I study the impact of our current technology culture (the way we invent and apply technology) / I also work on a farm

How are climate change and computer sciences related?

What lessons from our fight against climate change are relevant for the future of computer science

In the fight against global warming we are also dealing with various fundamental questions which are not expressions of climate change per se. Rather they are inherent to a technological development carried out in a faster and broader way than we are capable of managing. How can we advance our capabilities in computer sciences without making the same basic mistakes as we did with the use of fossil fuels?



Mixed Reality with Robots

Inviting our robotic counterparts into the world of mixed reality

Augmented reality (AR) is becoming more and more common these days. Whether it's virtually putting the name of a mountain on its peak or showing a Pokemon in your backyard most people with a smartphone are familiar with the concept of AR by now. This parallel world of augmentation is growing more and more rapidly. With the robotics industry also growing, there is a huge potential in inviting our robotic counterparts to this world of AR. Join us to see how Microsoft is taking on this challenge and let's play fetch with a Boston Dynamic Spot in Mixed Reality

Patrick Misteli

patrick-misteli

Patrick finished his Masters in Computer Science at ETH in 2017. During his his master thesis at Disney Research Zürich he started working with the HoloLens 1st gen and immediately fell in love with it.

One month after graduating he started his career at Microsoft in Paris. Since then he moved back to Switzerland and is now the Program Manger for the Mixed Reality and AI Lab for Microsoft Zürich working for Marc Pollefeys who is also part time Prof at ETH.

Willy Bischofberger

willy.bischofberger@gmail.com

bischofberger

Dipl. Informatik-Ing. ETH (1990), MBA INSEAD (1993), Founder of IAETH

+ Multiple Entrepreneuer, founded, built & sold 2 companies (in IT & Energy)

+ Business Angel, reinvested in 6 companies in 4 industries

+ Lecturing at ETH "Lessons Learned form 130 IT-startups of ETH-Alumni"

+ Mentor at FoundersInstitute, Silicon Valley (US)

+ President of the Catholic School in Zurich (FKSZ)

+ Santaclaus

How to create an online-marketplace with sustainably high margins?

Example of marketplaces: job-offerings, used-cars, friends, apartments/houses, hotel-rooms, art, furniture, ...

Creating an online-marketplace means bringing together suppliers and customers (B2B, B2C or C2C). The leader in a marketplace typically enjoys sustainably high margins because of its natural monopoly position.There is still room for many more marketplaces. There are however many pitfalls. Let's talk about how to overcome them.

Let's talk about them.

Microsoft

Christoph Bräunlich

christoph-bräunlich-271a9565

Christoph Bräunlich has been working at BSI for 7 years - first in customer projects and currently in product development.

After recieving his master's degree in computer science with specialization in AI, he worked for ABB Coporate Research in Raleigh NC.

Within BSI, he started the first machine learning project as part of the BSI Lab Initiative.

Together with the BSI ML-Team he developed the AI Platform BSI AI, which was launched in 2019. Since 2021, he is Vice President fo SWISS INSIGHT where he develops and promotes the Data Fairness Label.

Amelia Zgraggen

amelia.zgraggen@netcetera.com

Senior Software Engineer working on an innovative Payment Solution platform at Netcetera.

The Road to Fair Machine Learning Models

Is it possible to createmachine learning models that always treat people fairly? And how can we convince the public that we use fair models?

With the rise of AI, a growing population is afraid of the effects a highly automated world will have on individuals. Sometimes the fears are utopic but many have very good reasons for these concerns. Christoph Bräunlich, AI/ML specialist at BSI and member of the board of directors at SWISS INSIGHTS, will give examples of unfair models and how they can be modified to become fair. Furthermore he will present the ongoing work for the Data Fairness Label of SWISS INSIGHTS.

What's needed to sell 50'000 tickets online in 10 Minutes

Technical and Security design for online Credit Card Transactions

Online credit card transactions are growing quickly, especially in this changed Covid-19 world. What are the steps in an online credit card transaction, and how many different players are involved? I will discuss the technical and security concerns for handling and processing credit card transactions, and how we make it easier for card holders to safely securely go shopping online.

