Events in 2017 and projects for 2018

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CONTENT

IRIXYS – Events in 2017 and projects for 2018

EVENTS 2017

- ▪ **Graduation ceremony of the students of the IFIK-MDPS PhD-Track Programme**

27/01/2017

Students of the French-German double master degree IFIK "Computer Science, Information and Communication" (Univ. Passau/INSA Lyon) have been awarded the academic degree "Master of Science" of the University of Passau. The graduation ceremony took place in Passau on the 27th of January 2017 and gathered all Bachelor, Master and PhD graduates of the Faculty of Informatics and Mathematics.
The IFIK students also received at the INSA Lyon the French engineering degree in Computer Science of the INSA Lyon, "Diplôme d'Ingénieur en Informatique".

Pictures credits: University of Passau

Master Graduates:
Anthony Faraud, Mathieu Garchery, Okba Khenissi, Patrizia Peller, Camille Pernoud, Bilel Tmar, Léo Vetter.

PhD Graduate:
Merza Klaghstan
PhD topic: "Video Data Dissemination in Opportunistic Networks, a Scalable Scheme Towards a Better User-Viewing-Experience" (Joint PhD Univ. Passau/INSA Lyon)

- **Prof. Kosch, President of the scientific committee of the French-German University**

09-10/03/2015

Prof. Kosch, co-director of the MDPS doctoral college was elected on the 9th of March 2017 President of the scientific committee of the French-German University (DFH-UFA) for the period 2017-2020.

Prof. Kosch has been since 2013 actively involved in the activities of the DFH-UFA, first as a member of the scientific committee, secondly as its Vice President. He is since 2008 co-director of the MDPS doctoral college and since 2013 of the PhD-Track programme IFIK-MDPS supported by the DFH-UFA.

The purpose of the scientific committee is to advise the council and executive committee of the DFH-UFA on continuous improvement and further development measures regarding research and teaching issues. One of its main tasks is the scientific monitoring of evaluation procedures.

Pictures credits: Iris Maurer

- **Albin Petit PhD thesis defense**

15/03/2017

Albin Petit completed his joint PhD or "cotutelle" between the INSA Lyon and the University of Passau under the supervision of Prof. Lionel Brunie (INSA Lyon) and Prof. Michael Granitzer (Univ. Passau) on "Introducing Privacy in Current Web Search Engines" within the international doctoral college MDPS.

The PhD defense took place on the 15th of March 2017 in front of a jury composed of Dr. Sonia Ben-Mokhtar (INSA Lyon), Prof. Catherine Berrut (Université Grenoble Alpes), Prof. Claude Castelluccia (INRIA Grenoble), Prof. Rüdiger Kapitza (TU Braunschweig), Prof. Harald Kosch (Universität Passau) and Dr. Mathias Lux (Universität Klagenfurt).

Abstract of the PhD thesis:

During the last few years, the technological progress in collecting, storing and processing a large quantity of data for a reasonable cost has raised serious privacy issues. Privacy concerns many areas, but is especially important in frequently used services like search engines (e.g., Google, Bing, Yahoo!). These services allow users to retrieve relevant content on the Internet by exploiting their personal data. In this context, developing solutions to enable users to use these services in a privacy-preserving way is becoming increasingly important.

In this thesis, we introduce SimAttack an attack against existing protection mechanism to query search engines in a privacy-preserving way. This attack aims at retrieving the original user query. We show with this attack that three representative state-of-the-art solutions do not protect the user privacy in a satisfactory manner.

We therefore develop PEAS a new protection mechanism that better protects the user privacy. This solution leverages two types of protection: hiding the user identity (with a succession of two nodes) and masking users' queries (by combining them with several fake queries). To generate realistic fake queries, PEAS exploits previous queries sent by the users in the system.

