



Newsletter 43 of EUROPT

EUROPT - The Continuous Optimization Working Group of EURO

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

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In this issue:

Words from the Chair	3
Laudatio for Jacek Gondzio, EUROPT fellow 2019	4
EUROPT Workshops	6
• Report on EUROPT 2019	6
• Forthcoming Event : EUROPT 2020	10
Reports	11
• Report on EURO-K Conference Dublin 2019	11
• Report on EWG-ORD 2019 Dublin	17
• Report on the International Public Lecture in Pematang Siantar	19
• Report on Manufacturing 2019	
• Report on Workshop of Mathematical Solutions in Business and Industry	23
Forthcoming events	26
• ISMSI 2020	26
Call for Papers	27
• Call for papers - Special issue of Mathematical Programming	27
• Call for papers - Special issue of Journal of Dynamics and Games	27
• Call for chapters - IGI Global	31
Contacts	32
Editor's notes	33

Words from the Chair

Dear Friends,

on behalf of the Managing Board welcome to the 43rd EUROPT Newsletter. Our latest annual EUROPT workshop took place in Glasgow. The report can be found in this issue of the newsletter as well as the Laudatio for Jacek Gondzio who was awarded EUROPT Fellow 2019 during the workshop. You can also find a detailed report on the 2019 EURO Conference, that was held in Dublin a few day before our own workshop, as well as some other interesting reports and call for papers.

Next year there will be no EURO Conference since the triennial IFORS Conference will take place in Seoul, South Korea, on 21-26 June 2020. In Glasgow we announced that the next EUROPT workshop will be in Toulouse, France, on 1-3 July 2020. It will be hosted by ENAC and organised by a group of French researchers led by Sonia Cafieri, who will be chairing the Programming Committee. The workshop will mark 20 years of activity for our working group: we are all looking forward to your contributions and participation to make it a unique and unforgettable event!

The new EUROPT website https://www.euro-online.org/websites/continuousoptimization/was released about two years. We still need to rebuild a reliable member list through the website. 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

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Laudatio for Jacek Gondzio, EUROPT fellow 2019



Jacek Gondzio University of Edinburgh, Scotland EUROPT fellow 2019

Professor Jacek Gondzio is a world leader in the area of interior-point methods, or IPMs. He has made remarkable contributions to the theory of IPMs, notably on their practical warm-starting in different contexts. One example is his study of the warm-starting of an infeasible primal-dual IPM within a cutting plane method for the realistic case when a large number of cuts are added at one time. He has also contributed to making IPM warm-starting practical in the context of stochastic programming, using a reduced version of the problem to generate a warm-starting point for the complete problem. This intuitive idea not only works in practice, but is also supported by explicit conditions that guarantee the success of the warm-start.

Another important theoretical contribution is the development of matrix-free IPMs. The basic idea is to redesign the linear algebra kernel of an IPM to avoid the explicit use of matrices. The problem data is only accessed via matrix-vector multiplications with the Hessian and Jacobian matrices. Naturally preconditioners are essential for the success of these methods, and his work proposed effective ways to compute them. The use of only matrix-vector multiplications is well-suited to problems in which matrices are not explicitly available or are simply too large to be stored.

A recent major development is a robust second-order method for the solution of strongly convex L_1 -regularized problems. The method is a primal-dual Newton conjugate gradients method for which convergence properties are studied and worst-case iteration complexity is established. Because the method is as inexpensive as possible, it can solve efficiently even very difficult problems of size 2^{40} (If, like me, you have not memorized enough powers of 2, this number is greater than 1 followed by 12 zeros!) This method is particularly promising in the modern context of increasing data availability and importance of optimizing in various machine learning applications.

Jacek Gondzio has not only made theoretical breakthroughs, but he has also ensured that these breakthroughs achieve practical impact through major software development efforts. I will mention three of his software implementations:

- HOPDM (Higher Order Primal-Dual Method) is an efficient implementation of the matrix-free primal-dual IPM for large scale linear and convex quadratic optimization.
- PDCGM (Primal-Dual Column Generation Method) is an IPM-based environment that uses the aforementioned HOPDM for solving large scale optimization problems using the primal-dual column generation method.

• OOPS (Object-Oriented Parallel structure exploiting interior point Solver) is a parallel interior point code that exploits any special structure present in the Hessian and Jacobian matrices. Notably it was used in 2005 to solve a financial planning quadratic optimization problem with 353 million constraints and more than 1000 million variables.

The research contributions of Jacek Gondzio extend beyond the points above, as demonstrated by his extensive publication record. In short, his career is one of outstanding scientific contributions to continuous optimization.

Moreover, Jacek Gondzio has made an impressive amount of other contributions to our community.