Sarah Mühlemann

sarah.muehlemann@dsdf.ch

Sarah is particularly interested in the relationship between people and technology. As the president of the Digital Self-Defense Foundation and the creative mind behind their focus project be[a]ware, she is, among other things, engaged in empowering people to effectively deal with human-relevant cyber threats such as social engineering attacks, cybermobbing or disinformation. Additionally, Sarah studies towards a bachelor's degree in computer science at Bern University of Applied Sciences.

Daniel Neubig

daniel.neubig@ergon.ch

daniel-neubig-36b409163

Daniel Neubig is Technical Lead for Augmented Reality at Ergon and has created software solutions for over 20 years. His responsibilities include consulting customers and to design and develop modern solutions to expand the benefits of 3D interfaces and interactions.

Daniel Neubig holds a Master's degree in Computer Science in Robotics and Machine Learning from Universität Karlsruhe (TH).

Innovate on Layer 8

While the way we handle cyber threats such as cyberattacks or disinformation has advanced significantly in recent years, we still heavily focus on technology, although many of these threats rely on and exploit human factors. Only few people are engaged in finding truly human-centered solutions and in creating motivating learning opportunities that empower people to effectively deal with such challenges in their private and professional life. Thus, we clearly need more innovators that focus on the human side of things!

Since high school, I've been creating gamified cyber awareness modules, and lately I've also been engaged in making valuable expertise and qualitative products in this niche more broadly available. Based on examples and experiences, I will show you what innovating on layer 8 can look like, why it is exciting for people with various backgrounds/interests and what challenges you might be facing

What comes after our smartphones? Spatial computing.

Mobile is already outdated. Instead, Spatial computing allows us to interact with real world objects in the surrounding space of the user and rely on context sensitive situations. In this talk, Daniel Neubig will discuss the learnings and challenges we had, during bringing a new software and Augmented Reality App to construction sites.

ergon

DIGITAL SELF-DEFENSE FOUNDATION

E1.2 13:45 14:25

14:35 15:15 D1.2

Unplanned Side Effects

How IT is enabling a revolution or missing its chances for Project Management

From the Pyramids of Giza to the Gotthard Tunnel, the world of Project Management has always been stably classical, and then IT came along! With the special characteristic of software as a project delivery result, the possibility of a disruptively new approach opens up - Agile Project Management. Is IT taking advantage of its opportunities to revolutionize Project Management or are agile projects doomed to fail? We explore this question by comparing two major projects from the old and new world.

Michael Batel

michael.batel@awk.ch

Michael Batel became part of the project management world after completing his PhD at ETH Zurich when he started his career at the technology and management consultancy AWK Group. After numerous years of project management with clients in industry and public administration, he is now responsible for the competence development in Project, Program and Portfolio Management at AWK.

Josef Gubelmann

josef.gubelmann@awk.ch

Josef Gubelmann had a background of more than 30 years of project leadership before he joined AWK Group to become the Head of Project Management and Transformation. As such, today he is responsible among others for the topic Agile Push within AWK. Josef Gubelmann early has focused on training and coaching of Project Management experts and has designed and implemented Project Management and Portfolio Management frameworks within numerous companies.

Reto Ischi

reto.ischi@ergon.ch

retoischi

Reto Ischi is Team Lead Product Development Gateway at Airlock and has been involved in information security and software engineering for over 19 years. His responsibilities include security consulting and the design and development of product solutions to mitigate web security threats. Reto Ischi holds a Master's degree in Computer Science in Information Security from ETH Zurich and is lecturer for Web Security at FH OST.

When hackers do good: The Future of Security Testing

More and more companies are relying on so-called "bug bounties": They challenge hackers from all over the world to break the security of their systems. Whoever finds a vulnerability is richly rewarded, depending on the severity. In his field report, Reto Ischi explains how a bug bounty program works and what he learned while implementing it. Using concrete examples, he shows how hackers can leverage the security mechanisms and thereby make a security product more reliable at in the end.

AWK Group
Enabling digital performance.

AIRLOCK®

Public Money? Public Code!

A campaign by the Free Software Foundation Europe

Why is software created using taxpayers' money not released as Free Software?

The goal of the talk is to present the Public Money? Public Code! campaign of the Free Software Foundation Europe.