Finally, we present mechanisms to identify sensitive queries. Our goal is to adapt existing protection mechanisms to protect sensitive queries only, and thus save user resources (e.g., CPU, RAM). We design two modules to identify sensitive queries. By deploying these modules on real protection mechanisms, we establish empirically that they dramatically improve the performance of the protection mechanisms

The thesis is available in open access [>>](#)

- **Summer School "Big Data and Business: Methods, Technologies and Innovation"**

16-21/07/2017

The Departments of Computer Science of the University of Passau, the INSA Lyon and the University of Milan (Università degli Studi di Milano) in cooperation with the industrial partners Atos and Worldline and the support of the French-German University organized the Summer School "Big Data and Business: Methods, Technologies and Innovation". The event took place in the Frauenwörth abbey, on the Chiemsee Lake in Bavaria from July 16th to July 21st 2017.

The scientific event gathered experts, professors, young researchers and industrials and fostered the exchange of innovative ideas and intensive discussions on disruptive topics in the field of Big Data Analytics, Internet of Things, Machine learning, IT-Security and Privacy. The Summer School was officially opened by representatives of the French-German University (the President, Prof. Patricia Oster-Stierle and the Vice President, Prof. David Capitant), the President of the University of Passau, Prof. Carola Jungwirth, Mr Daniele Crespi, representative of the Lombardy region, Dr. Paul Alibert, the attaché for academic and research cooperation representing the French General Consul in Bavaria and Philippe Mareine, Head of Group HR and Global Siemens Alliance Atos.

During the event, invited speakers were able to deliver their expertise in their research topics, PhD students to expose the latest state of their research works related to their PhD thesis and Atos HR staff to address future challenges in a big company in the context of the digital revolution.

"Scientific and Business Socialising" sessions dealing with "Pre-Trained Model / Deep Learning" and "Industrial Data Space" topics aimed at bringing together PhD students and researchers from academia and industry and developing a scientific reflexion on disruptive and complex issues.

Besides the scientific nature of the Summer School, participants of various nationalities could benefit from an intercultural experience, learn more about French-German cooperation, history and Bavarian culture (through the visit of the Herrenchiemsee Castle) and establish sustainable contacts with other researchers.

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Programme of the talks of the Summer School

Monday, 16th July

- Prof. Dr. Benno Stein (Bauhaus-Universität Weimar) - *"Societal Challenges of Information Retrieval"*
- Ulrich Häring (Atos) - *"To the Cloud and Beyond - Identity and Access Management of the future*
- Mathieu Garchery (Atos/Univ. Passau) *"Identity and Access Management for the Internet of Things: an error detection and correction perspective"*
- Ghaieth Barhoumi (Atos/Univ. Passau) - *"Risk Level Evaluation Using Deep Learning and Audit Data"*
- Dr. Marc Duranton (CEA) - *"Bringing intelligence to the edge"*
- Johannes Jurgovsky (Univ. Passau/INSA Lyon) - *"Sequence Classification for Credit-card Fraud Detection"*
- Dr. Hubert Tardieu (Atos CEO Advisor) - *"Journey 2020 - Digital Shockwaves in Business"*

Tuesday, 17th July

- Prof. Dr. Nicolas Vayatis (ENS Cachan) - *"A machine learning approach to scoring - theory, algorithms and applications"*
- Dr. Konstantin Ziegler (Univ. Passau) - *"Representation and Transfer Learning with Deep Neural Networks"*
- Yvan Lucas (INSA Lyon/Univ. Passau) - *"Pairing Machine Learning with Anomaly Detection for Credit Card Fraud Detection"*
- Sullivan Daly (INSA Lyon*) - "Analysis geographically centered of publication on social network"*
- Jordan Fréry (Worldline) - *"Gradient Boosting by optimizing Ranking Measures"*
- Rémi Canillas (INSA Lyon) - *"Detection of User Authentication Fraud in a B2B Environment"*
- Prof. Ernesto Damiani (Univ. Milano / CINI - Consorzio Interuniversitario Nazionale per l'Informatica)- *"Big Data Research activities in TOREADOR project"*

