

## PROGRAM

32<sup>nd</sup> DEXA2021 Conferences & Workshops  
27 – 30 September 2021

Day 1, Monday 27 Sep 2021

*All times are Central Europe time (Vienna, which is UTC+2)  
Proceedings can be accessed at ([http://www.dexa.org/free\\_proceedings](http://www.dexa.org/free_proceedings))*

14:00 - 14:30

### OPENING

- *Gabriele Kotsis & Ismail Khalil*

Zoom Link: <https://jku.zoom.us/j/95211943907?pwd=a0VhOFFxdWhPOGNJLOVQenIsTUo0Zz09>

14:30 - 15:30

### Keynotes 1

Zoom Link: <https://jku.zoom.us/j/95211943907?pwd=a0VhOFFxdWhPOGNJLOVQenIsTUo0Zz09>

### Privacy in the Era of Big Data, Machine Learning, IoT, and 5G

*Elisa Bertino, Purdue University, USA*

Moderator: **Gabriele Kotsis**

### *Papers Presentation*

15:45 - 17:45

### Track 1

Zoom Link:

<https://jku.zoom.us/j/95825096776?pwd=Z083SUFWM1VNYmhKd3JBZ0Y5UG5odz09>

Session: **1.1\_DEXA - Big Data**

Session Chair: **Sven Groppe**

- **Subgroup Discovery with Consecutive Erosion on Discontinuous Intervals**  
*Reynald Eugenie, Erick Stattner*  
Guadeloupe, France
- **Fast SQL/Row Pattern Recognition Query Processing using Parallel Primitives on GPUs**  
*Tsubasa Ohara, Qiong Chang, Jun Miyazaki*  
Japan
- **Scalable Tabular Metadata Location and Classification in Large-scale Structured Datasets**  
*Kazi Islam, Michael Gubanov*  
USA
- **Reference Architecture for Running Large Scale Data Integration Experiments**  
*Michal Bodziony, Robert Wrembel*  
Poland
- **Unified and View-specific Multiple Kernel K-means Clustering**  
*Yujing Zhang, Siwei Wang, En Zhu*  
China

15:45 - 17:45

## Track 2

Zoom Link: <https://jku.zoom.us/j/93375610300?pwd=TUdRS3Z6dnV5VlF2cDRtNEExGZGF0dz09>Session: **1.2\_DAWAK - Performance**Session Chair: **Matteo Golfarelli**• **OPENING***Robert Wrembel & Matteo Golfarelli*• **Bounding Box Representation of Co-Location Instances for L-infinity Induced Distance Measure***Witold Andrzejewski and Pawel Boinski  
Poland*• **Benchmarking Data Lakes Featuring Structured and Unstructured Data with DLBench***Pegdwendé N. Sawadogo, Jérôme Darmont  
France*• **Towards an Adaptive Multidimensional Partitioning for Accelerating Spark SQL***Soumia Benkrid, Ladjel Bellatreche, Yacine Mestoui, and Carlos Ordonez  
Algeria, France, USA*• **Selecting Subexpressions to Materialize for Dynamic Large-scale Workloads***Mustapha Chaba Mouna, Ladjel Bellatreche, and Narhimene Boust  
Algeria, France*• **Cognitive Visual Commonsense Reasoning Using Dynamic Working Memory***Xuejiao Tang, Xin Huang, Wenbin Zhang, Travers B. Child, Qiong Hu, Zhen Liu, Ji Zhang  
Germany*• **Health Analytics on COVID-19 Data with Few-Shot Learning***Carson K. Leung, Daryl L.X. Fung, Calvin S.H. Hoi  
Canada*

15:45 - 17:45

## Track 3

Zoom Link:

<https://jku.zoom.us/j/92039279301?pwd=QVplVEVVsZmRUd1d0SFFDakNaTXZTQT09>Session: **1.3\_IWCFS**Session Chair: **Atif Mashkooor & Johannes Sametinger**

- **Mode Switching for Secure Web Applications - A Juice Shop Case Scenario**  
*Michael Riegler, Johannes Sametinger*  
Austria
- **A Conceptual Model for the Mitigation of Root Causes of Uncertainty in Cyber-Physical Systems**  
*Mah Noor Asmat, Saif Ur Rehman Khan, Atif Mashkooor*  
Pakistan, Austria
- **Security-based Safety Hazard Analysis using FMEA: A DAM Case Study**  
*Irum Inayat, Muhammad Farooq, Zubaria Inayat, Muhammad Abbas*  
Pakistan, Sweden
- **Privacy Preserving Machine Learning for Malicious URL Detection from a Security Perspective: First findings of a Systematic Literature Review**  
*Imtiyazuddin Shaik, Nitesh Emmadi, Harshal Tupsamudre, Harika Nar-umanchi, and Rajan Mindigal*  
Alasingara Bhattachar  
India
- **Remote attestation of bare-metal microprocessor software: a formally verified security monitor**  
*Jonathan Certes, Benoît Morgan*  
France
- **Provenance and Privacy in ProSA: A Guided Interview on Privacy-Aware Provenance**  
*Tanja Auge, Nic Scharlau, Andreas Heuer*  
Germany



15:45 - 17:45

**Track 4**

Zoom Link:

<https://jku.zoom.us/j/93281299781?pwd=N2RWVGZMMmNIYnFqQmNoaUtyelRXZz09>Session: **1.4\_MLKgraphs**Session Chair: **Anna Fensel & Jorge Martinez-Gil****• Placeholder constraint evaluation in simulation graphs**