First, concerning EUROPT directly, he co-organized the EUROPT 2015 workshop for which he was Chair of the Programme Committee. He has served on the program committee for several other EUROPT workshops over the years, and is a regular attendee at our events.

Beyond EUROPT, he regularly organizes workshops on aspects of continuous optimization in Edinburgh. Indeed he has organized 8 such workshops in the past 5 years alone, with topics ranging from preconditioning to optimization of truss structures.

More broadly, he has a track record of leadership within our community. In terms of editorial work for international journals, he serves or has served on the boards of 5 major journals in our area, including the EURO flagship *European Journal of Operational Research*. Beyond EURO, he was recently elected Member-at-Large of the Council of the Mathematical Optimization Society.

Congratulations to Jacek Gondzio, EUROPT Fellow for 2019!



Jacek Gondzio (centre), EUROPT Fellow 2019, between Giancarlo Bigi (EUROPT Chair, left) and Miguel Anjos (EUROPT Fellow 2017, right)

EUROPT Workshops

Report on EUROPT 2019

17th EUROPT Workshop on Advances in Continuous Optimization

28-29 June 2019, Glasgow, UK

http://icelab.uk/europt-2019/

The 17^{th} EUROPT 2019 Workshop on Advances in Continuous Optimization was hosted by the University of Strathclyde, Glasgow, UK.

This Workshop continued the line of previous EUROPT workshops: first held in 2000 in Budapest, followed by the workshops in Rotterdam 2001, Istanbul 2003, Rhodes 2004, Reykjavik 2006, Prague 2007, Remagen 2009, Aveiro 2010, Ballarat 2011, Siauliai 2012, Florence 2013, Perpignan 2014, Edinburgh 2015, Warsaw 2016, Montréal 2017, and Almería 2018. The 17th EUROPT 2019 Workshop was a satellite meeting following the 30th European Conference on Dublin. $23^{rd} - 26^{th}$ Operational Research (EURO 2019. Ireland. (https://www.euro2019dublin.com/). The preparations of the 17th EUROPT 2019 Workshop were distributed between a Programme Committee and the Organizing Committee composed by members of the Intelligent Computational Engineering Laboratory (ICELab), as well as other staff of the University of Strathclyde, with the support of the Glasgow Convention Bureau. Their compositions are presented here below.

Program Committee

Paula Amaral, Universidade Nova de Lisboa, Portugal (EUROPT MB), Miguel Anjos, University of Edinburgh, UK (EUROPT Fellow), Giancarlo Bigi, Università di Pisa, Italy (EUROPT chair), Immanuel Bomze, University of Vienna, Austria (EUROPT Fellow), Sonia Cafieri, ENAC (École Nationale de l'Aviation Civile)/Université de Toulouse, France (EUROPT MB), Emilio Carrizosa, Universidad de Sevilla, Spain, Coralia Cartis, University of Oxford, UK, Gabrielle Eichfelder, Technische Universität Ilmenau, Germany, Manlio Gaudioso, Università della Calabria, Italy, Andreas Grothey, University of Edinburgh, UK (EUROPT MB), Julian Hall, University of Edinburgh, UK, Tibor Illes, Budapest University of Technology and Economics, Hungary (EUROPT Hon Chair), Michal Kocvara, University of Birmingham, UK, **Dmitri Kvasov**, Università della Calabria, Italy (EUROPT MB), **Marco** Locatelli, Università di Parma, Italy (EUROPT Fellow), Kaisa Miettinen, University of Jyväskylä, Finland (EUROPT Past Chair), Edmondo Minisci, University of Strathclyde, UK (EUROPT 2019 PC Chair), Ruth Misener, Imperial College, UK, Laura Palagi, Università di Roma "La Sapienza", Italy (EUROPT MB), Veronica Piccialli, Università degli Studi di Roma "Tor Vergata", Italy, Annalisa Riccardi, University of Strathclyde, UK, Francesco Rinaldi, Università di Padova, Italy, Fabio Schoen, Università di Firenze, Italy, Oliver Stein, Karlsruher Institut für Technologie, Germany, Christiane Tammer, Martin-Luther-Universität Halle-Wittenberg, Germany (EUROPT MB), Tatiana Tchemisova, Universidade de Aveiro, Portugal, Tamas Terlaky, Lehigh University, USA (EUROPT Hon Chair), Massimiliano Vasile, University of Strathclyde, UK, Angelika Wiegele, Alpen-Adria-Universität Klagenfurt, Austria, Gerhard Wilhelm Weber, Poznan University of Technology, Poland

(EUROPT Hon Chair), **Anatoly Zhigljavsky**, Cardiff University, UK, **Julius Zilinskas**, Vilniaus Universitetas, Lithuania (EUROPT Past Chair).