Wednesday, 18th July

- Prof. Dr. Gianluca Bontempi (Université Libre de Bruxelles) - *"Machine Learning Strategies for Time Series Forecasting"*
- Dr. Elisa Fromont (Univ. St-Etienne) - *"Unsupervised Interpretable Pattern Discovery in Time Series Using Autoencoders"*
- Felix Remmel (Worldline) - *"Fraud Solutions - Rules and Models at work"*
- Dr. Tobias Mayer (INSA Lyon) - *"Data traceability platform – development status"*
- Armin Gerl (Univ. Passau) - *"Preserving Privacy utilizing LPL"*

Thursday, 19th July

- Damien Fourure (Univ. St-Etienne) - *"Deep Neural Network for Semantic Segmentation"*
- Guillaume Metzler (Univ. St-Etienne) - *"Learning Maximum Excluding Ellipsoids in Unbalanced Scenarios with Theoretical Guarantees"*
- Roland Wossidlo, Alexander Pauls, Lea Bergbauer, Karl Zupfer, Jochen Gemke (Atos) - *"People trends towards 2020"*
- Victor Charpenay (Siemens / Univ. Passau) - *"Semantic Discovery in the Web of Things"*
- Andreas Wölfl (Univ. Passau) - *"Certified Data Management in Avionics Systems"*
- Sophie Cerf (INSA Lyon) - *"PULP: Achieving Privacy and Utility Trade-off in User Mobility Data"*
- Diana Nurbakova (INSA Lyon) - *"DesIR: Introducing Psychological Profiles into Recommendation of Leisure Activities"*

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- Fatemeh Salehi Rizi (Univ. Passau) - *"Global and Local Feature Learning for Social Network Analysis"*
- Bahar Sepehri (Univ. Milano) - *"An Efficient Inner-Product Proxy Re-Encryption for Secure Data Sharing"*
- Corrado Mio (Univ. Milano) - *"Application of a Bayesian histogram dissimilarity metrics in learning from sparse data"*

Friday, 21st July

- Tarek Awwad (INSA Lyon/Univ. Passau) - *"History-based Learning for Worker Selection in Crowdsourcing Systems"*
- Wiem Fekih Hassen (INSA Lyon) - *"UbiNavi: Ubiquitous Pedestrian Navigation Service"*
- Leopold Fossi Ghemmogne (Univ. Milano) - *"A Graph Restricted Game approach to the management"*
- Mohamed Maouche (INSA Lyon) - *"SFERA: Assessing Location Privacy with Re-Identification Attacks"*

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- **PasDaS – Passauer Data Science Conference**

12-13/10/2017

The second Data Science Conference (PasDaS2017) took place at the University of Passau on the 12th and 13th of October 2017. The event is an initiative of Chair for Data Science headed by Prof. Michael Granitzer from the University of Passau and ONE LOGIC GmbH, a company of Passau specialized in software development consulting.

The scientific event focused on new scientific methods and technological trends in the field of data analysis and comes under the research agenda of IRIXYS.

For more information *>>*

Picture credits: Chair for Data Science, Univ. Passau

IRIXYS – Events in 2017 and projects for 2018

▪ **French-German student fair**

10-11/11/2017

Prof. Lionel Brunie for the INSA Lyon and Morwenna Joubin for the University of Passau participated at the student fair of the DFH-UFA and presented the IFIK-MDPS PhD-Track programme on the Franco-Bavarian information stand and at the panel discussion on "Science and Technology" curricula.

Pictures credits: CCUFB-BFHZ

The 19th edition took place on November 10th and 11th 2017 at the Congress Centre in Strasbourg.

The French-German Forum specialized in French-German higher education brings together each year more than 120 exhibitors among which a hundred institutions of higher education, institutions (universities, engineering and business schools) and companies, from France, Germany, Luxembourg, Switzerland, Belgium and Austria in particular and welcomes around 6000 visitors. It promotes binational and trinational study programmes and academic cooperation between France and Germany.

