Newsletter 47 of EUROPT

EUROPT - The Continuous Optimization Working Group of EURO

https://www.euro-online.org/websites/continuous-optimization/

March 2021

In this issue:

Words from the Chair

Dear Friends,

on behalf of the Managing Board welcome to the 47^{th} EUROPT Newsletter. I hope you and your families are all healthy and safe. Unfortunately the Covid-19 pandemic is not yet under control but the availability of effective vaccines is now giving hopes to recover a new normality reasonably soon. Anyway, it is not very clear when it will be safe to travel and meet again in person. Meanwhile, we are committed to providing our community with networking chances and going on with our activities by exploiting the innovations in our working habits that this situation brought. Our annual workshop will take place on 7-9 July "at" ENAC - École Nationale de l'Aviation Civile in Toulouse (France) as a hybrid in-person/remote or fully remote meeting. The actual format will be decided by the organisers as soon as possible compatibly with the current overall situation. My most sincere thanks to the local organising committee for all their hard work, the patience and the tenacity they exhibited in these two tough years. Let me remind you also that the EURO conference is scheduled a few days after our workshop, i.e. 11-14 July, "in" Athens with a hybrid in-person/remote format.

Updates on our workshop and further activities we are planning to set up will be provided through our mailing-list, that you can freely join by sending a message to europt@di.unipi.it.

Last month a selection committee, including most EUROPT Fellows and Past Chairs beyond the current Managing Board, elected the new EUROPT Fellow, who will deliver the Fellowship Lecture at our workshop. If you missed the announcement, browse the Newsletter to find out which outstanding researcher has been awarded! Let me thank all who proposed so many outstanding candidates and the selection committee for their valuable service to our community. The overall interest around this award proved that our community is very alive, active and valuable also in these hard times.

The EUROPT website https://www.euro-online.org/websites/continuousoptimization/ was released almost three years ago. The group is very large but still the member list on the website does not reflect it at all. Please, take a few minutes to register. Even if you already registered and you wish to, please log in again to give your explicit consent to make your profile public. Indeed, only registered users of the working group that explicitly gave consent to make their profile public appear in the member list. Thank you all.

Giancarlo Bigi, EUROPT Chair
Università di Pisa, Italy
giancarlo.bigi@unipi.it

EUROPT 2021 Fellow

EUROPT honours outstanding researchers in continuous optimization by awarding annually the EUROPT Fellowship. It is a great pleasure for the EUROPT Managing Board to announce that Monique Laurent (Centrum Wiskunde & Informatica, The Netherlands) has been elected EUROPT Fellow 2021. Monique Laurent is recognized for her outstanding scientific contributions to continuous optimization. She has made remarkable contributions to semidefinite optimization, particularly its application to graph problems, to approximation hierarchies for conic problems and to polynomial optimization. She has been plenary speaker at many conferences, including the International Symposium on Mathematical Programming (23rd edition - Bordeaux 2018). She has also been deeply involved in our community over many years, serving as associate editor for many valuable key optimization journals and as member of the scientific committee of MFO - Oberwolfach Research Institute for Mathematics.

Professor Monique Laurent will present the EUROPT Fellowship Lecture as a plenary talk at our annual workshop, which will be held on 7-9 July at ENAC - École Nationale de l'Aviation Civile in Toulouse (France) as hybrid in-person/remote or fully remote meeting.

The selection committee included EUROPT Fellows and Past Chairs beyond the Managing Board:

- Miguel Anjos (Fellow - MB)
- Paula Amaral (MB)
- Giancarlo Bigi (MB Chair)
- Immanuel Bomze (Fellow - EURO Past President)
- Sonia Cafieri (MB)
- Manlio Gaudioso (Fellow)
- Jacek Gondzio (Fellow)
- Tibor Illés (MB Honorary Chair)
- Florian Jarre (MB Past Chair)
- Joaquim Judice (Fellow)
- Dmitri Kvasov (MB)
- Marco Locatelli (Fellow)
- Marco Antonio López Cerdá (MB Past Chair)
- Kaisa Miettinen (MB Past Chair)
- Yurii Nesterov (Fellow)
- Laura Palagi (MB)
- Panos Pardalos (Fellow)
- János D. Pintér (MB Past Chair)
- Cornelis Roos (Fellow)
- George J. Still (Fellow)
- Christiane Tammer (MB)
- Tamás Terlaky (MB Honorary Chair)
- Gerhard Wilhelm Weber (MB Honorary Chair)
- Julius Zilinskas (MB Past Chair)

Our warmest congratulations to the new EUROPT Fellow!

EUROPT Workshops

18^{th} EUROPT Workshop on Advances in Continuous Optimization
July 7-9, 2021, Toulouse, France / hybrid format

https://europt2021.recherche.enac.fr/

The EUROPT 2021 Workshop, the annual event of the EUROPT Continuous Optimization working group of EURO, will be held on July 7-9, 2021, hosted at ENAC (Ecole Nationale de l'Aviation Civile), Toulouse, France.

The Workshop is expected to be held in a **hybrid in-person/remote format** (or fully remote depending on the evolution of the pandemic situation).

It will bring together researchers from Europe and around the globe for stimulating discussions on the latest developments in continuous optimization.

Contributions and Special sessions

Authors are invited to submit contributions on all aspects of continuous optimization, through the EURO online abstract submission system: http://www.euro-online.org/conf/europt2021/
Please note the following deadlines (extended):

- Abstract Submission: Extended to March 15, 2021
- Abstract Acceptance: Extended to March 31, 2021

Informations on organized sessions are available at http://europt2021.recherche.enac.fr/?page_id=27

Publication

We are pleased to announce a Special Issue of **Optimization Methods and Software** following EUROPT 2021.

Up-to-date information is disseminated via the website https://europt2021.recherche.enac.fr/

Sonia Cafieri, sonia.cafieri@enac.fr
EUROPT 2021 Program Committee Chair
On behalf of the EUROPT 2021 Organizing Committee

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- at social activities including a virtual pub quiz, speed networking, lunchtime roundtable chats and virtual after conference drinks
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Reports

Enjoying OR and Stochastic Mathematics in Athens and Online:

17th Summer School in Risk Finance and Stochastics

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Gerhard-Wilhelm Weber <gerhard-wilhelm.weber@put.poznan.pl>

For the first time as an *e-Summer School*, the *17th e-Summer School in Risk Finance and Stochastics*, Athens, Greece, June 30 - July 3, 2020, was organized by the Athens University of Economics and Business (AUEB), Departments of *(a)* Statistics, *(b)* Accounting & Finance, and *(c)* Business Administration, the Laboratory of Stochastic Modeling and Applications (Department of Statistics, AUEB) (cf. https://www.dept.aueb.gr/en/stat/content/department-statistics), in collaboration with the University of the Aegean, Departments of Financial & Management Engineering and Statistics & Actuarial-Financial Mathematics.

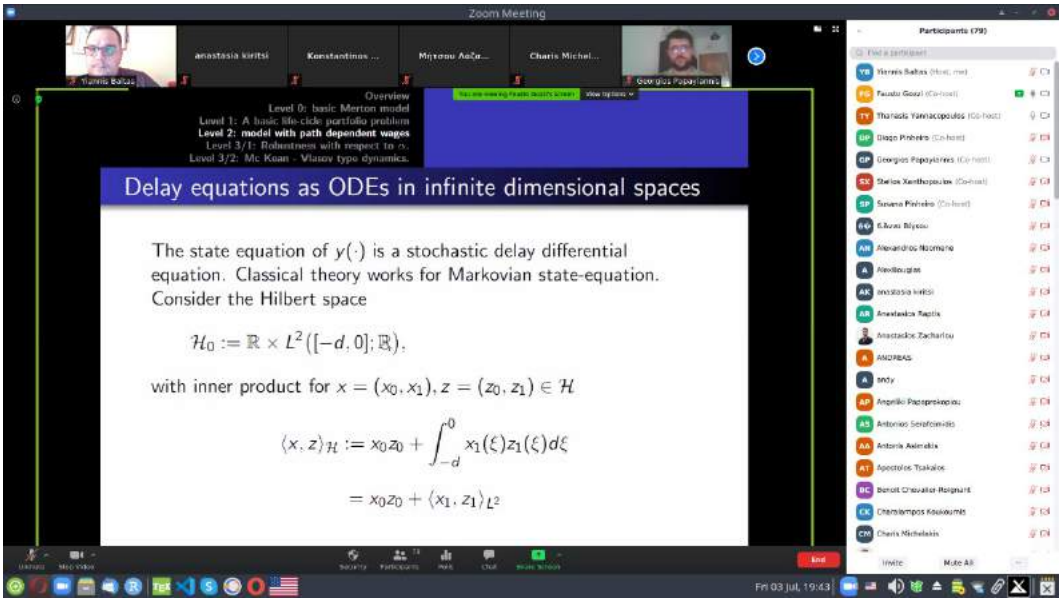
The *Summer School on Risk Finance and Stochastics* is an annual academic gathering that started in 2003 on Samos island, as an attempt to bring together students and academics both young and senior to present, reflect and discuss - in a relaxed environment - certain aspects of the fascinating field of Stochastic Mathematics and its close connection with Risk, Finance and Insurance. Over the years the location of the school was moved to various places, depending on funding and circumstances, however, our rendezvous was always punctual and anticipated by all. For several years, the school was hosted on Samos island, then on Chios island, then Nafplio and, of course, Athens. Regardless of the location, we always had the honor of having with us world class academics and experts who masterfully guided the participants through the elegant and important constructions of their current research and brilliant and eager to teach young researchers and students in the first steps of their career, the interplay among which always resulted in a creative and friendly atmosphere that we fondly remember. Naturally, this would not be possible without the constant and generous funding of AUEB and the University of the Aegean.