**Stefan Nadschläger**, Markus Jäger, Daniel Hofer, Josef Küng  
Austria

**• Walk Extraction Strategies for Node Embeddings with RDF2Vec in Knowledge Graphs**

**Bram Steenwinckel**, Gilles Vandewiele, Pieter Bonte, Michael Weyns, Heiko Paulheim, Petar Ristoski, Filip De Turck, Femke Ongenaes  
Austria

**• Bridging Semantic Web and Machine Learning: First Results of a Systematic Mapping Study**

**Laura Waltersdorfer**, Anna Breit, Fajar J. Ekaputra, Marta Sabou  
Austria

**• On the Quality of Compositional Prediction for Prospective Analytics on Graphs**

**Lyan Gauthier**, David Gross-Amblard, Jean-Marc Jézéquel  
France

**• Semantic Influence Score: Tracing Beautiful Minds through Knowledge diffusion and Derivative Works**

**Pragnya Sridhar**, Deepika Karanji, Gambhire Swati Sampatrao, Sravan Danda, and Snehanshu Saha  
India

## PROGRAM

32<sup>nd</sup> DEXA2021 Conferences & Workshops  
27 – 30 September 2021

Day 2, Tuesday, 28 Sep 2021

*All times are Central Europe time (Vienna, which is UTC+2)*  
Proceedings can be accessed at ([http://www.dexa.org/free\\_proceedings](http://www.dexa.org/free_proceedings))

*Papers Presentation*

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09:00 - 11:00

**Track 1**

Zoom Link:

<https://jku.zoom.us/j/95825096776?pwd=Z083SUFWM1VNYmhKd3JBZ0Y5UG5odz09>

Session: **2.1\_DEXA - Data Analysis and Data Modeling 1**

Session Chair: **Hamidah Ibrahim**

- **Augmented Lineage: Traceability of Data Analysis Including Complex UDFs**  
*Masaya Yamada*, Hiroyuki Kitagawa, Toshiyuki Amagasa, Akiyoshi Matono  
Japan
- **Neural Ordinary Differential Equations for the Regression of Macroeconomics Data under the Green Solow Model**  
*Zi-Yu Khoo*, Kang Hao Lee, Zhibo Huang, Stéphane Bressan  
Singapore
- **Quantum-Inspired Neural Network Model for Predictive BPaaS Management**  
*Ameni Hedhli*, Haithem Mezni, Lamjed Ben Said  
Tunisia
- **Predicting Psychiatric Diseases using AutoAI: A Performance Analysis based on Health Insurance Billing Data**  
*Markus Bertl*, Peeter Ross, Dirk Draheim  
Estonia
- **Improving Billboard Advertising Revenue using Transactional Modeling and Pattern Mining**  
*P. Revanth Rathan*, *P. Krishna Reddy*, and Anirban Mondal  
India

09:00 - 11:00

**Track 2**

Zoom Link:

<https://jku.zoom.us/j/93375610300?pwd=TUdRS3Z6dnV5VlF2cDRtNExGZGF0dz09>Session: **2.2\_DAWAK - Prediction Techniques & Knowledge Representation**Session Chair: **Ladjel Bellatreche****Prediction Techniques**

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**• A chain composite item recommender for lifelong pathways**

*Alexandre Chanson, Thomas Devogele, Nicolas Labroche, Patrick Marcel, Nicolas Ringuet, Vincent T'Kindt*  
France

**Knowledge Representation**

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**• Universal Storage Adaption for Distributed RDF-triple Stores**

*Ahmed Al-Ghezi and Lena Wiese*  
Germany

**• RDF data management is an analytical market, not a transaction one**

*Olivier Curé, Christophe Callé, Philippe Calvez*  
France

**• Document Ranking for Curated Document Databases using BERT and Knowledge Graph Embeddings: Introducing GRAB-Rank**

*Iqra Muhammad, Danushka Bollegala, Frans Coenen, Carrol Gamble, Anna Kearney, Paula Williamson*  
United Kingdom



09:00 - 11:00

**Track 3**

Zoom Link:

<https://jku.zoom.us/j/92039279301?pwd=QVplVEVsZmRUd1d0SFFDakNaTXZTQT09>Session: **2.3\_DEXA - Knowledge Discovery**Session Chair: **Alfredo Cuzzocrea**

- **Toward New Model for Handling Inconsistency Issues in DL-Lite Knowledge Bases**  
*Ghassen Hamdi, Mohamed Nazih Omri*  
Tunisia
- **ContextWalk: Embedding Networks with Context Information Extracted from News Articles**  
*Chaoran Chen, Mirco Schönfeld, Jürgen Pfeffer*  
Germany, Switzerland
- **FIP-SHA - Finding Individual Profiles through SHared Accounts**  
*Carolina Nery, Renata Galante, Weverton Cordeiro*  
Brazil
- **A Tag-Based Transformer Community Question Answering Learning-to-Rank Model in the Home Improvement Domain**  
*Macedo Maia, Siegfried Handschuh, Markus Endres*  
Germany, Switzerland
- **An Autonomous Crowdsourcing System**  
*Yu Suzuki*  
Japan

09:00 - 11:00

## Track 4

Zoom Link:

<https://jku.zoom.us/j/93281299781?pwd=N2RWVGZMMmNIYnFqQmNoaUtyeIRXZz09>Session: **2.4\_DEXA - Machine Learning 1**Session Chair: **Allel Hadjali**

