

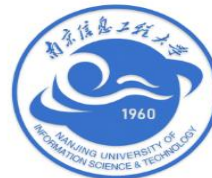
# The 9th Euro-China Conference on Intelligent Data Analysis and Applications

ECC 2025 - July 21–23, 2025 | Ostrava, Czech Republic

Onsite/Online hybrid

 **The 9th** Euro-China Conference  
on Intelligent Data Analysis and  
Applications 

VSB TECHNICAL  
UNIVERSITY  
OF OSTRAVA



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(ECC 2025) July 21-23, 2025 Ostrava, Czech Republic





## Table Content

Organizing Committee .....	3
Keynote Speech (I) .....	5
Keynote Speech (II) .....	6
Keynote Speech (III) .....	7
Conference Program .....	8
Keynote Speeches.....	10
On-Site Paper Presentation .....	11
On-Line Paper Presentation .....	13
Conference Venue .....	15
Public Transport.....	16

# The 9th Euro-China Conference on Intelligent Data Analysis and Applications

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## Organizing Committee

### Honorary Chairs

Jeng-Shyang Pan, Nanjing University of Information Science & Technology, China

Lakhmi C. Jain, University of Technology Sydney, Australia

Vaclav Snasel, VSB-Technical University of Ostrava, Czech Republic

### Conference Chairs

Milan Adamek, Tomas Bata University in Zlin, Czech Republic

Varun Ojha, Newcastle University, UK

Petr Gajdos, VSB-Technical University of Ostrava, Czech Republic

Roman Senkeric, Tomas Bata University in Zlin, Czech Republic

Jana Nowakova, VSB-Technical University of Ostrava, Czech Republic

Ivan Kotuliak, Slovak University of Technology, Slovak Republic

Pavel Kromer, VSB-Technical University of Ostrava, Czech Republic

Zdenko Bobovsky, VSB-Technical University of Ostrava, Czech Republic



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Olfati Maryam, VSB-Technical University of Ostrava, Czech Republic

Meenu Singh, VSB-Technical University of Ostrava, Czech Republic

Sara Fanatirashidi, VSB-Technical University of Ostrava, Czech Republic

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Pei-Wei Tsai, Swinburne University of Technology, Australia

# The 9th Euro-China Conference on Intelligent Data Analysis and Applications

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## Keynote Speech (I)

### On the Use of LLMs in Optimization



*Prof. Christian Blum*

#### Biography

Dr. Christian Blum is a Senior Research Scientist at the Artificial Intelligence Research Institute (IIIA-CSIC) in Bellaterra, Spain. From 2012–2016, he was an Ikerbasque Research Professor at the University of the Basque Country in San Sebastian. He earned a PhD in Applied Sciences from the Free University of Brussels (2004) and a Diploma (Master's) in Mathematics from the University of Kaiserslautern, Germany (1998). His research focuses on swarm intelligence for optimization and control, and hybrid metaheuristics for large-scale problems in bioinformatics and transportation. Over 25 years, he has (co-)authored 250+ publications, with ~21,000 citations and an H-index of 46 (Google Scholar). He is an editor for *Computers & Operations Research* and associate editor for the *Artificial Intelligence Journal* and *Engineering Applications of Artificial Intelligence*. His awards include the IEEE TEC Outstanding Paper Award and the 2021 SEIO-BBVA award for best methodological contribution in Operations Research.

#### Abstract

Large Language Models (LLMs) are AI systems trained on extensive collections of text data, enabling them to understand and generate both natural language and code. Built on transformer architectures—a type of deep learning framework—LLMs process input prompts and produce responses that are supposed to be contextually appropriate. They are highly effective across a broad range of tasks, such as answering questions, summarizing information, writing code, and even making strides in solving mathematical problems. In recent times, the potential of LLMs has been explored in a wide variety of applications. Naturally, researchers in optimization, especially those focused on metaheuristic algorithms, have started investigating how LLMs can be leveraged to enhance their techniques. In this talk, I will present some of our recent work on using LLMs as assistants in optimization research. Examples include the automatic improvement of existing optimization algorithms and the comparative analysis of optimization algorithm performance.