It will quickly recap what free software is, why software procured/developed by the public sector should be released under a free software license and what the recent developments in that area have been in Switzerland.

Alexander Pitsch

alexander.pitsch@fsfe.org

HSG graduate turned software engineer. FLOSS enthusiast. Privacy fanatic.

Jonas Dischl

jonas.dischl@awk.ch

Jonas Dischl introduced advanced analytics and developed novel approaches for employee fraud detection in a large swiss bank during his PhD in Computer Science. He started at AWK ten years ago. Starting in 2018, he built up the Data Analytics & AI section in AWK. Jonas work is focused on Data Science Leadership Coaching, Analytics Translation and Data Driven Transformation

How To Fail

The Human Factor in Real World Data Science Projects

With the experience of 15 years and over 75 projects in data analytics & AI, I can tell numerous stories why some projects really failed to reach production stage and create added value.

It is not the fanciest algorithm that wins – it is the understanding of common pitfalls and human behaviour/ biases on both the data scientist and client side. Let me tell you what I have learned and do not repeat the same mistakes others have already done for you.

fsfe

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Enabling digital performance.

Derek Yu

Derek (Der-Yeuan) is a Security Consultant at Zühlke. He did his master's and doctor's studies in Computer Science from ETH with a focus on Information Security and System Security. His day-to-day tasks include IoT security, DevSecOps, security reviews, and security training. During his ETH days, Derek helped out at MoEB and wrote for Visionen.

Building Secure Bluetooth IoT Products

Bluetooth's pervasive adoption has made it the go-to communication standard in the last mile of many IoT solutions. With the surge of cyberattacks and users' elevated privacy awareness, most vendors recognize IoT security as a critical factor of business success. Based on real-world Bluetooth-based IoT products in the industrial and Medtech sector, we present various security design choices, including authentication, access control, end-to-end encryption, IP protection, and data privacy. We further discuss how vendors make pragmatic decisions based on application-specific constraints, such as user experience, compliance, power efficiency, and ecosystem interoperability.

Chi En (Ashley) Shen

Fighting against cyber criminals in Google

Chi-en Shen (Ashley) is a security engineer at Google Threat Analysis Group, where she focuses on threat intelligence research. She specializes in threat hunting, malware analysis, reverse engineering, and targeted attack analysis. Prior to Google, Ashley worked as a senior security researcher at FireEye. Ashley is also the co-founder of Team T5, where she served as a senior analyst for 4 years. For supporting women in InfoSec, Ashley co-founded "HITCON GIRLS" — the first security community for women in Taiwan. She is also a regular speaker at international security conferences, including Black Hat, FIRST, HITB GSEC, CODE BLUE, Troopers, HITCON, Confidence, RESET...etc. Beside Black Hat Asia, Ashley also serves in the review board of Blue Hat Shanghai and Hack in the Box conferences.

Threat Hunting and Campaign Tracking

Defending against cyber criminals is a common topic among organizations across various sectors. Traditional passive monitoring has no longer met the needs of defending against emerging threats. Threat hunting has been gradually introduced by many companies to look for threats hiding in the environment. To understand threat actor's tactics, technique and procedure, campaign tracking is an important approach to accomplish actor profiling, monitoring and performing attribution. In this talk, I will talk about some threat hunting techniques to discover attackers in reconnaissance and weaponization stages and what should be considered for campaign tracking.

Robert Würgler

Robert Würgler is entrepreneur in information systems and management consulting. His expertise include organisational strategy and change processes, often in ICT projects. His favourite topics include security economics and privacy. Besides working for his company, he is interim head of the project "Cyber and Digital Economy Research Network".

Ilya Vasilenko

Certified compliance and data protection professional with computer science background (ETH Zurich). Additional interests and skills lay in areas of natural language processing, big data, security and software development planning.

Tracking Ecosystem Trends:

Profiling, Microtargeting, Biometric Tracking, Political Manipulation ... Where Do We Stand?

When the storming of the US Capitol was reported earlier this year, some media made a vague allusion to microtargeting. Meanwhile, on the other end of the spectrum, marketers talk of an "atomic bomb". They fear that targeting will be made more difficult after one of the world's largest corporation announced that IDFA would soon be opt-in. Some users are probably not aware of tracking and profiling with IDs like IDFA, AAID, and more conventional cookies or fingerprinting. Perhaps they have not yet become cognisant of the "explosives" in their pockets.