Organizing Committee

Deep Bandivadekar, University of Strathclyde, UK, Marilena Di Carlo, University of Strathclyde, UK, Nicola Hyne, University of Strathclyde, UK, Christie A. Maddock, University of Strathclyde, UK, Francesco Marchetti, University of Strathclyde, UK, Peter McGinty, University of Strathclyde, UK, Jenny McLeod, University of Strathclyde, UK, Edmondo Minisci, University of Strathclyde, UK, Annalisa Riccardi, University of Strathclyde, UK (Organizing Committee Chair), Lorenzo Ricciardi, University of Strathclyde, UK, Massimiliano Vasile, University of Strathclyde, UK

Geographical Distribution of the participants

The workshop was attended by a total of 94 participants with the following geographical distribution.

United Kingdom: 26, Italy: 15, Germany: 7, France: 7, Spain: 5, Portugal: 4, Belgium: 3, Czech Republic: 3, Mexico: 3, Austria: 2, Chile: 2, Greece: 2, HK: 2, Japan: 2, Turkey: 2, Brasil: 1, Canada: 1, China: 1, Israel: 1, Lithuania: 1, Poland: 1, Romania: 1, Switzerland: 1, USA: 1.

The 2019 EUROPT Fellow Lecture

The title of EUROPT Fellow is awarded each year to an outstanding researcher in the field. The award is decided by the EUROPT Managing Board on the basis of the nominations received from the EUROPT's members. The recipient of the 2019 EUROPT Fellowship was Jacek Gondzio, Professor of Optimization at the University of Edinburgh, who delivered the EUROPT Fellow Lecture on "Interior Point Methods and Beyond".

Scientific Programme

The scientific programme consisted of 68 talks (20 minutes for each presentation), organised on four parallel streams, and four plenary lectures (including the EUROPT Fellow Lecture):

- Claire Adjiman, Professor of Chemical Engineering, at the Imperial College, London, on Deterministic global optimisation of mixed integer nonlinear bilevel programs
- Daniel Kuhn, Professor of Operations Research at the College of Management of Technology at EPFL, on Wasserstein Distributionally Robust Optimization: Theory and Applications in Machine Learning
- Margaret Wright, Silver Professor of Computer Science at Courant Institute of Mathematical Sciences, New York University, on *Teaching Numerical Optimization: How to Move from Theory to Code?*

Social Programme

The 17^{th} EUROPT 2019 Workshop incorporated also the following social events:

- Welcome Drink Reception hosted by the Glasgow City Council at the *Glasgow City Chambers*.
- Conference Gala Dinner at *The Trades Hall of Glasgow*.
- Lunches in the foyer area of the Strathclyde Business School.

Support and Sponsors

The scientific and social programmes of the EUROPT 2019 Workshop would not have been possible without the support of:

- Intelligent Computational Engineering Laboratory (ICELab),
- EUROPT working group,
- EURO.

EUROPT 2020 Workshop

The EUROPT 2020 Workshop will take place in Toulouse, France, on July 1st to 3rd 2020. It will be hosted by the Optimization group of the ENAC - École Nationale de l'Aviation Civile. We look forward to it!

The Organizers of EUROPT 2019



The EUROPT 2019 participants at The Trades Hall of Glasgow



W. Weber (EUROPT honorary chair), J. Gondzio (2019 fellow), G. Bigi (EUROPT chair), E. Minisci (chair of the Programme committee), I. Bomze (EURO president & 2014 fellow), Y. Nesterov (2010 fellow), M. Anjos (2017 fellow), M. Lopez (EUROPT past chair), J.E. Martínez-Legaz (2011 fellow)



EUROPT 2020 annoucement - See you in Toulouse!

18th EUROPT Workshop on Advances in Continuous Optimization Toulouse, France, July 1-3, 2020

https://europt2020.recherche.enac.fr/



The 18th EUROPT Workshop on Advances in Continuous Optimization (EUROPT 2020) will take place in **Toulouse**, France, **from July the 1st to July the 3rd, 2020**.

The EUROPT Workshop on Advances in Continuous Optimization is the annual event of the EUROPT continuous optimization working group of EURO (The Association of European Operational Research Societies). This 18th edition will take place one week after the IFORS 2020 conference (Seoul, South Korea, June 21-26, 2020), and will concide with the **20 years anniversary of activity of the working group**.

EUROPT 2020 will be hosted at ENAC - École Nationale de l'Aviation Civile, in Toulouse, the "pink city" in southern France.

More detailed information about the Workshop will be announced soon. You may have a look to the website https://europt2020.recherche.enac.fr/ (under construction). For informations, you may also contact sonia.cafieri@enac.fr.

Please add the Workshop dates to your agenda!

We are looking forward to welcoming you in Toulouse!