## Keynote Speech (II)

### Online Learning of Data Streams with Concept Drift



*Prof. Xin Yao*

#### Biography

Prof. Xin Yao is the Vice President (Research and Innovation) and the Tong Tin Sun Chair Professor of Machine Learning at Lingnan University, Hong Kong SAR. He is an IEEE Fellow and was a Distinguished Lecturer of the IEEE Computational Intelligence Society (CIS). He served as the President (2014-15) of IEEE CIS and the Editor-in-Chief (2003-08) of IEEE Transactions on Evolutionary Computation. His major research interests include evolutionary computation, neural network ensembles, and multi-objective learning. His recent interests include online learning, class imbalance learning and trustworthy artificial intelligence. His work won the 2001 IEEE Donald G. Fink Prize Paper Award; 2010, 2016 and 2017 IEEE Transactions on Evolutionary Computation Outstanding Paper Awards; 2011 IEEE Transactions on Neural Networks Outstanding Paper Award; 2010 BT Gordon Radley Award for Best Author of Innovation (Finalist); and many other best paper awards at conferences. He received the 2012 Royal Society Wolfson Research Merit Award, the 2013 IEEE CIS Evolutionary Computation Pioneer Award, and the 2020 IEEE Frank Rosenblatt Award.

#### Abstract

Data stream mining is a challenging task because the data come only one or a chunk at a time. An online learner has to learn while operating continuously. Such a scenario occurs in numerous real-world scenarios, e.g., condition monitoring, fault diagnosis, energy consumption, medical tests, financial information, etc. To make the situation more challenging, the underlying distribution of a data stream may change over time (i.e., a concept drift). This talk first introduces the learning-in-the-model-space framework, which can be used effectively to learn noisy and complex data streams. Online fault diagnosis will be used as an example to illustrate how learning-in-the-model-space could facilitate detecting and classifying unknown faults. Then this talk will present an ensemble approach to tackling concept drifts, i.e., adapting the ensemble diversity after a drift is detected in order to learn new concept quickly and accurately. Finally, this talk will describe a new method for detecting both real and virtual drifts more accurately.

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## Keynote Speech (III)

### Secure Artificial Intelligence on the Edge



*Prof. Varun Ojha*

#### Biography

Prof. Varun Ojha is a Senior Lecturer (Associate Professor) in Artificial Intelligence at the School of Computing, Newcastle University. He is an Artificial Intelligence Theme Leader and Co-I on the EPSRC-funded National Edge AI Hub. He is AI Lead on Center of AI Safety at Newcastle University. He works in Artificial Intelligence: Deep Learning, Neural Networks, Machine Learning, and Data Science. In the past, Dr Ojha served as a lecturer (Assistant Professor) in Computer Science at the University of Reading, UK and as a Postdoctoral Fellow at the Swiss Federal Institute of Technology (ETH Zurich), Zurich, Switzerland. Before this, Dr Ojha was a Marie-Curie Fellow (funded by the European Commission) at the Technical University of Ostrava, Czech Republic. More on: [ojhavk.github.io](https://ojhavk.github.io).

#### Abstract

Artificial Intelligence (AI) algorithms have become an inevitable part of our lives and are so pervasive that users often engage with them unconsciously. Both users and systems contribute vast amounts of data to train these algorithms. AI addresses a wide range of critical and sensitive problems, from medical diagnostics and climate change mitigation to assisted driving and financial technologies. However, AI systems have advantages and drawbacks. One significant concern is their security, as they are vulnerable to sophisticated malicious attacks, unintentional changes, omissions of context in training data, sensor aging, changes in the training environment, and other unforeseen circumstances. This makes AI applications at the edge such as smartphones and cars susceptible to defects in training data and AI models. Edge AI focuses on safeguarding data integrity and the quality of learning associated with AI algorithms when they are exposed to cyber-attacks in edge computing environments and federated learning. Thus, this talk focuses on the security of AI systems on the edge.