An "explosive" analogy may raise some questions: What, if any, is the manipulative potential of psychometric targeting? Could it even promote extremism? Or is it merely used for harmless advertising?

After a brief review of tracking and profiling methods, this talk intends to discuss tracking tech trends that followed regulatory measures worldwide.

Practical guide to a compliant AI implementation

Practical tips for AI software engineers and data scientists

As a software engineer or a data scientist, how to ensure (1) your users believe that your AI software is trustful, (2) your customers stay with your AI service over a longer period of time, (3) you fulfil a ton of requirements from laws and regulations that keep growing and growing every year? Let's look at some practical tips!

STARMIND

E1.2 15:25 16:20

Maciej (MJ) Jedrzejewski

mac.jedrzejewski@gmail.com

Business full-stack developer who currently acts as a tech lead and software architect in Leica Geosystems AG. Speaker at programming conferences and meetups. Author of professional video tutorials.

A way to avoid handshakes

Another day in maintenance hell. How to keep away from tight coupling in your software

When implementing a project we must always think about the consequences of our choices. Whenever we decide to go with tight coupling between elements in our software, there is a need to think about the future - what in case if we will need to scale? What if our project grows? All in all, it is all about the final success. Can we achieve it?

HEXAGON | Leica Geosystems

Workshops

12:00 14:00 D5.1

Emily Hawkins

Emily is a Product Manager for Beekeeper, working on features that help hundreds of thousands of frontline workers get their jobs done in the best way. Having grown up in the Bay Area & worked in startups throughout her studies, Emily entered the workforce excited to solve problems and create new opportunities through technology. As a Product Manager, Emily loves Discovery and trying to find creative solutions to problems.

Rapid Prototyping

Learn about how to find the right solution & build the right product in this Interactive Workshop.

BEEKEEPER

Lots of products fail if they are not solving the right problem or if they are trying to solve a problem but in the wrong way. In this interactive workshop, we will look briefly at the purpose of 'Discovery' in the context of software development and focus on how to find creative solutions to problems.

There are many frameworks and tools you can use to discover both more about the problems or underserved needs and to learn more about what great solutions could be to these. In this session, we'll look at rapid prototyping as a tool to jumpstart the ideation process, cast the net wide and ultimately come up with possible solutions to then take into validation with customers or users.

Thomas Graf

thomas.graf@swisscom.com

thomas-graf-25212516a

Thomas Graf is a distinguished network engineer and network analytics architect at Swisscom. Stuck with service providers since 1997. Rediscover networks in 2015 with

Network Analytics. The backseat driver of the Swisscom Daisy team with network, software and data engineering enthusiasts recently expressed to feel like belonging to a startup. Authoring next generation data-collection protocols in GROW, OPSAWG and NETCONF working groups at IETF.

Marco Tollini

marco.tollini1@swisscom.com

marco-tollini

Marco Tollini received his M.Sc. degree from ETH Zurich in Information Security in 2020. He carried out his master thesis in collaboration with Swisscom, where he compared multiple machine learning algorithms for monitoring Swisscom's mobile network. He decided to move closer to the network with the Daisy team where he researches and develops new standards at IETF, tests equipment from major network vendors, collaborates with external parties to create machine learning algorithms for anomaly and novelty detection, maintains an open-source network visualization tool, and manages the Daisy pipeline. He defines himself as a Data, DevOps, and Test engineer.

Eduard Bachmakov

e.bachmakov@gmail.com

ebachmakov

Eduard recently received his Master's degree in computer science from ETH Zurich. In the last leg of that journey, he found some interesting problems to solve and is eager to share. He still holds degrees in computer engineering and astronomy & astrophysics from a previous life. In his day job, he continues working on cluster management security and reliability at Google. Words are his own.

Network Analytics at Swisscom

Bringing much needed visibility into Networks for a closed Loop Operation

IP networks are the nerve systems of today's society. We as a customer depend on it. Swisscom has a tall burden to ensure that its networks are ready to connect at any time when we need it. Network Analytics is the key to enable visibility and increase uptime and reliability by creating a digital twin for a closed loop operation.