Pictures credits: DFH-UFA

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- **19th IRIXYS workshop**

27/11-01/12/2017

The 19th IRIXYS workshop took place in Hendaye, France from the 27th November to the 1st December. Together with the INSA Lyon, the Università degli Studi di Milano and the University of Passau, the event has been co-organized by the SPIDER Team (Semantic and Privacy in Digital Ecosystems) of the Computer Science Department of the University of Pau (Université de Pau et des Pays de l'Adour).

A collaboration agreement was signed on the 30th of November confirming the SPIDER Research Group headed by Prof. Richard Chbeir as the 4th member of the IRIXYS consortium.

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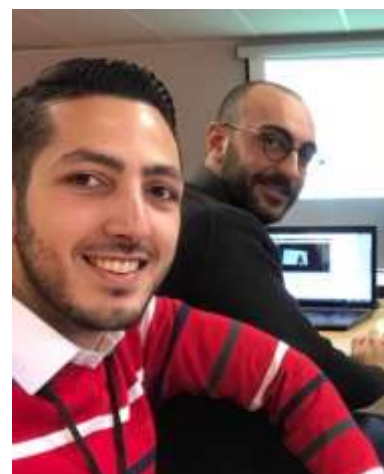
IRIXYS – Events in 2017 and projects for 2018

Programme of the talks

Monday, 27th November

- Rémi Canillas (INSA Lyon) - *"Confidential Machine Learning: impact of Data Encryption on Machine Learning Algorithms"*
- Chinnapong Angsuchotmetee (UPPA) - *"A Semantic Based Framework for Complex Event Modeling and Detection in Multimedia Sensor Networks"*
- Dr. Tobias Mayer (INSA Lyon) *"DTP Key Concept & Development Status Update Algorithms"*
- Rabia Maqsood (Univ. Milan) - *"Modeling Behavioural Dynamics of Confidence-Based Assessment"*
- Sullivan Daly (INSA Lyon) - *"Multi Criteria Tweet Analysis"*

Tuesday, 28th November

- Leopold Ghemmogne Fossi (Univ. Milan) - *"Shapley Value and Feature Selection"*
- Elio Mansour (UUPA) - *"Feature-centric Event Detection: An Application to Social and Sensor Event Detection"*
- Wiem Fekih Hassen (INSA Lyon) - *"A Pervasive Navigation System on Smartphones"*
- Benjamin Planche (Siemens/Univ. Passau) - *"Bridging the Realism Gap for Synthetic Depth Images Both Ways"*
- Michele Blank (Siemens/Univ. Passau) - *"Digital Twin Liveliness"*
- Fatemeh Salehi Rizi (Univ. Passau) - *"Shortest-path Distance Approximation in Large Networks using Deep Learning Techniques"*
- Mathieu Garchery (Atos/Univ. Passau) - "Unsupervised outlier detection with entropy-based methods"
- Victor Charpenay (Siemens/Univ. Passau) - *"What is a 'Thing' in the Web of Things"*

Wednesday, 29th November

- Nathalie Charbel (UPPA) - *"Modeling and Querying a Collective Knowledge from Heterogeneous Document Corpora"*
- Yvan Lucas (INSA Lyon/Univ. Passau) - *"Pairing Machine Learning with Anomaly Detection for Credit Card Fraud Detection"*
- Irvin Dongo (UPPA) - *"Towards Better RDF Document Matching"*

Thursday, 30th November

- Lara Kallab (UPPA) - *"Using Colored Petri Nets for Verifying RESTful Service Composition"*
- Mohamed Maouche (INSA Lyon) – *"Protecting users against re-identification attacks using Heat-Map alteration"*

Friday, 1st December

- Keynote speaker: Prof. Jose Aguilar - (Universidad de los Andes)
- Mathieu Carré (UPPA) - *"Framework and methodology for safety dimension monitoring and adaptation in Autonomous Vehicles: Semantic Mediator"*
- Fannia Pacheco (UPPA) - *"Classification techniques for the management of the 'Quality of Service' in satellite communication systems"*

The programme also included talks from the industry: Nobatek and ENEDIS.