- **The Effect of IoT Data Completeness and Correctness on Explainable Machine Learning Models**  
*Shelernaz Azimi, Claus Pahl*  
Italy
- **Analysis of Behavioral Facilitation Tweets for Large-Scale Natural Disasters Dataset using Machine Learning**  
*Yu Suzuki, Yoshiki Yoneda, Akiyo Nadamoto*  
Japan
- **MMEnsemble: Imbalanced Classification Framework using Metric Learning and Multi-sampling Ratio Ensemble**  
*Takahiro Komamizu*  
Japan
- **Evaluate the Contribution of Multiple Participants in Federated Learning**  
*Zhaoyang You, Xinya Wu, Kexuan Chen, Xinyi Liu, Chao Wu*  
China



11:30 - 13:00

## Track 1

Zoom Link:

<https://jku.zoom.us/j/95825096776?pwd=Z083SUFWM1VNYmhKd3JBZ0Y5UG5odz09>Session: **2.5\_DEXA - Data Analysis and Data Modeling 2**Session Chair: **Sonali Agarwal**

- **Sarcasm Detection for Japanese Text Using BERT and Emoji**

*Yoshio Okimoto, Kosuke Suwa, **Jianwei Zhang**, and Lin Li  
Japan, China*

- **Signalaw PBSA - A Deep Learning Model for Aspect-Based Sentiment Analysis for the Legal Domain**

*Isanka Rajapaksha, Chanika Ruchini Mudalige, Dilini Karunaratna, Nisansa de Silva, **Amal Shehan Perera**,  
Gathika Ratnayaka  
Srilanka*

- **BERT based sentiment analysis: A software engineering perspective**

***Himanshu Batra**, Narinder Singh Punn, Sanjay Kumar Sonbhadra, Sonali Agarwal  
India*

- **A Stochastic Block Model based Approach to Detect Outliers in Networks**

*Fabrizio Angiulli, Fabio Fasseti, **Cristina Serrao**  
Italy*

- **Medical-Based Text Classification Using FastText Features and CNN-LSTM Model**

***Mohamed Walid Zeghdaoui**, Omar Bousaid, Fadila Bentayeb, Frederik Joly  
France*

11:30 - 13:00

## Track 2

Zoom Link:

<https://jku.zoom.us/j/93375610300?pwd=TUdRS3Z6dnV5VlF2cDRtNExGZGF0dz09>Session: **2.6\_DAWAK - Advanced Analytics**Session Chair: **Rim Moussa**

- **Spark based Text Clustering Method using Hashing**

*Mohamed Aymen Ben HajKacem, Chiheb-Eddine Ben N'Cir, and Nadia Essoussi  
Tunisia, Saudi Arabia*

- **Impact of textual data augmentation on linguistic pattern extraction to improve the idiomaticity of extractive summaries**

*Abdelghani Laifa, Laurent Gautier, and Christophe Cruz  
France*

- **Explainability in Irony Detection**

*Ege Berk Buyukbas, Adnan Harun Dogan, Asli Umay Ozturk, and Pinar Karagoz  
Turkey*

- **Contextual and Behavior Factors Extraction from Pedestrian Encounter Scenes Using Deep Language Models**

*Jithesh Gagan Sreeram, Xiao Luo and Renran Tian  
USA*

- **Efficient Graph Analytics in Python for Large-scale Data Science**

*Xiantian Zhou and Carlos Ordonez  
USA*

11:30 - 13:00

## Track 3

Zoom Link:

<https://jku.zoom.us/j/92039279301?pwd=QVplVEVsZmRUd1d0SFFDakNaTXZTQT09>Session: **2.7\_DEXA - Data and Information Processing**Session Chair: **Soumyava Das**

- **An Urgency-aware and Revenue-based Itemset Placement Framework for Retail Stores**  
*Raghav Mittal, Anirban Mondal, Parul Chaudhary, P. Krishna Reddy*  
India
- **NV-QALSH: An NVM-Optimized Implementation of Query-Aware Locality-Sensitive Hashing**  
*Zhili Yao, Jiaqiao Zhang, Jianlin Feng*  
China
- **NCRedis: An NVM-Optimized Redis with Memory Caching**  
*Jiaqiao Zhang, Zhili Yao, Jianlin Feng*  
China
- **A Highly Modular Architecture for Canned Pattern Selection Problem**  
*Marinos Tzanikos, Maria Krommyda, Verena Kantere*  
Greece
- **AutoEncoder for Neuroimage**  
*Mingli Zhang, Fan Zhang, Jianxin Zhang, Ahmad Chaddad, Fenghua Guo, Wenbin Zhang, Ji Zhang, Alan Evans*  
Canada, China, USA, Australia



11:30 - 13:00

**Track 4**

Zoom Link:

<https://jku.zoom.us/j/93281299781?pwd=N2RWVGZMMmNIYnFqQmNoaUtyeIRXZz09>Session: **2.8\_DEXA - Machine Learning 2**Session Chair: **Dhaval Patel**

- **DFL-Net: Effective Object Detection via Distinguishable Feature Learning**

*Jia Xie, Shouhong Wan, Peiquan Jin*  
China

- **Transfer Learning for Larger, Broader, and Deeper Neural-Network Quantum States**