Even though the school is mainly addressed to postgraduate students, PhD students, postdocs, researchers, and practitioners, everyone who are interested to stay informed about the latest developments in the field of Stochastic Finance, are always more than welcome to participate. This year, due to the current situation concerning the COVID-19 pandemic, the standard operation of the Summer School would have been difficult, if not impossible. However, trying to stay loyal to our usual annual meeting, we decided to transform the school into e-mode, thus enabling distant participation.

As always, we had the pleasure and honor of having with us distinguished academics in the field. This year, the central topic of the school was about *a revision of the theory of arbitrage* by ***Professor Ioannis Karatzas*** (Columbia University, New York), one of the founding fathers of modern stochastic finance. Further topics that were presented and discussed include ***stochastic finance***, ***portfolio theory***, ***risk***

management and ***decision making***, and ***machine learning*** – always having in mind real-world applications and challenges.

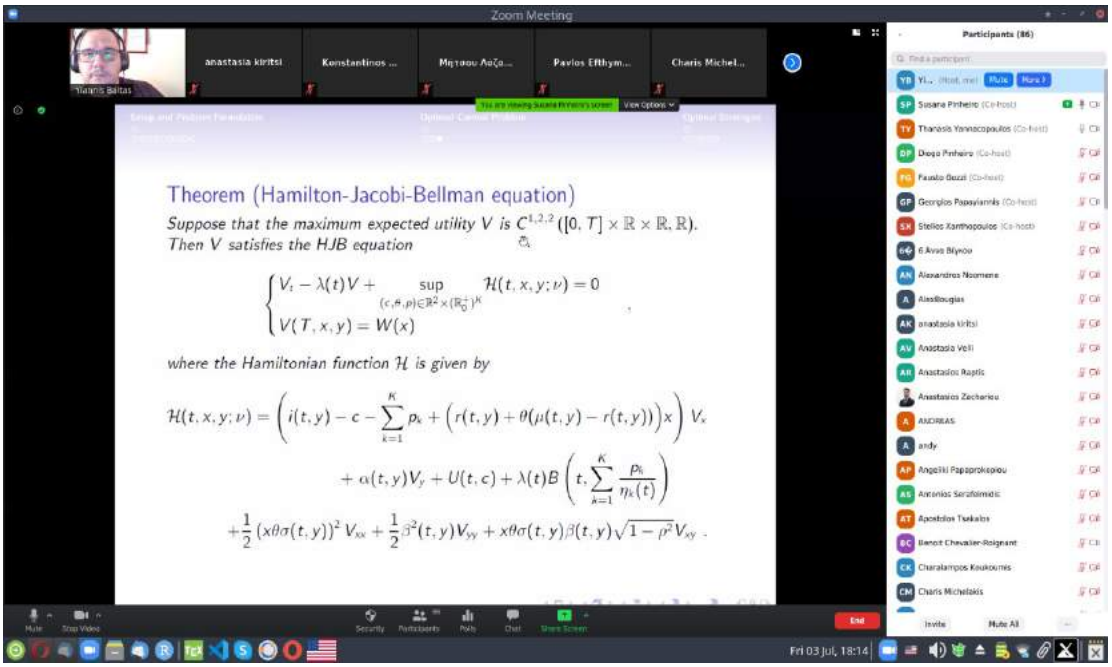
The highlights of the e-summer school included talks by *Prof. Dr. Ioannis Karatzas* (Eugene Higgins Professor, Applied Probability, Departments of Statistics and Mathematics, Columbia University, USA): "Portfolio theory and arbitrage", *Prof. Dr. Fausto Gozzi* (Department of Economics and Finance, LUISS, Rome, Italy): "From simple stochastic control problems to more realistic ones: an example from lifecycle portfolio theory", *Prof. Dr. Filippo Santambrogio* (Applied Mathematics, Lyon, France, and Pisa, Italy): "An introduction to mean field games", *Prof. Dr. Gerhard-Wilhelm Weber* (Faculty of Engineering Management, Poznan University of Technology, Poland, and IAM, METU, Turkey): "Maximum Principle for Stochastic Optimal Control of a Markov Regime-Switching Jump-Diffusion Model with Delay - and an Application to Finance", *Prof. Dr. Catherine Kyrtsou* (Macro-Finance, Department of Economics, University of Macedonia, Greece, and Lyon, France): "Exploitation of financial information as trading characteristic: a causality-based analysis", *Athanasios Pantelous* (Department of Econometrics and Business Statistics, Monash University, and RiskLab, Australia): "Disappointment Aversion and Long-Term Dynamic Asset Allocation", *Prof. Dr. Diogo Pinheiro* (Department of Mathematics, Brooklyn College, The City University of New York. USA): "On a two player zero-sum stochastic differential game with a random planning horizon", *Dr. Susana Pinheiro* (Queensborough Community College, City University of New York, USA): "Life insurance purchase under a stochastic fluctuating economy", *Dr. Benoit Chevalier-Roignant* (Finance, Cranfield School of Management, UK): "Incumbent inertia: When and how to respond to an innovative startup", *Dr. Nuno Azevedo* (Research Department, Bank of Portugal, and Minho, Portugal): "Structural Systemic Risk: Evolution and Main Drivers", and *Dr. Pantelis Z. Lappas* (EXUS AI Labs, Research Fellow, Athens University of Economics and Business, Greece): "Evolutionary algorithms and machine learning in financial risk management".



A snapshot of the e-school (lecture by *Prof. Fausto Gozzi*).

The e-Summer School was very well attended with more than 120 participants who showed their interest and actively participated in a lively round-table discussion in the form of oral questions. During the breaks, new friendships were made, and research ideas were exchanged between the participants, who enjoyed the warm and welcoming atmosphere of the school and expressed their interest in continuing the discussion in our future events and endeavors.

Further details on the e-summer school are available on the official school's website: http://www2.stat-athens.aueb.gr/~SummerSchool/index.html.



A snapshot of the e-school (lecture by *Dr. Susana Pinheiro*).

Report on ICMNS-2020 - *Online*

An Operational Approach to the Neuroscience Studies

The International Conference on Mathematical Neuroscience 2020 (ICMNS-2020) has been held online on the of July 6-7, 2020, at 14:00-19:00 (GMT+2, Central European time: https://www.danieleavitabile.com/icmns2020digital/).

ICMNS is a regularly organized scientific event which was launched in 2015 and has been organized 5 times to date. This year, owed to the Coronavirus outbreak, the 6th edition was organized online. The organizing committee members of this successful event worked very hard and this team consists of the distinguished academics: *Assoc. Prof. Dr. Daniele Avitabile* (Vrije Universiteit Amsterdam, the Netherlands), *Assist. Prof. Dr. Tatiana Engel* (Cold Spring Harbor Laboratory, New York, USA), *Assist. Prof. Dr. Tilo Schwalger* and *Prof. Dr. Wilhelm Stannat* (both from Technische Universität Berlin, Germany).

One of the advantages of the online event was that the talks of ICMNS-2020 were streamed live on YouTube, so they were publicly available following the links in the program. Talks were recorded and uploaded to the YouTube Channel of for the event named as "ICMNS 2020 Digital" (https://www.youtube.com/playlist?list=UUXClLvVl35uBrYIgN8dOZsw).