We explore the network from a Network Analytics perspective by looking into the raw collected network data, demonstrate how this data can be collected at large scale, being processed, correlated and presented and visualized for humans and consumed by machine learning for anomaly detection.

swisscom

13:00 16:00 D5.3

Benjamin Bürgisser

Benjamin Bürgisser is a UZH alumnus with an MSc in Computer Science and is a former member of the ETH Game Technology Center. During his studies, he focused on web technologies and cloud computing as well as game development, graphics, and data science. After joining ipt in 2018, his work included enterprise integration, IAM, test automation, and business process automation. For the past three years, he was part of several DevOps Teams operating web services on Kubernetes.

Jakob Beckmann

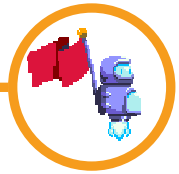
jakob.beckmann@ipt.ch
jakob-beckmann

Jakob Beckmann is an ETH Alumnus with an MSc in Computer Science. During his studies, he focused on software engineering and programming languages, including working as a TA for courses such as COOP and ASL. As an ipt consultant, he mostly works for the Swiss government on cloud orchestration and automation, implementing the Swiss PaaS/SaaS offering for various federal offices.

Achieve 99.999% Service Availability Like a Pro (-■_■)

Have you also been wondering how large organizations such as Facebook or Netflix can provide their services to their customers 24 hours per day, 365 days a year, without any crashes and downtimes? Moreover, they manage to do this while software engineering is becoming more complex every day. Many large companies adopt Kubernetes to achieve highly available applications that can dynamically scale based on the needs of the customers. However, these applications and Kubernetes itself need to be monitored in order to ensure their smooth operation and security.

Flagbot



"Flagbot" is ETH's Capture The Flag team.

Every weekend we take part in online (and sometimes onsite) hacking competitions around the world, and we offer students the thrills of being part of one of the top ranking teams fighting tooth and nail against other passionate hackers to get the latest flag.

In 2019 and 2020 we ranked first in Switzerland and 47th worldwide in 2020.

Furthermore, every Monday we provide lectures on modern hacking topics and techniques to get new members up to speed.

Amongst other things, last year we organized our first big event (BjörnCTF), and organized many collaborations with EPFL's CTF team.

Leonardo Galli

leonardo.galli@vis.ethz.ch

Leonardo Galli is the President of ETH's Capture the Flag team „Flagbot" and currently working towards his Bachelor in Computer Science at ETH Zürich.
In the beginning of 2020 he successfully organized flagbot's very first CTF event BjörnCTF.
His main research interest is cyber security, with a focus on reverse engineering and binary exploitation.

Attacking and Defending Web Applications 2.0

A lot has changed since the invention of the internet and the world wide web.

It has become essentially impossible to imagine a setting where no web applications — such as webshops, messaging applications or social media sites — exist.

With that omnipresence, it becomes increasingly important to consider security in an online world.

Web applications are no longer the static pages they once were, and this opens the doors to a plethora of attacks that could endanger a business or its users.

After an introduction with an overview of some common vulnerabilities in webapps, we intend to give participants some insight into practical attacks and vulnerabilities through a gamified experience.

Several small teams will attack each other, while trying to defend their own team website.

Don't panic, no real websites will be harmed in the process. This will just be a toy website provided by us, without any legal ramifications.

Our beloved workshop is back and it will be twice as big, twice as fun and twice as buggy!

Prerequisites An interest in cyber security, some minor programming experience and a computer to work from.

We will take care of the necessary infrastructure and vulnerable web application.

Disclaimer: We only condone the use of this knowledge for ethical hacking within a legal framework.
Any malicious use of knowledge and experience obtained through this workshop is your own responsibility.

D3.3 16:15 19:15

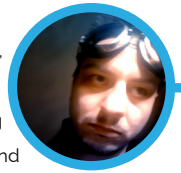
13:00 15:00
15:30 17:30 F33.4

Christian Walther

cwalther@gmx.ch
cwalther
@isziaui

A software engineer in industrial automation, trained physicist and interaction designer, Christian spends his free time exploring digital fabrication, algorithmic art and electronics and is often found at FabLab Winti. Despite his introvert nature, he enjoys teaching workshops in the Maker community and exhibiting at Maker Faires. After discovering the PewPew, he has contributed to its software development and has used it in various workshops.