*Remmy Zen, Stephane Bressan*  
Singapore

- **LGTM: A Fast and Accurate kNN Search Algorithm in High-dimensional Spaces**

*Yusuke Arai, Daichi Amagata, Sumio Fujita, Takahiro Hara*  
Japan

- **TSX-Means: An optimal k search approach for time series clustering**

*Jannai Tokotoko, Nazha Selmaoui-Folcher, Rodrigue Govan, and Hugues Lemonnier*  
New Caledonia

- **A Globally Optimal Label Selection Method via Genetic Algorithm for Multi-label Classification**

*Tianqi Ji, Jun Li, Jianhua Xu*  
China

- **Using Cross Lingual Learning for Detecting Hate Speech in Portuguese**

*Anderson Almeida Firmino, Claudio de Souza Baptista, and Anselmo Cardoso de Paiva*  
Brazil

14:30 - 15:30

**Keynote 2**

Zoom Link:

<https://jku.zoom.us/j/95211943907?pwd=a0VhOFFxdWhPOGNJL0VQenIsTUo0Zz09>**Don't handicap AI without Explicit Knowledge**

**Amit Sheth**, *University of South Carolina, Columbia, USA*

Moderator: **Amin Tjoa**

15:45 - 17:45

## Track 1

Zoom Link:

<https://jku.zoom.us/j/95825096776?pwd=Z083SUFWM1VNYmhKd3JBZ0Y5UG5odz09>Session: **2.9\_DEXA - Semantic Web and Ontologies**Session Chair: **Elaheh Pourabbas**

- **Discovering HOI Semantics from Massive Image Data**  
*Mingguang Zheng, Shouhong Wan, Peiquan Jin*  
China
- **Fuzzy Ontology-Based Possibilistic Approach for Document Indexing Using Semantic Concept Relations**  
*Kabil Boukhari, Mohamed Nazih Omri*  
Tunisia
- **Multi-Objective Recommendations and Promotions at TOTAL**  
*Idir Benouaret, Mohamed Bouadi, Sihem Amer-Yahia*  
France
- **An Effective Algorithm for Classification of Text with Weak Sequential Relationships**  
*Qiqiang Xu, Ji Zhang, Ting Yu, Wenbin Zhang, Mingli Zhang, Yonglong Luo, Fulong Chen, and Zhen Liu*  
China, Australia, USA, Canada
- **PatRIS: Patent Ranking Inventive Solutions**  
*Xin Ni, Ahmed Samet, Hicham Chibane, Denis Cavallucci*  
France

15:45 - 17:45

## Track 2

Zoom Link:

<https://jku.zoom.us/j/93375610300?pwd=TUdRS3Z6dnV5VlF2cDRtNExGZGF0dz09>Session: **2.10\_DEXA - Data Mining**Session Chair: **A Min Tjoa**

- **Diversified Pattern Mining on Large Graphs**

*Xin Wang, Liang Tang, Yong Liu, Huayi Zhan, Xuanzhi Feng*  
China

- **EHUCM: An Efficient Algorithm for Mining High Utility Co-location Patterns from Spatial Datasets with Feature-Specific Utilities**

*Yinqiao Li, Lizhen Wang, Peizhong Yang, Junyi Li*  
China

- **BERT-based Multi-Task Learning for Aspect Based Opinion Mining**

*Manil Patel, Christie I. Ezeife*  
Canada

- **GPU-accelerated vertex orbit counting for 5-vertex subgraphs**

*Shuya Suganami, Toshiyuki Amagasa*  
Japan



15:45 - 17:45

**Track 3**

Zoom Link:

<https://jku.zoom.us/j/92039279301?pwd=QVplVEVsZmRUd1d0SFFDakNaTXZTQT09>Session: **2.11\_DEXA - Information Retrieval**Session Chair: **Toshiyuki Amagasa**

- **Improving Quality of Ensemble Technique for Categorical Data Clustering Using Granule Computing**  
*Rahmah Brnawy, Nematollaah Shiri*  
Canada
- **Online Optimized Product Quantization for Dynamic Database using SVD-Updating**  
*Kota Yukawa, Toshiyuki Amagasa*  
Japan
- **Querying collections of tree-structured records in the presence of within-record referential constraints**  
*Foto N. Afrati, Matthew Damigos*  
Greece
- **Dealing with Plethoric Answers of SPARQL Queries**  
*Louise Parkin, Brice Chardin, Stephane Jean, Allel Hadjali, Mickael Baron*  
France

15:45 - 17:45

**Track 4**

Zoom Link:

<https://jku.zoom.us/j/93281299781?pwd=N2RWVGZMMmNIYnFqQmNoaUtyeIRXZz09>Session: **2.12\_ProTime**Session Chair: **Florian Sobieczky**

- **ProTime Keynotes Talk**

*Prof. Siegfried Hoermann*

- **Approximate Fault Tolerance for Edge Stream Processing**

*Daiki Takao, Kento Sugiura, Yoshiharu Ishikawa  
Japan*

- **Time Series Pattern Discovery by Deep Learning and Graph Mining**

*Alex Romanova  
Austria*

- **Deep Learning Rule for Efficient Changepoint Detection in the Presence of non-linear Trends**

*Salma Mahmoud, Jorge Martinez-Gil, Patrick Praher, Bernhard Freudenthaler and Alexander Girkingner  
Austria*

## PROGRAM

32<sup>nd</sup> DEXA2021 Conferences & Workshops  
27 – 30 September 2021

Day 3, Wednesday, 29 Sep 2021

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Proceedings can be accessed at ([http://www.dexa.org/free\\_proceedings](http://www.dexa.org/free_proceedings))