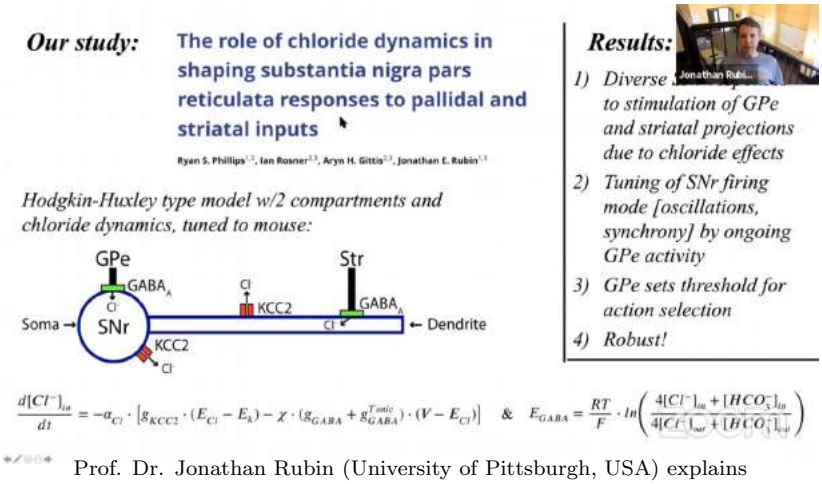
The goal of this event was to provide an interdisciplinary scientific environment to bring together theoretical neuroscientists and mathematicians interested in mathematical concepts and techniques for investigating problems and chances in neuroscience which are also contain the relations with Operational Research (OR). Studying such problems in neuroscience requires strong mathematical tools from many areas in mathematics such as stochastic calculus, probability and statistics, information theory, geometry, and numerical analysis. Besides, the conference was advancing a new topic in mathematics and new applications, namely, valid quantitative models in neuroscience. Brain neuroscience research is seeking to improve models of decision making in complex, interactive environments. Due to these reasons, neuroscience researches have been strongly supported and enriched by other disciplines with the help of OR studies which give different aspects to direct these research works. In these research areas of OR, the advantage of being able to work on subjects of multidisciplinary science from neuroscience has been used. This concerns the structure and functions of the nervous system. Then behavioral and cognitive sciences with their instrumental and theoretical improvements support the research at a quantitative level.

The conference had eight different Parallel Sessions which were organized by leading academics and they were named as follows: "Cellular and sub-cellular dynamics" by *Prof. Dr. Krasimira Tsaneva-Atanasova* (University of Exeter, UK), "Dynamics of structured networks" by *Prof. Dr. Kresimir Josic* (University of Houston, USA), "Inferring models from data" by *Prof. Dr. Jean-Pascal Pfister* (University of Bern, Switzerland), "Mean-field methods" by *Prof. Dr. Eva Löcherbach* (Université Paris 1, Panthéon Sorbonne, France), "Neural fields and spatio-temporal dynamics" by *Assist. Prof. Dr. Áine Byrne* (University College Dublin, Ireland), "Neural coding" by *Assoc. Prof. Dr. Vladimir Itskov* (The Pennsylvania State University, USA), "Numerical methods" by *Prof. Dr. Evelyn Buckwar* (Johannes Kepler University Linz, Austria), "Mathematical theory of deep learning" by *Sir Henry Dale Fellow Dr. Andrew Saxe* (Oxford University, UK), respectively.

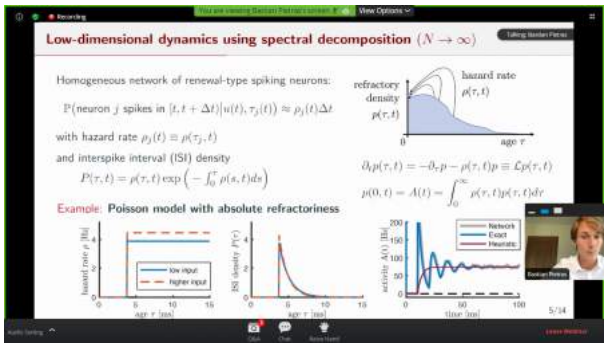
The Plenary speakers of ICMNS-2020 with their talks are titled as: *Dr. Anne Churchland* (Principal investigator and Chair of Cold Spring Harbor Laboratory, USA): "Discovering diversity in decision making: cells, brains, and individuals", and Senior Group Leader and Head of Mechanistic Cognitive Neuroscience, *Dr. Vivek Jayaraman* (Janelia Research Campus, USA): "About a biological ring attractor network". These sessions of the plenary speakers were scheduled on the different days of ICMNS-2020.

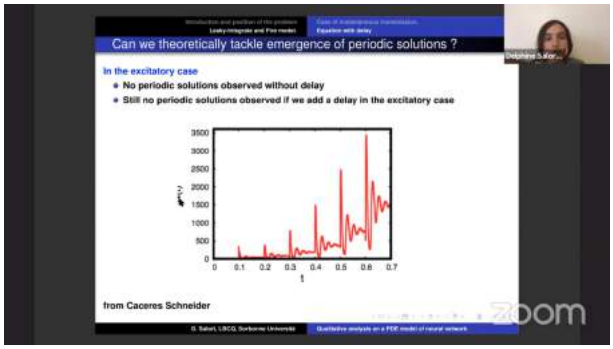
Although this scientific event was organized on specific subjects, more than 500 people from all over the world were the viewers of the records of this event. Dr. Burcu Gürbüz (Johannes Gutenberg-University of Mainz, Germany, and Üsküdar University, Turkey) was one of the attendees of this scientific event.

The Closing Ceremony of ICMNS-2020 included a speech of Prof. Dr. Wilhelm Stannat. He mentioned the records of the event and thanked all the participants, plenary speakers, organizers and social media managers of this recognizable event. Besides, participants were informed about upcoming events related to the neuroscience, mathematical biology and operational research. The upcoming event SMB 2020 Annual Meeting, or eSMB-2020, has a unique platform for those who have studies on neuroscience-related applied mathematics research topics (https://smb2020.org/). Another important upcoming event for OR studies is the 22nd Conference of the International Federation of Operational Research Societies (IFORS 2021) to be held on August 22-27, 2021, in Seoul, Korea. It will also contain a stream "OR in Neuroscience" (cf. http://www.ifors2020.kr/).

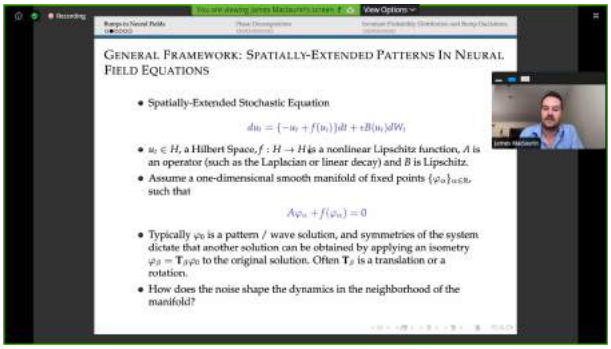


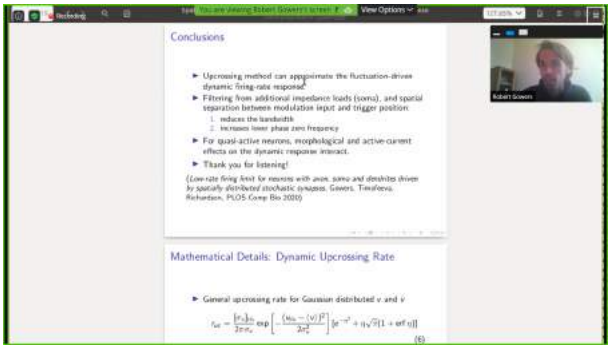
Prof. Dr. Jonathan Rubin (University of Pittsburgh, USA) explains "The role of chloride dynamics in neuronal integration of multiple input streams"





Dr. Bastian Pietras (Technische Universität Berlin, Germany) (left) and
Prof. Dr. Delphine Salort (Sorbonne Université, France) (right)





Assist. Prof. Dr. James Maclaurin (New Jersey Institute of Technology, USA) (left) and
Dr. Robert Gowers (University of Warwick, UK) (right)

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Report on EWG-ORD Virtual Workshop 2020

OR Researchers from around the globe celebrated EWG-ORD

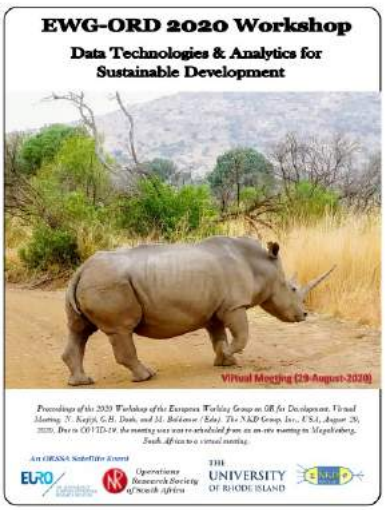
EWG-ORD 2020 workshop on Data Technologies and Analytics for Sustainable Development (https://www.nkd-group.com/EWGORD-2020/home.html)was organized by EURO Working Group on Operational Research for Development. The workshop aimed to provide a suitable platform for relevant researchers to gather annually to present their research findings before the panel of experts as well as to discuss on the progress, challenges and innovative applications on operational research for the overall development of the society. The workshop was organized by Prof. Nina Kajiji (University of Rhode Island, USA), Prof. Gordon H. Dash (University of Rhode Island, USA) and Prof. Milagros Baldemor (Don Mariano Marcos Memorial State University, Philippines).