## Conference Program

July 21, 2025 (Monday)		
Time	Event	Location
09:30 - 10:00	Registration (Coffee Break)	EC1 (Second Floor), FEI faculty, VSB-TUO
10:00 - 10:30	Opening Ceremony	EC1 (Second Floor)
<b>Coffee Break</b>		
10:30 - 11:00		Main Hall
11:00 - 12:00	Keynote Speech (I): Prof. Christian Blum	EC1 (Second Floor)
<b>Lunch</b>		
12:00 - 13:00		University Cafeteria (First Floor)
13:00 - 15:00	On-Site Session A01	EC1 (Second Floor)
<b>Coffee Break</b>		
15:00 - 15:30		Main Hall
15:30 - 17:30	On-Site Session A02 <a href="https://voovmeeting.com/dm/tLX4TDMYBgge">https://voovmeeting.com/dm/tLX4TDMYBgge</a>	EC1 (Second Floor)
17:30 - 18:00	Gathering	Main Hall



# The 9th Euro-China Conference on Intelligent Data Analysis and Applications

**ECC 2025 - July 21–23, 2025 | Ostrava, Czech Republic**

July 22, 2025 (Tuesday)		
Time	Event	Location
09:00 - 09:30	Registration & Coffee break	EC1 (Second Floor)
09:30 - 10:30	Keynote Speech (II): Prof. Xin Yao	EC1 (Second Floor)
Coffee Break		
10:30 - 11:00		Main Hall
11:00 - 12:00	Keynote Speech (III): Prof. Varun Ojha	EC1 (Second Floor)
Lunch		
12:00 - 13:00		University Cafeteria (First Floor)
13:00 - 15:00	Online Session B01	Tencent/VooV Meeting ID: 653-051-969
Online Presentation	<a href="https://voovmeeting.com/dm/eB9XFvEewJ1Z">https://voovmeeting.com/dm/eB9XFvEewJ1Z</a>	Instructions: ID: 653-051-969; Password: 130722
Coffee Break		
15:00 - 15:30		Main Hall
15:30 - 17:30	Online Session B02	Tencent/VooV Meeting ID: 653-051-969



## Keynote Speeches

### Keynote Speech (I)

**Speaker:** Prof. Christian Blum, Artificial Intelligence Research Institute, Spain

**Date:** July 21, 2025 (Monday)

**Time:** 10:45 - 11:45

**Room:** EC1 (Second Floor)

### Keynote Speech (II)

**Speaker:** Prof. Xin Yao, Southern University of Science and Technology, China

**Date:** July 22, 2025 (Tuesday)

**Time:** 09:15 - 10:15

**Room:** EC1 (Second Floor)

### Keynote Speech (III)

**Speaker:** Prof. Varun Ojha, Newcastle University, United Kingdom

**Date:** July 22, 2025 (Tuesday)

**Time:** 10:45 - 11:45

**Room:** EC1 (Second Floor)

# The 9th Euro-China Conference on Intelligent Data Analysis and Applications

## ECC 2025 - July 21–23, 2025 | Ostrava, Czech Republic

### On-Site Paper Presentations (July 21, 2025)

#### Session A01

**Date:** July 21, 2025 (Monday)

**Time:** 13:00 - 15:00 (GMT+02:00, Central European Time - Prague)

**Room:** EC1 (Second Floor)

**Session Chair:** Dr. Radvansky Martin (Junior), VSB-Technical University of Ostrava, Czech Republic

**Paper ID: 43,** Modified DipDECK: Deep Clustering Algorithm with Dip-based K-means, Kumar, Abhishek

**Paper ID: 11,** Critical Edge Guided Genetic Algorithm with Adaptive Mutation for Layer-2 Network Optimization, Pan, Jeng-Shyang; Li, Zecheng; Zhou, Hao; Yan, Lijun; Liu, Min

**Paper ID: 5,** GSGOA: Grouped and Scaled Gannet Optimization Algorithm, Li, Zhi; Chu, Shu-Chuan; Zin, Thi Thi; Watada, Junzo; Pan, Jeng-Shyang

**Paper ID: 7,** An excellent multi-stage adaptive perturbation tumbleweed algorithm for numerical optimization and analysis, Wang, Ru-yu; Chu, Shu-Chuan; Snasel, Vaclav; Pan, Tien-Szu; Pan, Jeng-Shyang

**Paper ID: 37,** Comparing the Efficiency of Bank Branches using Financial Ratios and Data Envelopment Analysis, Olfati, Maryam; Fanati Rashidi, Sara; Hosseini, Hamid; Platos, Jan

**Paper ID: 13,** An Extension of Efficiency Improvement Models in Data Envelopment Analysis, Fanatirashidi, Sara; Hoseinzadeh Lotfi, Farhad; Olfati, Maryam; Platos, Jan