*Papers Presentation*

09:00 -11:00

## Track 1

Zoom Link:

<https://jku.zoom.us/j/95825096776?pwd=Z083SUFWM1VNYmhKd3JBZ0Y5UG5odz09>

Session: **3.1\_DEXA - Prediction and Decision Support 1**Session Chair: **Piotr Wisniewski**

- **Feature Selection and Software Defect Prediction by Different Ensemble Classifiers**  
*Natalya Shakhovska, Vitaliy Yakovyna*  
Ukraine, Poland
- **Shared-Memory Parallel Hash-Based Stream Join in Continuous Data Streams**  
*Peyman Behzadnia*  
USA
- **Traffic Flow Prediction through the Fusion of Spatial-Temporal Data and Points of Interest**  
*Wanzhi Xiao, Li Kuang, Ying An*  
China
- **Predicting Student Performance in Experiential Education**  
*Lejia Lin, Leonard Wee Liat Tan, Nicole Hui Lin Kan, Ooi Kiang Tan, Chun Chau Sze, and Wilson Wen Bin Goh*  
Singapore
- **Log-based Anomaly Detection with Multi-Head Scaled Dot-Product Attention Mechanism**  
*Qingfeng Du, Liang Zhao, Jincheng Xu, Yongqi Han, Shuangli Zhang*  
China



09:00 -11:00

**Track 2**

Zoom Link:

<https://jku.zoom.us/j/93375610300?pwd=TUdRS3Z6dnV5VlF2cDRtNExGZGF0dz09>Session: **3.2\_DAWAK - Data Quality &  
Data Warehousing Processes and Maintenance**Session Chair: **Robert Wrembel****Data Quality**

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- **A new accurate clustering approach for detecting different densities in high dimensional data**  
*Nabil El Malki, Robin Cugny, Olivier Teste and Franck Ravat*  
France
- **ODCA: an Outlier Detection Approach to Deal with Correlated Attributes**  
*Fabrizio Angiulli, Fabio Fassetti, and Cristina Serrao*  
Italy
- **A Novel Neurofuzzy Approach for Semantic Similarity Measurement**  
*Jorge Martinez-Gil, Riad Mokadem, Josef Küng, Abdelkader Hameurlain*  
Austria, France

**Data Warehousing Processes and Maintenance**

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- **Smart-Views: Decentralized OLAP View Management using Blockchains**  
*Kostas Messanakis, Petros Demetrakopoulos, and Yannis Kotidis*  
Greece
- **A workload-aware change data capture framework for data warehousing**  
*Weiping Qu, Xiufeng Liu, and Stefan Dessloch*  
Germany
- **Integrated process data and organizational data analysis for business process improvement**  
*Alexis Artus, Andres Borges, Daniel Calegari, and Andrea Delgado*  
Uruguay

09:00 - 11:00

**Track 3**

Zoom Link:

<https://jku.zoom.us/j/92039279301?pwd=QVplVEVsZmRUd1d0SFFDakNaTXZTQT09>Session: **3.3\_EGOVIS** - e-Government Theoretical Background and CasesSession Chair: **Andrea Kő**

- **Government as a Platform? Constitutive Elements of Public Service Platforms**  
*Benedict Bender* and *Moreen Heine*  
Germany
- **A Solution to Support Integrity in the Lawful Interception Ecosystem**  
*Francesco Buccafurri, Angelo Consoli, Cecilia Labrini* and *Alice Mariotti Nesurini*  
Italy, Switzerland
- **Can Tech4Good Prevent Domestic Violence and Femicides? An Intelligent System Design Proposal for Restraining Order Implementations**  
*Hüseyin Umutcan Ay, Alime Aysu Öner, Nihan Yıldırım*  
Turkey
- **Toward Smart City Architecture Principles: A Cornerstone in the Case of Smart City Duisburg**  
*Peder Bergan, Kevin Rehring, Michel Muschkiet, Frederik Ahlemann, Léonie Hackemann*  
Germany
- **Analysing the Surface Urban Heat Island effect with Copernicus data**  
*Lorenza Apicella, Alfonso Quarati, Monica De Martino*  
Italy, Switzerland
- **Vulnerability of State-Provided Electronic Identification: The Case of ROCA in Estonia**  
*Astrid Valtna-Dvořák, Silvia Lips, Valentyn Tsap, Rain Ottis, Jaan Priisalu, Dirk Draheim*  
Estonia

09:00 -11:00

**Track 4**

Zoom Link:

<https://jku.zoom.us/j/93281299781?pwd=N2RWVGZMMmNIYnFqQmNoaUtyeIRXZz09>Session: **3.4\_TrustBUS**

- **Welcoming Notes**

Kostas Lambrinoudakis &amp; Simone Fischer-Hübner

**Trust Evaluation**

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Session Chair: **Kostas Lambrinoudakis**

- **Monitoring Access Reviews by Crowd Labelling**

*Sebastian Groll, Sascha Kern, Ludwig Fuchs and Günther Pernul  
Germany*

- **Automating the evaluation of trustworthiness**

*Marc Sel and Chris Mitchell  
Belgium, United Kingdom***TrustBUS Keynote Talk**

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Session Chair: **Simone Fischer-Hübner**