Radomir Dopieralski



Works as a Python programmer, plays with electronics as a hobby. Builds game consoles, walking robots, mechanical keyboards, electronic badges and all sorts of fun gadgets. Also makes video games, participates in several wikis, draws and plays ocarina.

Build a Handheld Game Console

Solder a game handheld, program it in Python, expand it with electronics

Become a full-stack game developer! Start by soldering your own pocket-sized console, and then program a game for it with CircuitPython. Then expand the hardware with various sensors and electronic components. Bring a laptop and a micro-USB cable, you will receive all the remaining parts and take them home with you. No prior experience with electronics required.

SWITCH

SWITCH is the competent and trusted partner for digitalisation issues that jointly concern the education, research and innovation community in Switzerland. The independent foundation helps universities and other partners within and outside the academic world to make effective and efficient use of the opportunities presented by digitalisation. SWITCH has been the registry for .ch and .li domain names since the early days of the internet. SIB partners with SWITCH's competence centre for security on the internet. SWITCH operates a multi-sector Computer Emergency Response Team providing services for universities as well as for the private sector.

Hack the Hacker - the escape room

A click on a link in an email infects the computer system of your organization with ransomware. It's up to you and your team to rescue the data. The mission of your team is to find the code that revokes the encryption executed by the malicious software. Together with up to 5 people you have to search the hacker's den for hidden hints and clues.

SWITCH

Hackathon

15.10 17.10

Opening Ceremony
Friday, 15.10. 15:00 - 17:00

- Welcome by VIS and D-INFK
- Opening speech by Gabriela Keller - CEO of Ergon
- Presentation of the schedule and Hackathon projects
- Apéro

Hackathon Start
Friday, 15.10. 18:00

- Introduction of mentors
- Assigning teams with projects

Hackathon End & Closing Ceremony
Sunday, 17.10. 13:30

- Presentation of the completed projects
- Closing speech by Flavio Pfaffhauser - Co-founder of Beekeeper
- Award ceremony

15:30 15:40 F30

Gabriela Keller

Gabriela Keller is Ergon Informatik AG's CEO. She holds a degree in IT engineering from the ETH Zurich and joined Ergon – after a stint at the ETH's Institute of Information Systems – in 1994 as a software developer and project manager. She was promoted to the Executive Board in the year 2000 and became CEO in July 2016.

Outside the office, she can be found running, cycling or skiing, preferably in the mountains or in Ticino. Her interests include architecture and culture, and she is a member of the Etzel Lions Club.

Flavio Pfaffhauser

Flavio Pfaffhauser is co-founder and Chief Innovation Officer at Beekeeper, an ETH spin-off company that develops an award-winning digital workplace app that digitizes the non-desk workforce. As Beekeeper grew to become a multinational company, Flavio has never stopped pushing the boundaries of his own vision and looking for new ways to shape the digital workplace for 2 billion non-desk employees worldwide. Flavio believes that any company needs to constantly innovate in order to stay relevant and anticipate the realities of tomorrow. That's why he started the Innovation Labs at Beekeeper to be a guiding light, explore future trends and solve the biggest challenges Beekeeper's customers face.

ergon

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A big THANK YOU to our sponsors!
VIScon would not be a reality without you!

Main Sponsor
Airlock

Airlock® delivers security innovation technology built with state-of-the-art software engineering by Ergon Informatik, Established in 2002, we are deeply committed to advancing security innovation.

The Airlock® Secure Access Hub protects more than 30,000 applications against unauthorised access, globally, with over 20 million active identities.

The Hub is the only one of its kind in the world that provides an integrated solution composed of: API Edge Gateway, Customer Identity and Access Management, and Web Application Firewall.

Airlock® is a sub-division of the preferred-employer Ergon, with a current fleet of 65 members of staff, and growing rapidly.

We are famous for our collaborative, transparent and innovation-driven work culture, which ensures that we continuously strive to improve across the entire organisation.