EWG-ORD (https://www.euro-online.org/websites/ord/) started its journey in the year 2006. The objective of the group is to provide a common platform for European and other researchers working in operation research for sustainable development of the society. EWG-ORD is an active research group whose works promote the crucial role of operational research in providing quality living standards for people in developed and developing world.

The annual workshop of 2020 was scheduled for onsite meeting Magaliesberg, South Africa. The *University of Rhode Island*, *Operational Society of South Africa* , *EURO (Association of European Operational Research Societies)* and *NKD group* sponsored the workshop. But due to the ongoing global pandemic COVID-19, the workshop was rescheduled as a virtual meeting held on 29 August 2020. The workshop welcomed submissions from industry, academia, and other researchers with their active contribution in operational research for the overall development of the society. The workshop covered a wide range of researcher topics on OR research addressing the present and emerging global problems.

For our workshop 2020 all submission undergone thorough review process led by the workshop review committee. Based on the input of the review committee, 25 submissions were selected for presentation. The researchers of all accepted and registered submissions were provided with the ZOOM video conferencing system for explaining their respective research ideas. In the event, *Prof. Dr. Cathal MacSwiney Brugha*, Professor Emeritus from University College Dublin, was the invited speaker of the event. Prof. Brugha shared his work entitled *"Analytics for Development and Maintenance of Communities in an Environmentally Stressed World"*. The workshop 2020 published a Book of Abstract online which is a collection of short papers of all the submissions presented in the online event and the book can be accessed by using the link: (http://www.nkd-group.com/EWGORD-2020/EWG-ORD2020Abstracts.html).

The workshop was fascinating, with several novels and innovative application of OR techniques addressing the real-world problems. The workshop not only fulfilled its objective of providing a common platform for researchers from developed and developing countries but also helped young researchers to overcome hazy concepts about OR and how to troubleshoot problems in their respective ongoing researches. In this workshop, the first author of the report, Anirban, presented his ongoing research on "Adaptive Neuro-Fuzzy Inference System (ANFIS) model for predicting water quality index of Haora River in North-Eastern India", co-authored by K.C Choo (CO2 Networks, Malaysia), Prof. Pandian Vasant (Universiti Teknologi Petronas, Malaysia), Prof. J.J. Thomas (UOW Malaysia KDU Penang University College, Malaysia), and Prof. Gerhard-Wilhelm Weber (Poznan University of Technology, Poland, and METU, Ankara, Turkey). The workshop has helped us to facilitate or solve our research problems, and the experts enlightened us with their experience and knowledge. The workshop also allowed us to improve our novelty and methodology of the research. A constructive question and answer session after each presentation was helpful to gather knowledge regarding the novel application of OR techniques.



Cover page of online published Book of Abstract by EWG-ORD Workshop 2020

Group Picture from EWG-ORD Workshop 2020

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Report on ICPR - Americas 2020

The International Conference of Production Research: Held Virtually and Successfully

ICPR-Americas 2020 was held virtually between December 2020, 9-11 https://www.matematica.uns.edu.ar/ipcra. After a careful peer-reviewing and selection process, around 260 presentations from many different countries, not only from the Americas but also Europe, Asia, Africa and Australia have been made in addition to five enlightening plenary talks.

Although the conference was originally scheduled to be held at the campus of *Universidad Nacional del Sur* in Bahia Blanca (Argentina), it was reorganized in a purely virtual form based on the decision by *Daniel Rossit* (General Conference Chair) and *Fernando Tohmé* (Scientific Chair) due to COVID-19 pandemic.

I have come across to the conference call through an IFORS announcement and submitted two papers with my colleagues (Qiang Li and David Z. Zhang both from University of Exeter, UK and Zixiang Li from Wuhan University of Science and Technology, China). The papers were accepted after a revision based on constructive comments from anonymous reviewers.

The Opening Ceremony and the First Day of the Conference
Following the opening ceremony chaired by Luis Quezada (President of IFPR), Jose Framinan (University of Seville, Spain) delivered a plenary talk titled *"Manufacturing Scheduling: Old Solutions for New Problems?"*. After a brief introduction on recent disruptive changes in the manufacturing process/technologies (such as additive manufacturing), Jose Framinan discussed "whether these changes may be addressed by simply extending the existing scheduling theory by e.g. devising new scheduling models and/or new solution procedures, or whether they require a profound rethinking of the field by incorporating new approaches".

Several special https://www.matematica.uns.edu.ar/ipcra/default.php?boton=sps and general sessions (each had about 4-5 presentations) have been organised usually in six parallel sessions. The special sessions included recent hot and emerging topics, e.g., Production Planning and Industry 4.0, Machine Learning and Big Data in Industrial Processes, Sustainable Production and Reverse Logistics, and Mechatronics for Advanced Manufacturing among others. Participants were allowed 20 minutes presentation (including 5 min Q&A) in English, Spanish or Portuguese.

Another plenary talk in the first day of the conference was delivered from Gonzalo Mejía (Universidad de La Sabana, Colombia) on *"Perspectives and Trends of Industry 4.0 in Latin America"*. He first introduced the current topics and technologies then addressed new trends and perspectives of Industry 4.0 in Latin America. A special focus on production systems, urban transportation and supply chain was given and potential areas of application and new

research topics were examined.

Two Plenaries followed by a Full Programme in the Second Day The second day has begun with two plenary talks from Francesco Pilati (University of Trento, Italy) and Dmitry Ivanov (Berlin School of Economics and Law, Germany). Francesco Pilati presented "hardware/software architectures aimed at the human body digitalization and analysis during the execution of manufacturing/assembly tasks within common industrial workstations" in his talk entitled *"Digitalization of Manual Production and Assembly Processes for Smart Factories of the Future"*. This was followed by the talk entitled *"Ripple Effect in Supply Chain Networks: History, New Insights from the COVID-19 Pandemic, and Future Perspectives"* by Dmitry Ivanov in which "a viable supply chain model and debate about concepts of digital twins, structure dynamics control, intertwined supply networks, and reconfigurable supply chains" were presented.

These were followed by interesting presentations, including *"Modelling the Dynamics of a Smart Factory"* by Marisa Sanchez (Universidad Nacional del Sur, Argentina). Another interesting presentation was made by Fantahun Defersha (University of Guelph, Canada) on dual-resource constrained flexible job shop scheduling problem, entitled *"A Genetic Algorithm for Flexible Job Shop Scheduling Problem with Scarce Cross Trained Setup Operators"*.

Our presentations titled *"2D Nesting and Scheduling in Metal Additive Manufacturing"* and *"Dynamic Order Acceptance and Scheduling Approach for On-demand Production with Additive Manufacturing by Considering Idle Costs"* were also scheduled and presented on the second day. Both papers focus on the scheduling issues in cutting edge additive manufacturing technology from different aspects. We appreciate the great feedback on possible extensions of our research from the audience (which will certainly help when preparing extended versions for the post-conference publications).

The Last Day and the Awards Ceremony The third (and also the last) day of the conference included a plenary talk and award & closing ceremony after a full conference programme (started at 8:30 in local time as usual). Sri Talluri (Michigan State University, USA) discussed supply chain strategies and practices that have contributed to the disruptions we are currently facing amid COVID-19 in his plenary speech entitled *"Managing Macro Level Supply Chain Disruptions: Lessons from COVID-19"*. The presentation *"A Benders Decomposition Approach for an Integrated Bin Allocation and Vehicle Routing Problem in Municipal Waste Management"* (by Arthur Mahéo, Diego Gabriel Rossit and Philip Kilby) received the Best Paper Award. The Best Young Researcher's Paper Award went to Juan Antonio Cedillo-Campos (Tecnológico de Monterrey, Mexico) with the presentation entitled *"A production planning MILP optimization model for a manufacturing company"*.