- **Towards privacy-preserving and trustworthy AI**

*Melek Önen, Eurecom*



11:30 - 13:00

**Track 1**

Zoom Link:

<https://jku.zoom.us/j/95825096776?pwd=Z083SUFWM1VNYmhKd3JBZ0Y5UG5odz09>Session: **3.5\_DEXA - Databases and Data Management**Session Chair: **Shelly Sachdeva**

- **Efficient Discovery of Partial Periodic-Frequent Patterns in Temporal Databases**

*So Nakamura, R. Uday Kiran, P. Likhitha, P. Ravikumar, Yutaka Watanobe, Minh Son Dao, Koji Zettsu, and Masashi Toyoda*  
Japan

- **Database Framework for Supporting Retention Policies**

*Nick Scope, Alexander Rasin, James Wagner, Ben Lenard, Karen Heart*  
USA

- **Internal Data Imputation in Data Warehouse Dimensions**

*Yuzhao Yang, Fatma Abdelhedi, Jérôme Darmont, Franck Ravat, Olivier Teste*  
France

- **Purging Data from Backups by Encryption**

*Nick Scope, Alexander Rasin, James Wagner, Ben Lenard, Karen Heart*  
USA

11:30 - 13:00

## Track 2

Zoom Link:

<https://jku.zoom.us/j/93375610300?pwd=TUdRS3Z6dnV5VlF2cDRtNEExGZGF0dz09>Session: **3.6\_DAWAK - Machine Learning and Analytics**Session Chair: **Matteo Golfarelli**

- **Multi-label Feature Selection Algorithm via Maximizing Label Correlation-aware Relevance and Minimizing Redundance with Mutation Binary Particle Swarm Optimization**

*Xiaolin Zhu, Yuanyuan Tao, Jun Li, Jianhua Xu*  
China

- **Boosting Latent Inference of Resident Preference from Electricity Usage - A Demonstration on Online Advertisement Strategies**

*Lo Pang-Yun Ting, Po-Hui Wu, Jhe-Yun Jhang, Kai-Jun Yang, Yen-Ju Chen, and Kun-Ta Chuang*  
Taiwan

- **Motif Based Feature Vectors: Towards a Homogeneous Data Representation for Cardiovascular Diseases Classification**

*Hanadi Aldosari, Frans Coenen, Gregory Y. H. Lip, and Yalin Zheng*  
United Kingdom

- **Filter-based Feature Selection Methods for Industrial Sensor Data: A Review**

*Sabrina Luftensteiner, Michael Mayr, and Georgios Chasparis*  
Austria

- **A Declarative Framework for mining Top-k High Utility Itemsets**

*Amel Hidouri, Said Jabbour, Badran Raddaoui, Mouna Chebbah, and Boutheina Ben Yaghlane*  
Tunisia, France

- **Mining Partially-Ordered Episode Rules with the Head Support**

*Yangming Chen, Philippe Fournier-Viger, Farid Nouioua, and Youxi Wu*  
China, France

11:30 - 13:00

**Track 3**

Zoom Link:

<https://jku.zoom.us/j/92039279301?pwd=QVplVEVsZmRUd1d0SFFDakNaTXZTQT09>Session: **3.7\_EGOVIS - Identity Management and Legal Issues**Session Chair: **Francesco Buccafurri**

- **Transparency by default: GDPR Patterns for Agile Development**  
*Baraa Zieni, Dayana Spagnuolo, and Reiko Heckel*  
*United Kingdom, Netherlands*
- **Anonymization between minimization and erasure: The perspectives of French and Italian data protection authorities**  
*Emanuela Podda and Francesco Vigna*  
*Italy*
- **A Legal Framework for Digital Transformation: A Proposal based on a Comparative Case Study**  
*Rozha K. Ahmed, Khder H. Muhammed, Awat O. Qadir, Soran I. Arif, Silvia Lips, Katrin Nyman-Metcalf, Ingrid Pappel and Dirk Draheim*  
*Estonia, Iraq*



11:30 - 13:00

## Track 4

Zoom Link:

<https://jku.zoom.us/j/93281299781?pwd=N2RWVGZMMmNIYnFqQmNoaUtyeIRXZz09>Session: **3.8\_TrustBUS****Security Risks**

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Session Chair: **Kostas Lambrinouidakis**

- **At your service 24/7 or not? Denial of Service on ESInet systems**  
*Zisis Tsiatsikas, Georgios Kambourakis and Dimitrios Geneiatakis*  
Greece, Italy, Belgium
- **Impact of False Positives and False Negatives on Security Risks in Transactions under Threat**  
*Doncho Donchev, Vassil Vassilev and Demir Tonchev*  
United Kingdom, Belgium

**Web Security**

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Session Chair: **Simone Fischer-Hübner**

- **Launching Adversarial Label Contamination Attacks Against Malicious URL Detection**  
*Bruno Marchand, Nikolaos Pitropakis, Bill Buchanan and Costas Lambrinouidakis*  
United Kingdom, Greece
- **Neither good nor bad: A large-scale empirical analysis of HTTP security response headers**  
*Georgios Karopoulos, Dimitris Geneiatakis and Georgios Kambourakis*  
Italy, Belgium

14:30 - 15:30

## PANEL

Zoom Link:

<https://jku.zoom.us/j/95211943907?pwd=a0VhOFFxdWhPOGNJL0VQenlsTUo0Zz09>**Big Minds Sharing their Vision on the Future of AI**

Moderator:

