Knowledge Infrastructure in the Platform Economy

Report of Contributions

https://ludevent.uni-nke.hu/e/1741

Contribution ID: **1** Type: **not specified**

Machine Learning: A key Ubiquitous Technology in the 21st Century.

Thursday 21 April 2022 09:00 (20 minutes)

Machine learning (ML) is a key and increasingly pervasive technology in the 21st century. It is going to impact the way people live and work in a significant way. This lecture starts with an overview of the key ML concepts and different types of ML algorithms. In general, machine learning algorithms simulate the way brain learns and solves an estimation/recognition problem. They usually require a learning phase to discover the patterns among the available data, similar to the humans. An expanded definition of ML is advanced as algorithms that can learn from examples and data and solve seemingly interactable learning and un-teachable problems, referred to as ingenious artificial intelligence (AI). Next, recent and innovative applications of ML in various fields and projects currently being pursued by leading high-tech companies such as Google, IBM, Uber, Baidu, Facebook, Pinterest, and Tesla are reviewed. Then, machine learning algorithms developed by the author and his associates are briefly described. Finally, examples are presented in different areas from health monitoring of smart highrise building structures to automated EEG-based diagnosis of various neurological and psychiatric disorders such as epilepsy, the Alzheimer's disease, Parkinson's disease, and autism spectrum disorder

Presenter: ADELLI, Hojjat (Ohio State University, USA)

Session Classification: Artificial Intelligence: Theoretical Foundation of AI and Practical Examples

Contribution ID: **3** Type: **not specified**

Welcome

Thursday 21 April 2022 08:45 (15 minutes)

Presenter: Dr TÖRÖK, Bernát (Institute of the Information Society –University of Public Service (UPS), Budapest, Hungary)

Contribution ID: **4** Type: **not specified**

Analysis of Evolving Social Networks

Thursday 21 April 2022 09:20 (20 minutes)

Social networks are live entities that exhibit dynamic behaviour over time. Phone calls, emails, SMS, etc., define implicit, huge, and high-speed networks. In this talk, we described our work in analysing evolving networks. We present a method that tries to understand the trajectories of communities and explain the trajectory in terms of the topology of the evolving network.

Presenter: GAMA, Joao (University of Porto, Porto Portugal)

Session Classification: Artificial Intelligence: Theoretical Foundation of AI and Practical Examples

Contribution ID: **5** Type: **not specified**

Machine Learning Potentials Addressing the Wider Areas of Simulation based Engineering Science and Skills

Thursday 21 April 2022 09:40 (20 minutes)

Partial Differential Equations (PDEs) are fundamental to model different phenomena in science and engineering mathematically. Solving them is a crucial step towards a precise knowledge of the behavior of natural and engineered systems. In order to solve PDEs that represent real systems to an acceptable degree, analytical methods and conventional engineering skills are usually not enough. One has to resort to discretization methods. For engineering problems, probably the best-known option is the finite element method (FEM). However, powerful alternatives such as mesh-free methods and Isogeometric Analysis (IGA) are also available. The fundamental idea is to approximate the solution of the PDE by means of functions specifically built to have some desirable properties. In this contribution, we explore Deep Neural Networks (DNNs) as an option for approximation. They have shown impressive results in areas such as visual recognition. DNNs are regarded here as function approximation machines. There is great flexibility to define their structure and important advances in the architecture and the efficiency of the algorithms to implement them make DNNs a very interesting alternative to approximate the solution of a PDE. We concentrate on applications and skills that have an interest for Computational Mechanics. Most contributions explore this possibility have adopted a collocation strategy. In this work, we concentrate on mechanical problems and engineering skills to analyze the energetic format of the PDE. The energy of a mechanical system seems to be the natural loss function for a machine learning method to approach a mechanical problem. In order to prove the concepts, we deal with several problems and explore the capabilities of the method for applications in engineering.

Presenter: RABCZUK, Timon (The Institute of Structural Mechanics at Bauhaus University, Weimar, Germany)

Session Classification: Artificial Intelligence: Theoretical Foundation of AI and Practical Examples

Contribution ID: **6** Type: **not specified**

Evolutionary Learning & Optimization: Towards Fully Automated Systems

Thursday 21 April 2022 10:00 (20 minutes)