While a physical event would be much more beneficiary in many aspects, no doubt that the chairs and the organisation committee did their best to make the conference great success. The programme committee was very successful to group talks considering the language of the presentation as well as the topic itself. Now it is time for the authors to prepare extended manuscripts for the post-conference publications in reputed indexed journals https://www.matematica.uns.edu.ar/ipcra/default.php?boton=pub.

The 26th ICPR conference will be held in Taiwan in 2021 again in virtually. The conference website http://icpr26.thu.edu.tw is already live and the submissions due very soon (be quick!). Hope to see you there!

Plenary speakers Francesco Pilati (University of Trento, Italy) and Dmitry Ivanov (Berlin School of Economics and Law, Germany) and the general conference chair Daniel Rossit (Universidad Nacional del Sur, Argentina) at ICPR-Americas 2020

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The story of Migport, COVID-19 impact on digitalization

Conferences, hackathons, competitions and startups

The coronavirus outbreak affected our lives economically, socially, and physically. The coronavirus spread rapidly from March 2020 in Europe, Europeans and neighboring countries experienced a new normal. The "new normal" means no travel, lockdown, and disease. Given the hard conditions in people?s lives, there started a new trend as well - the *COVID-19 Hackathons*. The word "Hackathon" comes from hacking and marathon. Given the social problems, economic, and lockdown effects of the coronavirus, innovators around Europe and the globe started organizing hackathons everywhere. The first author, *Berat Kjamili*, participated in the organization of Coronathon Turkey (www.coronathonturkiye.com), which is the biggest Turkish COVID-19 hackathon with over 1500 participants and 150 projects submitted. Academia, entrepreneurs, the government, civil society organizations collaborated and searched for solutions to the social problem of the pandemic. 730,000 Turkish Lira for the selected start-ups and 42 ideas have been supported by Coronathon Turkey stakeholders and Scientific and Technological Research Council of Turkey (TUBITAK). Besides, this movement did not happen only in Turkey; other innovators started hackathons in Estonia, Germany, Italy, Sweden, and other countries. European Commission brought together all the foremost COVID-19 hackathon organized under the European Commission umbrella and organized the biggest hackathon of the world with over 21,000 participants, 2100 submitted projects, *EUvsVirus Pan-European Hackathon* (www.euvsvirus.org). Berat Kjamili representing Migport (www.migport.com) and Coronathon Turkey (www.coronathonturkiye.com), joined the hackathon as one of the main initiators and as the project manager. Matchathon was another event that the European Commission organized with the volunteers. As a result, 2235 new partnerships were secured for the 123 winning teams of the EUvsVirus. *Coronathon Turkey* and *EUvsVirus* are proof that social entrepreneurship and collaboration is a way to solve social problems; that is, individuals, volunteers and social entrepreneurs can achieve it without being an NGO. The fact that people from all around the world met at the hackathon led to several social initiatives to start in Europe and provide hope for the future.

Berat Kjamili, at EUvsVirus badge

Last but not least, Berat Kjamili's and G.-W. Weber's (Willi's) start-up Migport, which is an online platform for refugees to share knowledge and ask questions to locals for their daily problems Migport (www.migport.com) is impacting the world by aggregating anonymized information of refugees regarding skills, needs, and preferences that can help better predict the needs of newcomers. During COVID-19 times, Migport has won two awards, one *Migration*

Entrepreneurship award at highly prestigious "Seedstars Summit" in March 2020. Seedstars is an investment organization that invests in emerging markets. The second award received is the *Gender and Inclusion Award of Digital Arabia Network* regarding the empowerment of female refugees within Migport. After organizing the hackathons, Migport is motivated more than ever to find financial inclusion ways Following the tradition of the previous five years, ICCESEN 2019 was again conducted in Antalya, Turkey, very successfully. Several universities of Turkey organized it under the lead of Conference Chair Prof. Iskender Akkurt (Süleyman Demirel University, Isparta, Turkey). It hosted registered participants from all over the world; ICCESEN conferences usually have 500-700 attendees with around 1000 papers, and they are a unique chance for academics of the Middle East and North Africa to meet with international experts, to show their newest results and develop scientific collaborations. Scientists and engineers from applied mathematics, industrial engineering, physical science and technology, computer science, business administration, economics, education, medicine, and related disciplines gave Oral and Poster presentations on a wide variety of subjects, organized in 10 themes and sessions. to include refugees in their host countries using Operational Research, fintech and big-data analytics. Migport also delivered a keynote speech at ICCESEN 2019 - 6th International Conference on Computational and Experimental Science and Engineering, Kemer, Antalya, Turkey, October 23-27, 2019 (http://2019.iccesen.org/news/iccesen-2015):

ICCESEN 2019, Migport Keynote Speech Stage, Kemer, Antalya, Turkey, with Berat Kjamili

Following the tradition of the previous five years, ICCESEN 2019 was again conducted in Antalya, Turkey, very successfully. Several universities of Turkey organized it under the lead of Conference Chair Prof. Iskender Akkurt (Süleyman Demirel University, Isparta, Turkey). It hosted registered participants from all over the world; ICCESEN conferences usually have 500-700 attendees with around 1000 papers, and they are a unique chance for academics of the Middle East and North Africa to meet with international experts, to show their newest results and develop scientific collaborations. Scientists and engineers from applied mathematics, industrial engineering, physical science and technology, computer science, business administration, economics, education, medicine, and related disciplines gave Oral and Poster presentations on a wide variety of subjects, organized in 10 themes and sessions. Along its six years, ICCESEN series build up a well-known international platform to share research endeavors, to exchange "nonstandard" ideas, to advance knowledge and insights on a broad range of subjects which typically use quantitative methods - as provided by OR, as a "secret" behind ICCESEN's success. Indeed, many contributions were from emerging areas of OR; they gave a lot of chances for discussions and making new friendships. The scientific side ICCESEN 2019 was complemented by the exceptional environment of the venue, the natural beauty of the Gulf of Antalya. The congress provided an opportunity to elaborate on new connections between various branches

of science, high-tech, and OR. Interdisciplinary works demonstrated the potentials of mutual scientific impacts between OR studies and aerospace engineering, medicine, radiology, healthcare, electrical engineering, economics, optimization applications, or social sciences. Like in all of the five previous ICCESEN editions, Willi was an Invited Speaker and, in the 2019 congress, referred on *"Social Entrepreneur Using Business Metrics: Migport Refugee Big Data Analytics - With a Note on Ability and Disability"* from both an economic and a societal point of view, an interdisciplinary and a new OR perspective. As a guest editor, again he offered a Special Issue of the journal *Optimization Methods and Software*. Berat Kjamili (Department of Economics, METU, Ankara, and start-up "Migport") gave the aforementioned invited lecture on Willi's behalf and advertised our EURO and IFORS conferences, and very lively European and worldwide OR community. In recent years, he has helped us a lot at our EURO and IFORS conferences, with his innovative and courageous work for the migrants and us all in Turkey, all of Europe and worldwide, and with his kind and cheerful nature. Berat Kjamili and all the friends who cooperate with him and even represent him become "trained" by this towards further collaboration at our EURO conferences. What is more, Willi was present by e-mail conversation and by many friends who were present at ICCESEN 2019 as organizers and participants. Additionally, he was a member of the Scientific Committee. The participants of ICCESEN 2019 were kindly informed about the spirit of our EURO and IFORS conferences, and our nearest conferences, especially, IFORS 2020 in Seoul, Korea (http://www.ifors2020.kr/) which meanwhile became postponed to August 22-27, 2021, and EURO 2021 in Athens, Greece, July 11-14, 2021 (https://www.euro-online.org/web/pages/421/activities-list). With his visits to Turkey and, if he cannot attend in person, substituted by a friend or electronically, Willi serves OR in Turkey and maintains his contacts between the "old and new" Turkish friends and our conferences. He is in regular contact with OR research groups in all over Turkey.

Prof. Iskender Akkurt (on the left) and Berat Kjamili, in Kemer, Antalya, at ICCESEN 2019

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— Call for Papers —

Central European Journal of Operations Research

Special Issue on

In the face of Crisis:
Human factors in Organizational and Operational Research

Guest Editors:

M. Butlewski, T. Ewertowski, K. Hankiewicz, J. Majchrzak, R. Mierzwiak, M. Nowak, M. Rauner, J. Sadłowska-Wrzesińska, T. Wakolbinger, G-W. Weber,

The *Central European Journal of Operations Research (CEJOR)* invites submissions to Special Issue entitled *"In the face of Crisis: Human factors in Organizational and Operational Research"*, which aim is to provide the most recent research and innovative developments regarding the human factor based crisis management situations related to operational research. The COVID-19, as an example of a pandemic, has a great impact on many subsystems like financial markets or transportation systems. The special issue will focus on theoretical, methodological and applied *Operational Research* contributions to improvements for both organizations and human factors driven systems impacted by different crisis.