- **Bernhard Moser**, *Software Competence Center Hagenberg and Austrian Society for Artificial Intelligence, Austria*

Panelists:

- **Battista Biggio**, *University of Cagliari, Italy*
- **Claudia Diaz**, *Katholieke Universiteit Leuven, Belgium*
- **Heiko Paulheim**, *University Mannheim, Germany*
- **Olga Saukh**, *Complexity Science Hub, Austria*

15:45 - 17:45

## Track 1

Zoom Link:

<https://jku.zoom.us/j/95825096776?pwd=Z083SUFWM1VNYmhKd3JBZ0Y5UG5odz09>Session: **3.9\_DEXA - Authenticity, Privacy, Security and Trust**Session Chair: **Anna Kayem**

- **Less is More: Feature Choosing under Privacy-Preservation for Efficient Web Spam Detection**  
*Jia-Qing Wang, Yan Zhu, Huan He, Chun-Ping Li*  
*China*
- **Construction of Differentially Private Summaries Over Fully Homomorphic En-cryption**  
*Shojiro Ushiyama, Tsubasa Takahashi, Masashi Kudo, Hayato Yamana*  
*Japan*
- **SafecareOnto: A Cyber-Physical Security Ontology for Healthcare Systems**  
*Fatma-Zohra Hannou, Faten Atigui, Nadira Lammari, Samira Si-Said Cherfi*  
*France*
- **Repurpose Image Identification for Fake News Detection**  
*Steven Jia he Lee, Tangqing Li, Wynne Hsu, Mong Li Lee*  
*Singapore*

15:45 - 17:45

**Track 2**

Zoom Link:

<https://jku.zoom.us/j/93375610300?pwd=TUdRS3Z6dnV5VlF2cDRtNEExGZGF0dz09>Session: **3.10\_DEXA - Prediction and Decision Support 2**Session Chair: **Sergio Ilarri**

- **Enhancing Scan Matching Algorithms via Genetic Programming for Supporting Big Moving Objects Tracking and Analysis in Emerging Environments**  
*Alfredo Cuzzocrea, Kristijan Lenac, Enzo Mumolo*  
Croatia, Italy
- **A Stacking Approach for Cross-Domain Argument Identification**  
*Alaa Alhamzeh, Mohamed Bouhaouel, Előd Egyed-Zsigmond, Jelena Mitrovic, Lionel Brunie, Harald Kosch*  
Germany, France
- **Property Analysis of Stay Points for POI Recommendation**  
*Junjie Sun, Yuta Matsushima, Qiang Ma*  
Japan
- **Beacon Technology for Retailers - Tracking Consumer Behavior inside Brick-and-Mortar-Stores**  
*Alexander Voelz, Andreas Mladenow, Christine Strauss*  
Austria



15:45 - 17:45

**Track 3**

Zoom Link:

<https://jku.zoom.us/j/92039279301?pwd=QVplVEVsZmRUd1d0SFFDakNaTXZTQT09>Session: **3.11\_EGOVIS - Artificial Intelligence and Machine Learning in E-Government Context**Session Chair: **Enrico Francesconi**

- **Classification and association rules in Brazilian Supreme Court judgments on pre-trial detention**

*Thiago Raulino Dal Pont, Isabela Cristina Sabo, Pablo Ernesto Vigneaux Wil-ton, Victor Araújo de Menezes, Rafael Copetti, Luciano Zambrota, Pablo Procópio Martins, Edjandir Corrêa Costa, Edimeia Liliani Schnitzler, Paloma Maria Santos, Rodrigo Rafael Cunha, Gerson Bovi Kaster and Aires José Rover*  
Brazil

- **Social Security Reform in Brazil: a Twitter sentiment analysis**

*Rafael D. Ricci, Elaine R. Faria, Rodrigo S. Miani and Paulo H.R. Gabriel*  
Brazil

- **Demystifying Tax Evasion Using Variational Graph Autoencoders**

*Priya Mehta, Sandeep Kumar, Ravi Kumar and Ch Sobhan Babu*  
India

- **Using Machine Learning for Risk Classification in Brazilian Federal Voluntary Transfers**

*Daniel M. Guilhon, Aillkeen Bezerra de Oliveira, Daniel L. Gomes Jr, Anselmo C. Paiva, Cláudio de Souza Baptista, Geraldo Braz Júnior and João Dallysson Sousa de Almeida*  
Brazil

15:45 - 17:45

**Track 4**

Zoom Link:

<https://jku.zoom.us/j/93281299781?pwd=N2RWVGZMMmNIYnFqQmNoaUtyelRXZz09>Session: **3.12\_TrustBUS****Data Protection and Privacy Controls**Session Chair: **Kostas Lambrinoudakis**

- **Components and Architecture for the Implementation of Technology-driven Employee Data Protection**  
*Florian Dehling, Denis Feth, Svenja Polst, Bianca Steffes and Jan Tolsdorf*  
Germany
- **Towards an Information Privacy and Personal Data Protection Competency Model for Citizens**  
*Aggeliki Tsohou*  
Greece
- **A Category-Based Framework for Privacy-Aware Collaborative Access Control**  
*Denis Obrezkov, Karsten Sohr, Rainer Malaka*  
Germany

**Privacy and Users**Session Chair: **Simone Fischer-Hübner**

- **Car drivers' privacy concerns and trust perceptions**  
*Giampaolo Bella, Pietro Biondi and Giuseppe Tudisco*  
Italy
- **AuthGuide: Analyzing Security, Privacy and Usability Trade-offs in Multi-Factor Authentication**  
*Davy Preuveneers, Sander Joos and Wouter Joosen*  
Belgium