Evolutionary Intelligence (EI) has been widely used during the last two decades and has remained a highly-researched topic, especially for complex engineering problems. The EI techniques are a subset of artificial intelligence, but they are slightly different from the classical methods in the sense that the intelligence of EI comes from biological systems or nature in general. The efficiency of EC is due to their significant ability to imitate the best features of nature which have evolved by natural selection over millions of years. The central theme of this presentation is about EI techniques and their application to complex real-world problems. On this basis, first I will talk about an automated learning approach called genetic programming for data analytics. Applied evolutionary learning will be presented, and then their new advances will be mentioned. Here, some of my studies on big data analytics and modelling using EI and genetic programming, in particular, will be presented. Second, evolutionary optimization will be presented including key applications in the design optimization of complex and nonlinear engineering systems. It will also be explained how such algorithms have been adopted to engineering problems and how their advantages over the classical optimization problems are used in action. Optimization results of large-scale towers and many-objective problems will be presented which show the applicability of EI. Finally, heuristics will be explained which are adaptable with EI and they can significantly improve the optimization results.

Presenter: Prof. GANDOMI, Amir H. (Faculty of Engineering & Information Technology University of Technology Sydney, Australia)

Session Classification: Artificial Intelligence: Theoretical Foundation of AI and Practical Examples

Contribution ID: **7** Type: **not specified**

Ethical Guidelines for Responsible Artificial Intelligence in Platform Economy

Thursday 21 April 2022 10:20 (20 minutes)

The research for advancing machine learning (ML) methods and applications has significantly progressed within the past few years. ML models are established as the foundation of artificial intelligence systems and, consequently, become essential parts of our lives. ML has gained tremendous popularity in a wide range of scientific disciplines including platform economy and algorithmic management where the ML has shown to be the ultimate game-changer for achieving the competitive models. The state-of-the-art literature reviews for ML and applications in various scientific domains, including the platform economy show a dramatic progress. Furthermore, the urge to access better data analysis techniques with higher performance had motivated a race among scientists to produce sophisticated ML models through hybridization techniques and advanced training. However, in developing ML models, minimum attention is often devoted to social perspectives such as accountability, responsibility, and transparency. Thus, the outcome can be easily harmful, misleading, emotionally offensive, and damaging to the end-user, wider society, and a circular economy' s ambition. The concept of a responsible machine learning proposes a unique synergy between the social sciences and information sciences for shaping the future of machine learning modelling techniques. This talk, through an innovative interdisciplinary approach bridges the discipline gap and proposes the techniques, guidelines and strategies to better integrate non-quantifiable data into models for the advancement of the accountable, responsible, interpretable, and bias-free ML models in platform economy.

Presenters: MOSAVI, Amir (University of Public Service, Hungary); CHRONOPOULOS, Anthony Theodore (Texas University, Austin, USA)

Session Classification: Artificial Intelligence: Theoretical Foundation of AI and Practical Examples

Contribution ID: **8** Type: **not specified**

AI –Aware –Employee: the Nokia Case

Thursday 21 April 2022 11:00 (20 minutes)

AI and data science are increasingly applied in variety of functions across diverse industries. But only a fraction of AI and data initiatives are successful in delivering the intended value. Most of the corporate business practices and processes are built around a mix of enterprise software tools. Business leaders have become familiar with ERP and IT processes. But AI deployment is not like traditional software deployment. Business benefits of AI technologies cannot be realized if the employees are not enabled to leverage the new technologies. Reskilling must be complemented with reimagining. In this presentation we talk about practices initiated in procurement function of a big corporate to enable and prepare the employees for AI and analytics augmented work environment.

Presenter: CHADHA, Lovleen (NOKIA –Procurement Data Value Manager, India)

Session Classification: A.I. in Company Practice

Contribution ID: **9** Type: **not specified**

A Data-Driven Way of Thinking: in the Perspective of Transparency

Thursday 21 April 2022 11:20 (20 minutes)

The growth of a company, the extending presence on the market and the evolving maturity of the organizational unit all justify the necessity of the application of the data-driven mind-set in the management and organisational practises. The subject of this study is a project administration solution of a successful Hungarian-owned SME that is highly integrated into the international value chain in the market research industry.

Data -Expert has been developing an administrative system since years that enables the real-time monitoring of operational activities, the transparency of business performance and provides the information needed for data-driven decision-making. The solution is extensively contributing to the growth, since in line with the increasing organisational maturity, more and more sophisticated information has been available. At the beginning only the top management could access to and process the data, now it is fully transparent. Inclusivity also appears in other areas. In all cases, the data source is the employee who performs any tasks and in addition the employees who more consciously assess their own performance are also developing in the field of business awareness.

Significant achievement is that the evolution of the business data processing has re-thematized the management practices and increased the employee engagement by making the real-time results of the business transparent to the individual and the teams.