Topics are drawn from, but not limited to, the following fields of human factors and *OR*:

- *Impact of Epidemics and Pandemics on Human Resource Management*
- *Impact assessment of Epidemics and Pandemics on manufacturing industries*
- *Quality Management in manufacturing industry in the Epidemics and Pandemics situation*
- *Labor markets after Epidemics and Pandemics*
- *Leadership during the crisis*
- *Management Strategies for Epidemics and Pandemics*
- *Mathematical models for Epidemics and Pandemics*
- *Assessment of personal protective equipment for Epidemics and Pandemics*
- *Inventive heuristics in search of solutions limiting the effects of Epidemics and Pandemics*
- *Inventive Problem Solving to solve problems related with Epidemics and Pandemics*
- *Modeling the development of Epidemics and Pandemics situations*
- *OR in monitoring and limiting Epidemics and Pandemics*
- *Uncertain Systems Analysis for Epidemics and Pandemics*
- *Application of Grey Methods for Epidemics and Pandemics*
- *Mathematical modeling, Data science, Deep learning applied for Epidemics and Pandemics*
- *Artificial intelligence applied for Epidemics and Pandemics*
- *Generalization effects in OR and research on epidemiology, information and rumor propagation.*
- *Ergonomic problems of industry 4.0 and benefits during the epidemic and pandemic threat*
- *Additional criteria for occupational risk assessment in epidemic and pandemic situations.*

Content and design of the submitted papers have to reveal a relationship between the aforementioned fields and the various methods of Operational Research.

The Central European Journal of Operations Research is abstracted and indexed in the following databases: Science Citation Index Expanded (SciSearch), Journal Citation Reports/Science Edition, SCOPUS, Zentralblatt Math, Google Scholar, ABI/INFORM, CNKI, Current Abstracts, EBSCO Advanced Placement Source, EBSCO Business Source, EBSCO IT Source, EBSCO Military Transition Support Center, EBSCO TOC Premier, ECONIS, International Abstracts in Operations Research, Mathematical Reviews, OCLC, ProQuest Advanced Technologies & Aerospace Database, ProQuest Business Premium Collection, ProQuest Central, ProQuest Materials Science & Engineering Database, ProQuest Pharma Collection, ProQuest SciTech Premium Collection, ProQuest Technology Collection, Referativnyi Zhurnal (VINITI), Research Papers in Economics (RePEc), SCImago, Summon by ProQuest.

Submission deadline of full papers: **October 1, 2021.**

Submission Guidelines:

The format of manuscripts for Central European Journal of Operations Research (CEJOR) as well as guidelines and templates can be found on the following web page:
http://www.springer.com/business+&+management/operations+research/journal/10100.

During the online submission, please make sure to select **"SI Human Factors - Crisis"** in the first step of the submission process.

The maximal length of a paper is **20 pages**.

All contributions will be rigorously refereed and a certain number of submissions will be selected. For submission of your paper and on any other related question please contact (via e mail) one of the following guest editors:

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Call for chapters

CALL FOR FULL CHAPTERS

www.riverpublishers.com

Full Chapter Submission Deadline: 24th February, 2021

Artificial Intelligence Approaches for Renewable Energy and Agro-Engineering

A book edited by Professor Valeriy Kharchenko (Federal Scientific Agro-engineering Center VIM, Russia), Professor Gerhard-Wilhelm Weber (Poznań University of Technology, Poland), Dr. J. Joshua Thomas (UOW Malaysia, KDU Penang University College), Dr. Pandian Vasant (University Technology Petronas, Malaysia)

Introduction

This title is considered to become one of the best-selling reference books of 2020 within the subject areas of Clean Environmental, Modern Agricultural, Artificial Intelligence and Physical Sciences, containing emerging each on new and modern electric resources and renewable energy sources, photovoltaic (pv) solar, thermal modules, wind turbine, hydro-power, electrical vehicles, geothermal energy, bio-fuel, hydrogen and related topics. Due to the publication's international perspectives, it is a critical resource outlining the advanced achievements in the field of artificial intelligence, renewable energy, electro-technologies and as such, it has been accepted for its comprehensive coverage in the global stage.

Objective of the Book

The Handbook of Research on Artificial Intelligence Approaches for Renewable Energy and Agro-Engineering is a critical scholarly resource that examines efficient use of modern electric resources and renewable energy sources which have a positive impact on sustainable development. Featuring coverage on cogeneration thermal modules, photovoltaic (pv) solar, and renewable energy systems (RES) application practices, this publication is geared towards academics, advocates, government officials, policy makers, humanized managers, practitioners, professionals, and graduates interested in the latest research on renewable energy and artificial intelligence for sustainable rural development.

Target Audience

Academics, Graduates, Professionals, Advocates, Policymakers, Researchers, Managers, Software Developers, Energy Technologies, Engineers, Executives Officers, Resource Staff.

Additional information:

Editors present readers a collection of academic essays and scholarly articles focused on the contemporary and emerging application of artificial intelligence optimization methods in renewable energy and agro-engineering across the planet. The editors have organized a selection that makes up the main body of the text in parts devoted to energy related modern and innovative technical solutions to enhance and make accessible the global energy problem in the United Nations world heritage sites, energy search and meta-search engines for online learning, and many other related subjects.

Recommended topics include, but are not limited to, the following:

Energy Resources, Renewable Resources, Hydropower Energy, Wind Power, Solar Power, Geothermal Energy, Tidal/Wave Power, Biomass/Biofuel, Hydrogen, Electrical vehicles, Artificial Intelligence, Deep Learning.

Submission Procedure

Researchers and practitioners are invited to submit the full chapter on or before 24th February 2021. Authors will be notified by 22nd March 2021 about the status of their full chapters. All submitted chapters will be reviewed on a double-blind review basis. Contributors may also be requested to serve as reviewers for this project.

Note: There are no submission or acceptance fees for manuscripts submitted to this book publication, *Artificial Intelligence Approaches for Renewable Energy and Agro-Engineering*. All manuscripts will undergo a double-blind peer review editorial process.

Publisher

This book is scheduled to be published by River Publishers.
www.riverpublishers.com

Guideline for manuscript preparation is given below:
https://www.riverpublishers.com/authors.php

Important Dates

24th February, 2021: Full Chapter Submission
22nd March, 2021: Review Results Returned
10th April, 2021: Final Acceptance Notification
24th April, 2021: Final Chapter Submission

Inquiries can be forwarded to

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CALL FOR FULL CHAPTERS

SAE International

Advances of Artificial Intelligence and Operational Research In Transportation and Exploration Industry and Business

Full Chapter Submission Deadline: 10th April 2021

The book edited by Dr. Vladimir Panchenko (*Federal Scientific Agro engineering Center VIM, Moscow)*, Professor Elias Munapo (*NWU - Mafikeng Campus, South Africa*), Dr. Ugo Fiore (*Parthenope University of Naples, Italy*), Anirban Banik (*NIT, Agartala, India*), Professor Gerhard-Wilhelm Weber (*Poznań University of Technology, Poland*), Dr. Pandian Vasant (*University of Technology Petronas, Malaysia*)

FREE PUBLICATION/ NO PUBLICATION CHARGES

Introduction

In the modern world, Artificial Intelligence plays a crucial role in sustainable decision making to transform the transportation industry and business. These techniques are changing the world of analytics and data science. The emergence of novel Artificial Intelligence techniques and its related methodology remains a hazy conception among the minds of young researchers. Moreover, recent trends illustrate that extensive research on different Artificial Intelligence techniques and their application in transport industries and business sectors need to be demonstrated.

The Objective of the Book

The edited book on ***Advances of Artificial Intelligence and Operational Research in Transportation and Exploration Industry and Business*** is an essential publication that examines the benefits and barriers of implementing Artificial Intelligence techniques to transportation Industry and business as well as how these models can produce more cost-effective and sustainable solutions. The book features coverage on a wide range of topics such as classical and nature-inspired optimization and optimal control, hybrid and stochastic systems. This book is designed for engineers, scientists, industrialist, academicians, researchers, computer and information technologists, managers, government leaders, research officers, policymakers, business leaders and students.

The book aims to be a delight for practitioners in the Transportation industry, including Aerospace, Space Design and Ground Vehicle Engineering. The book will aid the decision-makers regarding the selection and use of appropriate methods to solve the problems associated with transport industries.

Target Audience

This book is ideally designed for scholars and engineers, industrialist and government leaders, computer scientists and information technologists, developers and managers, research officers, academicians and researchers, policymakers and business leaders, and the youth.