## PROGRAM

32<sup>nd</sup> DEXA2021 Conferences & Workshops  
27 – 30 September 2021

Day 4, Thursday, 30 Sep 2021

*All times are Central Europe time (Vienna, which is UTC+2)  
Proceedings can be accessed at ([http://www.dexa.org/free\\_proceedings](http://www.dexa.org/free_proceedings))*

09:00 - 10:00

**Keynotes 3**

Zoom Link:

<https://jku.zoom.us/j/95211943907?pwd=a0VhOFFxdWhPOGNJL0VQenIsTUo0Zz09>

**Extreme-Scale Model-Based Time Series Management with ModelarDB**

**Torben Bach Pedersen**, *Aalborg University, Denmark*

Moderator : **Robert Wrembel**

*Papers Presentation*

10:30 - 12:30

**Track 1**

Zoom Link:

<https://jku.zoom.us/j/95825096776?pwd=Z083SUFWM1VNYmhKd3JBZ0Y5UG5odz09>

Session: **4.1\_DEXA - Temporal, Spatial, and High Dimensional Databases**

Session Chair: **Michal Kratky**

- **Event Related Data Collection from Microblog Stream**

**Manoj K. Agarwal**, *Animesh Baranawal, Yogesh Simmhan, Manish Gupta*  
*India*

- **GACE: Graph-Attention-Network-Based Cardinality Estimator**

**Daobing Zhu**, *Dongsheng He, Shuhuan Fan, Jianming Liao, Mengshu Hou*  
*China*

- **A Two-Phase Approach for Enumeration of Maximal  $(\Delta, \gamma)$  Cliques of a Temporal Network**

**Suman Banerjee**, *Bithika Pal*  
*India*



10:30 - 12:30

**Track 2**

Zoom Link:

<https://jku.zoom.us/j/93375610300?pwd=TUdRS3Z6dnV5VlF2cDRtNExGZGF0dz09>Session: **4.2\_AICARES**Session Chair: **Sohail Khan**

- **Opening Remarks**

*Sohail Khan & Thomas Strasser*

- **Short-term Renewable Energy Forecasting in Greece using Prophet Decomposition and Tree-based Ensembles**

*Argyrios Vartholomaios, Stamatis Karlos, Eleftherios Kouloumpris, Grigorios Tsoumakas  
Greece*

- **A Comparative Study of Deep Learning Approaches for Day-Ahead Load Forecasting of an Electric Car Fleet**

*Ahmad Mohsenimanesh, Evgueniy Entchev, Alexei Lapouchnian, Hajo Ribberink  
Canada, Cameroon*

10:30 - 12:30

**Track 3**

Zoom Link:

<https://jku.zoom.us/j/92039279301?pwd=QVplVEVsZmRUd1d0SFFDakNaTXZTQT09>Session: **4.3\_BIOKDD**Session Chair: **Lukas Fischer & Bernhard Moser**

- **Integrating Gene Ontology based Grouping and Ranking into the machine learning algorithm for gene expression data analysis**

*Malik Yousef, Ahmet Sayici, Burcu Bakir-Gungor  
Israel, Turkey*

- **SVM-RCE-R-OPT: Optimization of Scoring Function For SVM-RCE-R**

*Malik Yousef, Amhar Jabeer and Burcu Bakir-Gungor  
Israel, Turkey*

10:30 - 12:30

**Track 4**

Zoom Link:

<https://jku.zoom.us/j/93281299781?pwd=N2RWVGZMMmNIYnFqQmNoaUtyeIRXZz09>Session: **4.4\_ AISys**Session Chair: **Gerald Czech & Thomas Hoch**

- **Robust and Efficient Bio-Inspired Data-Sampling Prototype for Time-Series Analysis**  
*Michael Lunglmayr, Günther Lindorfer, Bernhard Moser*  
Austria
- **Membership-Mappings for Data Representation Learning: Measure Theoretic Conceptualization**  
*Mohit Kumar, Bernhard Moser, Lukas Fischer, Bernhard Freudenthaler*  
Germany, Austria
- **Membership-Mappings for Data Representation Learning: A Bregman Divergence Based Conditionally Deep Autoencoder**  
*Mohit Kumar, Bernhard Moser, Lukas Fischer, Bernhard Freudenthaler*  
Germany, Austria
- **Data Catalogs: A Systematic Literature Review and Guidelines to Implementation**  
*Lisa Ehrlinger, Johannes Schrott, Martin Melichar, Nicolas Kirchmayr, Wolf-ram Wöß*  
Austria
- **Task-specific Automation in Deep Learning Processes**  
*Georg Buchgeher, Gerald Czech, Adriano Souza Ribeiro, Werner Kloihofner, Paolo Meloni, Paola Busia, Gianfranco Deriu, Maura Pintor, Battista Biggio, Cristina Chesta, Luca Rinelli, David Solans, Manuel Portela*  
Austria, Italy, Spain

12:30

**Best Paper Awards and Closing**Zoom Link: <https://jku.zoom.us/j/95211943907?pwd=a0VhOFFxdWhPOGNJL0VQenIsTUo0Zz09>**Abdelkader Hameurlain, Anna Revell. Gabriela Wagner and Christine Strauss (Moderator)**

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