VIScon is a great opportunity to connect with future generations of software engineers who have a passion for security. We look forward to sharing how an idea can evolve into a successful product, and to debate with you on the latest security and privacy trends.
See you there!

Main Sponsor
Beekeeper

Beekeeper exists because we believe people should be happy at work and have all the tools they need to perform their jobs at the highest level. At Beekeeper, we bring the digital workplace to non-desk workers through our communication and productivity platform to connect those who were previously disconnected. We believe in the potential and contribution of every single employee and see the value in making them feel a sense of belonging at work. Informed, motivated, and empowered employees are the driving forces behind a company's success.

Why do you support VIScon?
As an ETH spin-off we believe sharing passion in our field sparks more passion. We got the support from the ETH community when we were starting our business and now as a successful global scaleup we want to support and inspire the next generation of computer scientists in their journey in the tech industry.

Main Sponsor
Ergon

Ergon is a Swiss leader in leveraging digitalisation to create unique and effective client benefits, from concept to market success. As a result, we distribute globally revered products, such as the award-winning Airlock® Secure Access Hub.

We combine our extensive technological, security and business experience to design "smart" solutions from complex problems. Anticipating tech trends, Ergon's highly-qualified experts develop and deploy user- friendly, custom software, as well as proven, off-the- shelf products, for many industries, worldwide. We believe in the value of 'Swissness' and our services and software are all located and made in Zürich.

Founded in 1984, the company now employs 350 members of staff, across three sites, and is based in the heart of Zürich. All locations are within a five-minute walking distance of each other, near Lake Zürich.

Over the years, we have been repeatedly named as one of the best Swiss employers, most recently receiving the distinction in 2018 and in 2019 as the best employer based in Zurich.

Ergon supports numerous initiatives to promote next-generation talents in computer science. Our goal is to inspire young people for our industry and our profession. We have been supporting VIS for many years and we very much look forward to meeting you!

Main Sponsor
ipt - Innovation Process Technology

We are a Swiss IT consulting company. Despite being on the market for more than 20 years, we have retained our start-up mentality: 160 people. Flat hierarchy. Lots of fun! We develop innovative software solutions on-site and together with our customers using leading-edge technologies. Our focus is AI + data, digital experience, cloud and agile organizations. Our people define who we are! Employees are our backbone, and everyone can contribute. We share our knowledge and support each other. Together, we make technology valuable.

We are very enthusiastic about VIScon as we have a lot in common: We love adventurous and innovative missions and we believe that with strong teamwork and a positive mindset you will face every challenge in this hackathon. Even last year, when Covid hit, you guys didn't lose your positive drive and put on a cool hybrid VIScon. We think that is awesome! The opportunity to share, interact, and connect within a community is exactly what we aspire at ipt! At every VIScon we have a lot of fun and many highlights with you. We love to see your great results of the hackathon and to talk with you about hot topics from the IT industry. Like every year, our people, who were also university grads, will be on-site to have a talk and a workshop with you about leading-edge technologies and topics from the industry. Jakob Beckmann, Matthias Geel and Benjamin Bürgisser are looking forward to meeting you and to share their expertise with you. See you there!

Co - Sponsor
BSI

Founded in 1996. Specializing in state-of-the-art omnichannel software for customer data management and marketing automation. At home in Baar, Baden, Bern, Düsseldorf, Darmstadt, Hamburg, Munich, and Zurich. 360 of us, with 247 employees being part owners. No hierarchies. No organigram. We are a network and work with a concept of roles. The same opportunities and initial salaries for everyone. Strong values. That's who we are.

When BSI was originally founded, large-scale monolithic software systems were state of the art. However, due to digitalization and the higher demands of the entire industry, we have been developing highly complex, multi-modular software systems. To enhance those, we have been investing many of our resources in developing software that uses data in an even more intelligent way. This is achieved by using artificial intelligence, cloud-based infrastructures and modern as well as independent front ends. These are very inspiring and promising times for Computer Scientists. We are looking forward to a challenging, but at the same time exciting future.