Recommended topics include, but are not limited to, the following:
Unmanned ground vehicles, Unmanned aerial vehicles, Machine Learning, Deep Neural Networks and Deep Learning, Robotics, Quantum Computing, Quantum Mechanics, Theories of Optimization and Optimal Control, Theories of Creation and Creativity, Smart Optimization, Supply Chain Management, Conventional and autonomous mobile machines, Theories on Peace and Negotiation, Software Testing and Information Security, Data Analytics, Data Technology, ICT, Stochastic Neurosciences and Brain Modelling, Artificial Intelligence, Soft Computing, Meta-heuristics, Artificial Neural Networks, Adaptive Neuro-Fuzzy Inference Systems, Fuzzy Logic, Smart Computing, Space design, Aircraft Smart Maintenance, Aerospace Engineering, Ground Vehicle Engineering, Space Design.

Submission Procedure
Researchers and practitioners are invited to submit the full chapter on or before **10th April 2021** and will be notified by **24th May 2021** about the status of their full chapters. All submitted chapters will be reviewed on a **double-blind review basis**. Contributors may also be requested to serve as reviewers for this project.

Note: **There are no submission or acceptance fees for manuscripts submitted** to this book publication, ***Advances of Artificial Intelligence and Operational Research in Transportation and Exploration Industry and Business***. All manuscripts will undergo a double-blind peer review editorial process.

Guidelines for Book Chapter Contributors and Authors
Full chapters of 10,000 to 12,000 words are expected to be submitted and all interested authors must consult the guidelines for manuscript submissions
at ***https://www.sae.org/participate/volunteer/author/book-author-guidelines***

Submission link
Submission can be done online using following link:

https://easychair.org/conferences/?conf=aaiorteib2021

Important Dates
Full Chapter Submission: 10th April 2021
Review Results Returned: 24th May 2021
Final Acceptance Notification: 6th June 2021
Final Chapter Submission: 4th July 2021

Contact:
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Operational Research and Optimization for Tomorrow.
Report on Book

"Even Convexity and Optimization Handling Strict Inequalities"

by

María D. Fajardo, Miguel A. Goberna, Margarita M.L. Rodríguez, José Vicente-Pérez

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The book by *María D. Fajardo, Miguel A. Goberna, Margarita M.L. Rodríguez* and *José Vicente-Pérez* is a valuable contribution to Optimization, especially, generalized versions of Convex Analysis and Convex Optimization, its Theory, Methods and Applications, on the interface between *(i)* Algebra and Linear Algebra, Calculus and Analysis, Functional Analysis and Numerical Analysis, with an emphasis on both existence and computational aspects, and rapidly growing fields of *(ii)* Operational Research (*OR*), Mathematical Modeling, Game Theory and further applied areas, herewith paving the way to future advances in *(iii)* Data Science, Statistical and Machine Learning, Deep Learning and, ultimately, mathematically supported Artificial Intelligence. The new monograph is timely and needed, theoretically and methodologically rigorous, and promising for practice. A main reason for the expected promises of this book lies in the fact that so many of our present and upcoming highly complex problems are nonlinear and tackled by locally approximating them with the help of linear ones, such as deeply investigated in this book. With this book's help in upcoming times, the gifted youth of mathematics, *OR* and other applied disciplines can be educated, guided and trained better. Many further scientific and practical inquiries can be conducted and real-world applications may be conducted, in the vast and quickly expanding world of modern research in the quantum and the cosmic worlds, for our emerging industries, our environment, for health, prosperity, justice and freedom of our humankind and whole creation.

This book is the first one dedicated to linear systems with both general or weak lower inequalities (with “less or equal” relation) and strict lower inequalities (with “less than” relation), in total maybe infinitely many constraints, in *n*-dimensional Euclidean space with standard inner product, with the *solution set* or *feasible set* σ (called *evenly convex* by *Fenchel* in 1952) implicitly defined by these linear systems, and to those extended real-valued functions whose epigraphs (or, at least, their lower level sets) are *evenly convex*. To the authors the necessity of this book arose from the almost vanishing number of available monographs so far mind about Existence Theorems for linear systems containing strict inequalities. On the one hand, these were the monographs of *Schrijver* (on linear programming) and *Mangasarian* (on nonlinear optimization), *Owen* (on game theory), all referring to the overall index set of inequalities, *T*, being finite. On the other hand, *Goberna and López* (on semi-infinite optimization) address an arbitrary entity *T*. The situation is even harder regarding evenly convex sets and related functions, which have just been mentioned by now in *Soltan*’s book, its 2nd edition, on convex sets (devoting 2 notes to evenly convex sets and evenly convex hulls) and the PhD thesis of *Maggis* (where evenly convex and evenly quasiconvex functions are used in finance and economics). This basically complete absence of linear systems containing strict inequalities, evenly convex sets and related functions in monographs and textbooks, has caused decades of delay and stagnation of interesting research and, over the years, rediscoveries of already known facts on mathematical subjects under different names.

The authors call *σ* as *ordinary* if there are no strict inequality constraints, in symbols: *S* = - (i.e., the solution set is exclusively set up by weak linear inequalities). Then the solution set is closed and convex (a well-known type of evenly convex set). The authors say that the above linear system *σ* is *finite* if *T* is finite. Otherwise they call it as *semi-infinite* (a name coming from their finitely many variables or dimensions, and their infinitely many inequalities). *Finite ordinary linear* systems were firstly considered by *Fourier* in 1826 and secondly by *Farkas* around 1900, characterizing equilibrium points in mechanics. For their crucial role in linear programming, they have been well analyzed, because this widely used optimization model is computationally equivalent to Feasibility Problem for finite ordinary linear systems. This comes out of Duality Theorem and Fourier–Motzkin Elimination Method. *Semi-infinite ordinary linear* systems were first studied by *Haar* in 1824, in a paper unnoticed until the publication of a free translation by *Charnes, Cooper* and *Kortanek* in 1963, in their seminal paper on linear semi-infinite programming. Here the authors merely address ordinary linear systems with comparative purposes as they are treated in the abovementioned monographs, whereas their *non*-ordinary counterparts have been systematically neglected by now. *Finite non-ordinary linear* systems were first regarded by *Gordan* in 1873. They were used a couple of times in the 20th century, e.g., by *Kuhn* in 1956, *Walkup* and *Wets* in 1969, and *Kannan* in 1992, while they have become intensively employed in the 21st century in OR (such as in optimization and games), computational sciences, etc. Their feasible sets, which the authors name as *evenly convex polyhedra*, were rediscovered and studied repeatedly under names such as wholefaced polyhedra, copolyhedra, not necessarily closed convex polyhedra, G-polyhedra, and semiclosed polyhedra. As much as functions are concerned, right in same way as quasiconvex and convex functions are defined by their lower level sets or epigraphs being convex, respectively, *evenly quasiconvex* and *evenly convex* functions are defined by their lower level sets or epigraphs being evenly convex, respectively. *Evenly quasiconvex* functions, applied in economics, were introduced by *Martínez-Legaz* under the name of normal quasiconvex. Independently they were presented by *Passy* and *Prisman* in the early 1980s. *Evenly convex* functions became introduced by *Rodríguez and Vicente-Pérez* in 2011.

The authors' team enjoy a remarkable reputation, especially, for their strong research achievements over many decades, for example, in semi-infinite optimization and related subjects, along with their coauthors from Alicante, from other Spanish cities – premium centers as well, and from all over the world. Therefore the present book stands another academic success of the authors and their team. It bases on vast experience and strong foundation in mathematics and *OR*.

This innovative and truly unique work is offered to us together with several special and additional benefits and promises, namely: *(i)* It contains numerous "classical" OR and mathematical applications, so that the reader is well motivated to get involved into the scientific terminology of the book and trust in its real-world meaning and impact. Those applications could also be used by the reader in education and other lectures and presentations, *(ii)* It contains many classical and, especially, emerging conditions and their characterizations which enrich the mathematics of *OR* and intellectually train and trim the readers both from theory and from practice, *(iii)* It is highly flexible in order to be applied in future on other "linear problems", to be generalized in theory for "nonlinear problems" and applied on them, and on infinite-dimensional and stochastic problems, both linear and nonlinear ones. Here we may think of infinite programming, infinite kernel learning, calculus of variations, theories of optimal control and dynamical games, and of their stochastic counterparts.

The four chapters and all the other parts of this book are these. After *Preface, Acknowledgments*, etc., there are: *Chapter 1*: Evenly Convex Sets: Linear Systems Containing Strict Inequalities, *Chapter 2*: Evenly Convex Polyhedra: Finite Linear Systems Containing Strict Inequalities, *Chapter 3*: Evenly Quasiconvex Functions, *Chapter 4*: Evenly Convex Functions, and the *Appendix*: Extensions to Infinite-Dimensional Spaces.