Presenters: SZABÓ, Csaba (DataExpert Services Kft. Debrecen, Hungary); KARASSZON, Dezső (DataExpert Services Kft. Debrecen, Hungary)

Session Classification: A.I. in Company Practice

Contribution ID: **10** Type: **not specified**

Is Digital footprint including Personal Data is the Achilles' heel of humanity in the world of AI?

Thursday 21 April 2022 11:40 (20 minutes)

Digital footprint is a commonly used expression and includes the personal data also, digital and the physical attributes and activities of a person. This discussion aims to raise awareness around the ethical aspects of the application of AI as it is dealing with the information on all of us, and as such it looks at our traces from our digital footprint. AI support systems have become a significant part of our life already through social media, personal authentication of private devices, preference and cookie tracking if simply just browsing on the internet. We also rely on its assistance ("guidance") when travelling, doing the daily financials, and so on.

However, in daily life not many notice the aid provided by the AI, it is the source of the fundamentals for automated solutions, private, professional and business related decision-making. Consequently, it can lead to influence the future of the entire society not just the individuals. Raising awareness of the potential risks of the unbalanced usage of the AI is essential to ensure the ethical deployment of itself in the upcoming decades. Based on studies so far, to regulate AI along the Ethical development, key contributors are empowering the civil society and encourage citizen engagement, and also prevent market dominance, just to mention some."

Presenter: ABSZINGER, Peter (Deutsche Telecom –IT Solution Kft., Budapest, Hungary)

Session Classification: A.I. in Company Practice

Contribution ID: **11** Type: **not specified**

Q & A and Summary of the Chair

Thursday 21 April 2022 12:00 (1 hour)

Session Classification: A.I. in Company Practice

Contribution ID: **12** Type: **not specified**

Digital Media User Groups among Employees: Evidence from Finland

Thursday 21 April 2022 14:00 (20 minutes)

Digitalization affects the work of different employees in different ways. Drawing on research that has previously been received when analysing digital divides among citizens, this paper examines what of digital media user groups can be distinguished among Finnish employees, how they differ from each other according to background factors and how differences in use are reflected in different impacts on work. Based on the data from Statistics Finland's Working Conditions Survey 2018, the paper distinguishes five user groups. Nearly half of the employees are classified as "Skilled Users"with no specific challenges. Challenges for other groups include the high intensity of digital media use, routine use of digital media and gaps in digital skills. Age is an important factor underlying different use patterns, largely regardless of the work context. The results support the sequential digital exclusion hypothesis, according to which the level of digital skills, the way digital media is deployed and the effects of use are interlinked. The compound digital exclusion hypothesis also receives indirect support. According to it, both the shortcomings of different digital skills and the different benefits of using digital media are cumulative. Furthermore, the results suggest that the digital world largely reproduces and may even amplify inequalities prevailing outside the digital world among employees.

Presenter: ALASOINI, Tuomo (Finnish Institute of Occupational Health, Helsinki, Finland)

Session Classification: Designing and Using Platforms: Digital Skills, Creative Work and Platform Builders

Contribution ID: **13** Type: **not specified**

Knowledge Work on Labor Platform

Thursday 21 April 2022 14:20 (20 minutes)

While working life studies have mostly focused on the precarious aspects of work mediated via online labor platforms, this presentation follows a different approach and examines the potential of such work to benefit professionals by enhancing their job quality and learning. The qualitative, practice-based study applies the concept 'co-creation'to examine how a social form of creating value takes place in Upwork macrotask projects. It then investigates how platform features shape opportunities for co-creation. The data comprise interviews of 15 freelancers residing in Finland. The findings suggest that co-creation is by no means common, but it is possible in macrotask projects. The platform practices do not seem to actively support co-creation. This paper provides insights into the discussion of job quality at platform work in particular and at algorithmically managed work in general, and how co-creation on platforms might be developed to support both individual learning and societal innovations. The presentation is based on an article published in the Nordic Journal of Working Life Studies, June 2021

Presenter: SEPPANEN, Laura (Finnish Institute of Occupational Health, Helsinki, Finland)

Session Classification: Designing and Using Platforms: Digital Skills, Creative Work and Platform Builders

Contribution ID: **14** Type: **not specified**

Naked at Home: How Teleworking Open Doors for Omnipresence of Employers in Workers' Life

Thursday 21 April 2022 14:40 (20 minutes)

This presentation draws attention to the increasing concerns related to ICT-enabled surveillance during telework[1], which skyrocketed during the COVID-19 pandemic. New monitoring tools were often diving deep into workers home settings, in this way jeopardizing their privacy and labour rights. The topic of staff surveillance is not likely to disappear even if the majority of employees return to the offices as the firms are increasingly looking into what monitoring tools they can introduce into the workplace in order to track workers. This paper explores how monitoring of workers at their homes during telework affects their labour rights and right to privacy. It argues that lack of institutional response, primarily in the fields of labour law and data protection, increases the grey zone of telework and exposes workers to a number of unforeseen vulnerabilities.