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IRIXYS Projects 2018

2018 will be a turning point in the history of IRIXYS as the cooperation between the initiators of the Centre started 10 years ago with the establishment of the French-German doctoral college MDPS between the University of Passau and the INSA Lyon.

▪ IRIXYS External Expert Advisory Board

March 2018

The first IRIXYS External Expert Advisory Board (EEAB) will be held in Lyon in March 2018. The function of the EEAB is to advise IRIXYS and its directors in all aspects relevant to the activities of the Centre.

The activities encompass scientific cooperation aiming at supporting a joint research agenda in Intelligent Digital Systems, a joint communication and dissemination strategy, the extension of existing study programmes, the establishment of partnerships with the industry, the development of sustainable projects funded by third parties or the strengthening of institutional relations on a regional and national level.

The EEAB will be composed of nine people; for each country (France, Germany, Italy), an academic representative, an industrial representative and an institutional representative.

▪ Workshop on Transfer Learning

June 2018

A two days workshop called "Transfer Learning: Techniques and Innovation for Business" will be jointly organized by the ENS Paris, ENSIIE Paris, IRIXYS, the AIDA consortium (University of Passau, INSA Lyon, Università degli Studi di Milano, Université Jean Monnet of St-Etienne, Université Libre de Bruxelles and Université Rennes 1) in cooperation with Atos and Worldline.

This event provides continuity to the previous and successful Summer School "Big Data and Business: Methods, Technologies and Innovation" organized in July 2017. Besides the networking among the young researchers, the Summer School contributed to strengthen the contacts between academia and industrial partners initiated in the AIDA project "Linked Data for Prescriptive Analytics".

Data Analytics, Machine Learning and Transfer Learning will be at the heart of exchanges between PhD students, experts from academia and industry. In a context of global and accelerated digitalization of our societies, these topics have been identified as strategic by France and Germany as well as by the European Commission in the establishment of a digital single market in which Big Data and confidence in new technologies are of major importance.

The workshop will be held in Paris in June 2018

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- **Gargnano Talks**

June 2018

The IRIXYS members will organise a two days conference in Gargnano on Garda Lake, Italy around the topic "Collaborative Distributed Systems2. It is one of the main topics of the IRIXYS research agenda and tackles actual research issues in peer to peer applications, cyber-physical systems, Internet of Things – IoT, and industrial systems 4.0.

The event will gather invited speakers, renowned researchers and experts in the field on Collaborative Distributed Systems as well as socio economical and institutional players from France, Germany and Italy. The IRIXYS scientific committee intends to establish the Conference "Gargnano Talks" over the next few years as a reference among the scientific community of Data Science on a European level.

- **20th IRIXYS workshop in Gargnano**

June 2018

The 20th IRIXYS workshop will be held for the second time in Gargnano on Garda Lake between the 24th and 30th of June 2018.
To celebrate the 20th workshop and the 10th anniversary of the MDPS doctoral college, the workshop will combine a scientific innovation transfer conference and a MDPS corporate membership summit (Alumni for Innovation Day).

- **Alumni for Innovation Day**

June 2018

IRIXYS members intend to gather all MDPS former PhD students for a scientific innovation transfer conference and corporate membership summit on dependable distributed systems in Gargnano. The event is designated to strengthen the community building and cohesiveness of IRIXYS teams, actual students and former students.

The focus of the Alumni for Innovation Day will be on hot topics and innovation issues as they are seen by our alumni in their respective positions and companies. The event will also be a great opportunity to discuss about researcher career development and transfer of knowledge and to establish new contacts.

- **21st IRIXYS workshop in Passau**

December 2018

The 21st IRIXYS workshop bringing together the members of IRIXYS and invited speakers will take place at the University of Passau in December 2018, exactly ten years after the first workshop was organized there. Of course, this anniversary will be an opportunity to promote the results achieved by IRIXYS and to present its agenda for the next 10 years!

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