On Chapter 1: Here the authors are concerned with linear systems of a possibly infinite number of weak or strict inequalities and with their solution sets, which they name as evenly convex sets. Both sets and functions are "equivalent" to each other. In different ways they first characterize evenly convex sets which fulfill most of the well-known properties of closed convex sets. Any set has an evenly convex hull. Then they turn to the operations with evenly convex hulls and how they relate to other hulls. Next on the agenda are diverse Separation Theorems with evenly convex sets, followed by Existence Theorems for linear systems with strict inequalities and characterizations of linear inequalities. This permits them to tackle Set Containment problems with convex sets. Next the authors turn to evenly linear semi-infinite programming problems, before they make applications to the following subjects: Polarity that once inspired the authors to their evenly convex set, Semi-infinite Games, Approximate Reasoning, Optimality Conditions, and Strict Separation of Set Families.

On Chapter 2: Here the authors deal with linear systems containing finitely many weak or strict inequalities, whose solution of feasible sets (if nonempty) are called as evenly (or: e-) convex polyhedral. All corresponding results in Chapter 1 remain valid, but the finiteness of linear representations of e-polyhedra allows obtaining specific results and methods. Many convex-set families have both Internal and External Representations. The outstanding advantage of the polyhedra against the other two families of convex sets is given by the Double Description Methods permitting an external representation from the internal one, and vice versa. In this chapter, the authors extend this method from polyhedra to e-polyhedra. They first describe Fourier-Motzkin Elimination Method to project a given e-polyhedron on the coordinate planes. Iteratively applied this allows the finding of solutions for finite linear systems containing strict inequalities. Then they associate each finite non-ordinary system with its so-called "representative cone", containing all relevant information about the systems. By

this, Existence Theorems and Characterizations of the consequent inequalities can be simplified
for an arbitrary number of constraints. Then they present the aimed Double Description Method for e-polyhedra, before they investigate the minimization of linear functions under weak and strict linear inequalities, named as Evenly Linear Programming Problems.

On Chapter 3: After all the careful preparations made in the previous chapters, now the authors investigate deeply on evenly quasiconvex functions, evenly quasiconvex hulls, conjugacy and subdifferentiability, duality in quasiconvex optimization, and an application to consumer theory, and bibliographic notes. In this chapter, again the mathematics is done with rigor and completely. Many small examples facilitate an easier understanding and help the newcomer in the field, or any reader who comes from fields rather different from mathematics, to endure, enjoy and memorized key conditions, configurations and results.

On Chapter 4: Now the authors introduce evenly convex functions as such whose epigraphs are evenly convex sets. They unfold a Duality Theory for nonlinear optimization involving evenly convex optimization. First they present the main properties of this problem class of convex functions which includes the important subclass of lower semicontinuous convex functions, whose relevance in convex analysis comes from the fact that Fenchel Conjugacy is an “involution” on most of them. Then the authors offer the evenly convex hull of a function and schemes of conjugation for evenly convex functions, before they unfold the c-Conjugate Duality Theory along with regularity conditions of type “closedness”. The latter ones will be expressed by even convexity of the functions involved, for both strong and stable strong duality of convex problems.

Appendix A: At least a dozen of results provided by this book also possess an infinite-dimensional counterpart, in which the finite-dimensional Euclidean space can be substituted and in fact generalized by some Banach spaces or even a locally convex separated, i.e., Hausdorff, topological vector space. These cases and places of the book are carefully listed in a table.

This excellent book is clearly and well structured, analytically deep, well exemplified, beautifully illustrated, and written with care and taste.

In the future, refinements and extensions in analytic, theoretical foundations and algorithmic techniques may be considered by the authors and within the academic family, prepared, supported and inspired by this book. These could be made in the form of articles and monographs, and in terms of, e.g., Singularity and Morse Theory, of Non-smooth, Discontinuous or Robust Optimization, Optimal Control, Stochastic Optimal Control, and of Discrete-Combinatorial elements such as Thresholds, Regime Switching and Hybrid Systems, Collaborative Game theory and Stochastic Games.

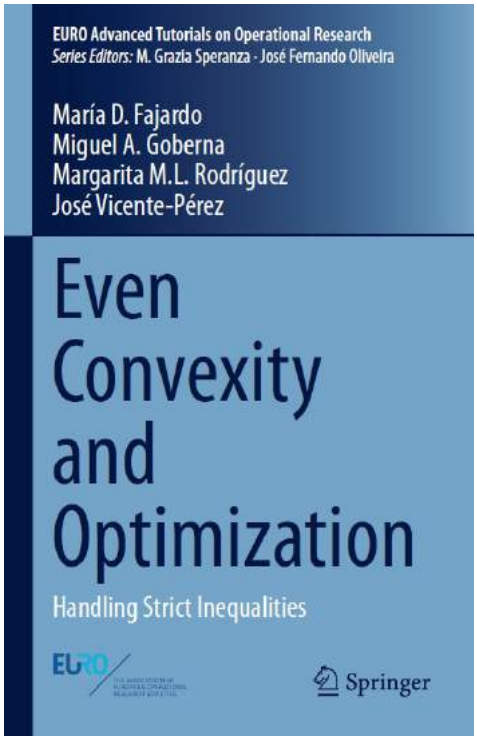
Those future advancements could nurture and support successes in management, economics and finance, in the natural sciences and high-technology, in bio-, cognitive and medical sciences, in environmental, geo-, earth- and space-time-sciences, and in societal and developmental sciences.

Just to mention one recent research area of physics and cosmology, neuroscience and spirituality where those particular mixtures between weak and strict inequality constraints naturally occur and can help in modeling, we give a tentative quotation by one of the authors:

"As far as mathematics can serve, our boundaries, surfaces and membranes, interiors and exteriors, in dimensionally generalized space-time, and in all states of matter, may in a natural way be modeled by possibly infinite sets which consist of both "weak inequalities" and also "strict" ones. These mixtures and the related generalized manifolds have been the subjects of studies by a scientific optimization team in Spain. Its members are María D. Fajardo, Miguel A. Goberna, Margarita M.L. Rodríguez, *and* José Vicente-Pérez. *Their underlying scientific school mainly comes from the deep investigation of the "linear" branch of semi-infinite optimization which we will discuss […]"*
(from the upcoming book *"Times and Lives"* by G.-W. Weber).

PS: Some more information about the book and its underlying series are noteworthy. We quote it here.

The EURO Advanced Tutorials on Operational Research *are a series of short books devoted to an advanced topic - a topic that is not treated in depth in available textbooks. The series covers comprehensively all aspects of Operations Research. The scope of a Tutorial is to provide an understanding of an advanced topic to young researchers, such as Ph.D. students or Post-docs, but also to senior researchers and practitioners. Tutorials may be used as textbooks in graduate courses. More information about this series can be found at* http://www.springer.com/series/13840.
The editors of EURO Advanced Tutorials on Operational Research are Prof. Dr. M. Grazia Speranza *(University of Brescia, Italy) and* Prof. Dr. José Fernando Oliveira *(University of Porto, Portugal).*



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EUROPT: https://www.euro-online.org/websites/continuous-optimization/

People wishing to submit an announcement to the EUROPT mailing list should address their message to europt@di.unipi.it. The message will then be distributed upon approval by the EUROPT Managing Board.

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Editor's notes

Dear members of EUROPT, dear readers,

The year 2020 has been characterized by the COVID-19 pandemic, that is still affecting our lifes and scientific communities as well. Nevertheless, our EUROPT community remains active, coming up with valuable initiatives. In this Newsletter we present reports on some events that have been held successfully in a *virtual mode*, as well as some calls for papers/chapters.

Our annual workshop, that was postponed to 2021 because of the pandemy, is being organized under the form of a hybrid in-person/remote event (possibly in virtual mode depending on the evolution of the situation), to be held on July 7-9, 2021. We are pleased to give up-to-date informations on EUROPT 2021 in this Newsletter. Please do not miss the opportunity to participate and discuss the latest developments in continuous optimization, We hope that the most of the community members will be able to participate!

Plenary lectures will be given at EUROPT 2021 by the EUROPT Fellow 2020 Prof. Manlio Gaudioso and by the recently elected Fellow 2021 Prof. Monique Laurent. You can find the announcement of this election in the present Newsletter. Our congratulations to Prof. Laurent!

Many thanks to all contributors to this Newsletter. Please keep on sharing valuable informations for the EUROPT community.

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