This paper will present the research results of the effects of surveillance of workers in their home settings. This first exploratory research in Serbia about the status of labour rights of workers who have been shifted to work from home during the pandemic relies on mix method approach. It deploys two online surveys: first one is focusing on the working age population in Serbia who have the experience in remote work; the second survey concentrates on managers across all industries to explore their experience in usage of the ICT- enabled monitoring tools. These methods are complemented with semi-structured interviews with shapers in the field of labour law and data protection (policy makers, scholars, law firms, representatives of trade unions, monitoring businesses, etc.) with the aim to obtain more detailed and reflexive responses about the topic

Serbian employers are often breaching the rights of employees stated in the Labour Law and the Law on the Privacy Data Protection. This points to a specific decent work deficit defined as a denial of rights at work (ILO, 2017). If remote work is going to become a new norm regardless of the pandemic, the regulation addressing surveillance at work has to be thoroughly renegotiated and introduced to the practices of both public and private employers. The findings contribute to the growing body of literature aimed at informing public policies seeking to reconcile application of technology at work, labor rights and the right to privacy.

[1] In this paper telework are remote work are used as synonym

Presenters: ANDJELKOVIC, Branka (Public Policy Research Centre, (CENTAR), Beograd, Serbia); JAKOBI, Tanja (Public Policy Research Centre, (CENTAR), Beograd, Serbia)

Session Classification: Designing and Using Platforms: Digital Skills, Creative Work and Platform Builders

Contribution ID: **15** Type: **not specified**

Designing Digital Platforms: Roles of Architects and Technologists: a Systematic Literature Review

Thursday 21 April 2022 15:00 (20 minutes)

In order to better understand how digital platforms are reshaping the nature of future work and employment, it is worth calling the attentions to the relative shortage of research on the social-cultural characteristics of the digital platform builders. The mainstream organizational and labor process literature is focusing on measuring the effects of digital platforms on the work itself, on the working conditions and on the employment relations of various categories of platform workers. The dominating view: algorithmic and artificial intelligence systems are tightening the invisible cage of algorithmic evaluation on online labor market.

Fortunately, recent contributions on the platform economy also call the attention to the existing knowledge asymmetry: between the designers of the digital platforms and their users (i.e. platform workers and clients). As such, the designers in various profiles influence the users'ability to "operate"the platforms.

The core aim of this presentation is to characterize this knowledge gap. More concretely, the authors intend to identify the values and interests that are governing the platform designs and architectures. The questions raised by the authors: Are the activities of platform builders shaped exclusively by the logics of technology, creation of data architecture and by the efficiency requirements of their customers? Or eventually are there other contributing factors like, complementary values too (i.e. ethical codes, transparency of AM, etc.)?

The key hypothesis of the literature review: without knowing the drivers of the creation and the maintenance of the digital structures of the platforms, it is impossible to understand and regulate their impacts on the users of platform. The representatives of 'hard'(i.e. legal authorities, actors of labor relations, government etc.) and 'soft'(i.e. ethical code shared collective actors) regulators need to be aware of the unquestionable effects of digital structures in which labour platforms are embedded.

Presenters: MAKÓ, Csaba (Institute of the Information Society –UPS, Budapest, Hungary); PAP, József (Széchenyi University, Győr, Hungary); ILLÉSSY, Miklós (Centre for Social Sciences, Budapest, Hungary); FARKAS, Éva (Go-Ahead Group, United Kingdom)

Session Classification: Designing and Using Platforms: Digital Skills, Creative Work and Platform Builders

Contribution ID: **16** Type: **not specified**

Q & A and Summary of the Chair

Thursday 21 April 2022 15:20 (20 minutes)

Session Classification: Designing and Using Platforms: Digital Skills, Creative Work and Platform Builders

Contribution ID: **17** Type: **not specified**

Concluding remarks

Thursday 21 April 2022 15:40 (20 minutes)

Presenter: MAKÓ, Csaba (Institute of the Information Society –UPS, Budapest, Hungary)

Session Classification: Designing and Using Platforms: Digital Skills, Creative Work and Platform Builders