We like the idea of VIScon to offer a platform for students and companies to connect with each other and exchange knowledge in the fields of ComputerScience and Engineering. We are convinced that many new ideas will be created and inspiring talks will be conducted in this way. Moreover, the wide range of offers (talks, workshops, exhibitions & networking lunches) sounds very interesting and enhances the knowledge sharing between all participants indifferent ways. We are looking very forward to getting in touch with young professionals from such a renowned university.

Co - Sponsor
Zühlke

Ideas that change the world.
An idea is a powerful thing. But a lot has to happen before an idea becomes an innovation—something that changes the world.
That's what we do for a living.
We're Zühlke, the global innovation service provider.
We work with interesting, ambitious companies, helping them bring their ideas to the world.
It's incredibly challenging, invigorating and rewarding work.
It's also difficult work that demands patience and persistence.
Work that demands courage, rewards curiosity and insists on integrity—on being honest with ourselves and true to our values and standards.
When it all comes together, it's the most exciting work.

Elegant solutions to complex problems
Every company has smart people. What makes our work stand out is that we stay with problems longer than most.
Our work is all about combining different disciplines to solve tricky problems and seize opportunities. We do that in four spheres of activity:
-Strategy and business innovation.
-Device and systems engineering.
-Digital solutions and application services.
-Data and AI solutions.

The birth of innovation
Founded in 1968 by Gerhard Zühlke, we just might be the first company ever to focus on innovation. Back then, it meant hardware and engineering. Today, it also includes everything from AI and the Internet of Things to new business models and value chains.
Today, we're a new kind of company: an innovation service provider on a mission to release the power of ideas.
So much has changed since 1968. What hasn't changed are our values and our commitment to refreshing solutions and remarkable outcomes for our clients.
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VIScon is brought to you by:

For the more than 1,600 Bachelor and Master students of Computer Science, Data Science and Computational Biology and Bioinformatics at ETH Zurich, VIS is the first point of contact for events, excursions, support during their studies and university political representation towards the Department of Computer Science of the ETH.

All these services, from welcome weekends for first-semester students, through exam preparation courses for the most important exams, to the largest academic job fair for computer science in Switzerland, are organized entirely on a voluntary basis by around 230 students alongside their studies.

VIS is part of the VSETH, the umbrella organization of all student organizations at ETH, which represents the more than 20,000 students towards the university in terms of university politics and, like VIS, is omnipresent in student life outside the lecture halls.

Email: vis@vis.ethz.ch
Adresse: VIS-Verein der Informatik Studierenden
CAB E31
Universitätstrasse 6
8006 Zürich
Auflage: 500

vseth Fachverein Verband der Studierenden an der ETH

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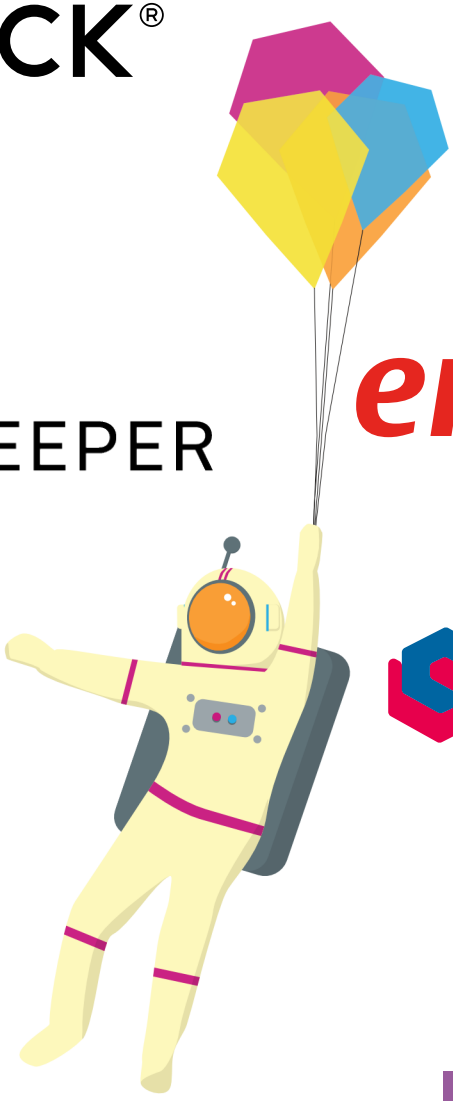

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