**Paper ID: 20,** An Enhanced Multi-Party Immune Algorithm with Adaptive Mechanisms for Wireless Sensor Network Optimization, Yu, Zhang; Chu, Shu-Chuan; Hu, Pei; Shu, Hao; Liu, Min

**Paper ID: 32,** Deep Learning-Assisted Detection of Sarcopenia in Cross-Sectional Computed Tomography Imaging, Bhardwaj, Manish; Sivaharan, Ashwin; Liang, Huizhi; Snasel, Vaclav; Nandhra, Sandip; El-Sayed, Tamer; Ojha, Varun



## Session A02

**Date:** July 21, 2025 (Monday)

**Time:** 15:30 - 17:30 (GMT+02:00, Central European Time - Prague)

**Room:** EC1 (Second Floor)

**Session Chair:** Dr. Radvansky Martin (Junior), VSB-Technical University of Ostrava, Czech Republic

**Paper ID: 34**, A Reinforcement Learning-Based Client Selection Strategy for Efficient Federated Learning, Jiang, Mingzhi; Song, Ziqi; Cui, Chen; Wang, Shen

**Paper ID: 41**, Automated Model for Diabetes Detection, Jahan, Ibrahim; Elmenghaw, Ferial; Mohamed, Faisal; Mechali, Abdesselam; Ezayboun, Samah; Haraga, Donia

**Paper ID: 10**, Power Load Forecasting using Machine Learning Methods, Jahan, Ibrahim; Blazek, Vojtech; Mohamed, Faisal; Mechali, Abdesselm; Alhatab, Alaa

# The 9th Euro-China Conference on Intelligent Data Analysis and Applications

ECC 2025 - July 21–23, 2025 | Ostrava, Czech Republic

## Online Paper Presentations (July 22, 2025)

### Session B01

**Date:** July 22, 2025 (Tuesday)

**Time:** 13:00 - 15:00 (GMT+02:00, Central European Time - Prague)

**Platform:** EC1 (Second Floor), Tencent/VooV Meeting ID: 653-051-969

**Session Chair:** Dr. Olfati Maryam, ZhongHai Bai, VSB-Technical University of Ostrava, Czech Republic

**Paper ID: 8,** Surrogate-assisted Tumbleweed Algorithm and Its Application To Engineering Optimization Problems, Chu, Shu-Chuan; Gu, Xinge; Pan, Jeng-Shyang; Wang, Ru-yu; Chen, Shi-Huang

**Paper ID: 38,** A Multi-Branch Enhanced Routing Attention Network for RGBT Tracking, Long, Haishan; Qiao, YuLong

**Paper ID: 9,** DCTA: Dynamic Cauchy Tumbleweed Algorithm, Xu, Chang-Qi; Li, Zhi; Xu, Lin; Chu, Shu-Chuan; Pan, Jeng-Shyang; Wang, Ruo-Bin

**Paper ID: 35,** Prophesying Credit Card Frauds using Predictive and Deep Transfer Learning: A Comprehensive Experimental Perspective, Srivastava, Shilpa; Arora, Nidhi; Gupta, Varuna; Singh, Meenu; Pant, Millie

**Paper ID: 18,** Access Control System Using Facial Recognition on Raspberry Pi, Minango, Pablo; Zambrano, Marcelo; Mendoza, Alvaro; Paredes, Wladimir; Minango, Juan

**Paper ID: 19,** MTLM: Incorporating Bidirectional Text Information to Enhance Language Model Training in Speech Recognition Systems, Meng, Qingliang; Ren, Pengju; Li, Tian; Dai, Changsong; Liang, Huizhi

**Paper ID: 17,** Statistical and Multimodal Patent Analytics for Decision Support: A Clustering and Knowledge Graph Approach, Sun, Yujia; Geng, Dongyang; Jin, Yimin; Li, Hanyang



**Paper ID: 33**, Personalized Federated Learning with Local Aggregation Based on Particle Swarm Optimization, Song, Ziqi; Jiang, Mingzhi; Cui, Chen; Bi, Shujun; Wang, Shen

**Paper ID: 36**, Detection of malicious network traffic with two-stage XAI framework, Ciou, Yu-Sheng; Shieh, Chin-Shiuh; Horng, Mong-Fong; Chao, Ying-Chieh

## Session B02

**Date:** July 22, 2025 (Tuesday)

**Time:** 15:30 - 17:30 (GMT+02:00, Central European Time - Prague)

**Platform:** EC1 (Second Floor), Tencent/VooV Meeting ID: 653-051-969

**Session Chair:** Dr. Olfati Maryam, ZhongHai Bai, VSB-Technical University of Ostrava, Czech Republic

**Paper ID: 42**, Storage-Aware Evaluation of Sequential Pattern Mining over Synthetic Datasets, Bai, Zhonghai; Vo, Bay; Wang, Zhongyun

**Paper ID: 39**, Comparative Phylogenetic Analysis of GPCRs Using ESM-2 Embeddings and Traditional Sequence Alignment, Xiao, Guohua; Fan, Chenyu; Hu, Yuxi; Tseng, Shih-Pang

**Paper ID: 40**, Combining Traditional Statistical Modeling and Large Language Models for Interpretable Cognitive Health Assessment in Aging Populations, Xiao, Guohua; Fan, Chenyu; Hu, Yuxi; Tseng, Shih-Pang

**Paper ID: 44**, Fine-Tuning ESM2 for Predicting Ageing-Related Human Proteins, Xiao, Guohua; Fan, Chenyu; Hu, Yuxi; Tseng, Shih-Pang

**Paper ID: 31**, A Study on the Linguistic Features of ChatGPT-Generated Abstracts from the Perspective of Nominalization Metaphor, Kong, Lingshuai; Wang, Jingxia

**Paper ID: 12**, Scalable Tensor Ranking in Simplifying Multi-Criteria Group Decision Making, kong, Lingping; Jan zadrail; Kumar, Abhishek; Shu-Chu, Chu



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## Conference venue

### About Ostrava

Ostrava, nestled in the northeast of the Czech Republic, is a vibrant city with a population of approximately 280,000. It thrives at the confluence of four rivers: Oder, Opava, Ostravice, and Lučina. Historically, Ostrava's significance was anchored in its coalfields, earning it the nickname "steel heart" of Czechoslovakia during its industrial zenith. While coal mining ceased in 1994, its industrial heritage remains, with sites like the Lower Vítkovice complex showcasing its rich history, now repurposed for cultural and educational use.

The city is a cultural haven, hosting festivals such as Colours of Ostrava and the Janáček May classical music festival. Museums like the Landek Park Mining Museum and the Ostrava City Museum offer insights into its storied past. Architecturally, the city boasts Socialist realist designs in Poruba and the historic charm of Silesian Ostrava Castle. For nature enthusiasts, Ostrava offers unique sites like the Ema slag heap with its panoramic views and microclimate, as well as the Polanský Forest. Visitors can also enjoy Stodolní Street's bustling nightlife and the Ostrava Zoo's diverse exhibits. Ostrava seamlessly blends its industrial legacy with modern culture, making it a fascinating destination for exploration.

**Conference Site: Faculty of Electrical Engineering and Computer Science (FEI), VSB-TUO**

<https://maps.app.goo.gl/v58UeBYfw26MgN3K6>

**Garni Hotel Location: Hotel Garni VSB-TUO**

<https://maps.app.goo.gl/UzEwfWtLXmVJSg3w6>



## Public Transport from the Railway Station

Book your hotel: [Booking - Hotel VSB-TUO](#)

After arriving at Ostrava-Svinov railway station, you need to get to VŠB-TUO Campus in Ostrava-Poruba. The public transport bus station next to the train station is called “Svinov, nádraží”. The destination public transport is called “Poruba, Studentská”. You can take bus No. 37, it takes 13 minutes (and costs 32 CZK).

If you want, you can then change at the stop “Poruba, Studentská” and take bus No. 54 to the stop “Poruba, Studentské koleje” (which is the next station) – in case you mind walking a few minutes more. This is especially for those of you who will be staying at the Hotel Garni.

Everyone else, please simply get off at the “Poruba, Studentská” bus stop.

You can buy your ticket with a credit card directly on the bus, just tap your card on the machine on the bus. Do the same when you change to the next line.

[Ostrava Public Transport](#) – search connections through this portal

[Public transport in Ostrava](#) – search with IDOS