On behalf of the Organizing Committee, Sonia Cafieri

Reports

Report on EURO-K Conference Dublin 2019

World's Leading Operational Research Professionals Meets at 30th European Conference on Operational Research in Dublin

The 30thEuropean Conference Operational Research (EURO on 2019; https://www.euro2019dublin.com/) was completed with great success in University College Dublin, Ireland (https://www.ucd.ie/), from June 23 to 26. It was organized by The Association of European Operational Research Societies (EURO; https://www.euro-online.org/) and the Analytics Society of Ireland (http://mis.ucd.ie/mssi/). More than 2,500 of the world's leading OR professionals met at this important conference which gave all the participants a great motivation. Different aspects of OR topics were introduced in EURO 2019. Tremendous efforts and care was spent by Program Committee Chair Prof. Luis Gouveia, together with the local hosts, Organizing Committee Chair Prof. Seán McGarraghy along with Prof. Cathal MacSwiney Brugha, and their teams (cf. https://www.euro2019dublin.com/committees).

The conference topics were divided into Areas:

- Analytics, Data Science and Data Mining,
- Artificial Intelligence, Fuzzy Systems and Computing,
- OR Education,
- Continuous Optimization,
- Control Theory and System Dynamics,
- Decision Analysis, DSS, DEA and Performance Measurement,
- Discrete Optimization, MIP and MINLP,
- Emerging Applications of OR,
- Energy, Environment, Natural Resources and Climate,
- Financial Modeling, Risk Management and Managerial Accounting,
- Game Theory and Mathematical Economics,
- Graphs and Networks.
- Metaheuristics,
- Multiple Criteria Decision Making and Optimization,
- OR History and OR Ethics,
- OR for Developing Countries and Humanitarian Applications,
- OR in Health, Life Sciences and Sports,
- OR in industry and software for OR,
- Practice of OR (Making an Impact),
- Production, Service and Supply Chain Management,
- Revenue Management,
- Routing, Logistics, Location and Transportation,
- Scheduling, Timetabling and Project Management,
- Simulation, Stochastic and Robust Optimization,

• Soft OR, Problem Structuring Methods and Behavioural OR

Moreover, under the responsibility of the Program Committee, the areas were subdivided into streams and sessions. Areas and streams were organized with the help of EURO Working Groups, international experts, and involved individuals. Every stream consisted of several sessions (including invited and contributed sessions, respectively). To recognize their valuable services, certificates were handed out to the Stream Organizers by EURO President Prof. Immanuel Bomze.

Prestigious Plenary Speakers gave their lectures at EURO 2019:

- Ulrike Reisach, Neu-Ulm University of Applied Sciences, Artificial Intelligence How Ethics and Governance Could Contain the Manipulation of Societies,
- William Cook, (IFORS Distinguished Lecturer), Johns Hopkins University, *The Traveling Salesman Problem: postcards from the edge of impossibility*,
- Dick den Hertog, Tilburg University, The Netherlands, What every OR practitioner should know about Robust Optimization.

Furthermore, **Tutorial speakers** included:

- Anna Nagurney, Isenberg School of Management at University of Massachusetts Amherst, USA, Game Theory and Variational Inequalities: From Transportation and Supply Chains to Financial Networks and the Internet,
- Bernd Bischl, LMU Munich, Germany, Bayesian Optimization and Automatic Machine Learning,
- Claudia D'Ambrosio, CNRS, LIX, Ecole Polytechnique, France, Challenging Optimization Problems in Energy Production and Transportation,
- Holger Hoos, Universiteit Leiden, The Netherlands, Programming by Optimisation: Automated algorithm configuration, selection and beyond,
- Ivana Ljubic, ESSEC Business School of Paris, France, From Game Theory to Graph Theory: A Bilevel Journey,
- Leon Petrosyan, St. Petersburg University, Russia, *Time-Consistency Problem in Control Theory and Dynamic Games*,
- Nico Vandaele, KU Leuven, Belgium, Humanitarian Operations Modeling at the Interplay of Relief and Development,
- Nicole Adler, Hebrew University, Israel, Applying game theory to analyze air transport markets.
- Piotr Faliszewski, AGH University of Science and Technology Krakow, Poland, Committee Elections: Applications, Axioms, and Algorithms,
- Roberto Cominetti, Universidad Adolfo Ibanez, Chile, Routing games in congested networks: convergence for large games and the Price-of-Anarchy,
- Sally Brailsford, University of Southampton, UK, Introduction to hybrid simulation,
- Sheetal Silal, University of Cape Town, South Africa, Evidence-based tools to support decision making for malaria elimination.

"Women in OR Panel Session" in EURO 2019 gave opportunity to discuss the equality, diversity and inclusion of women researchers in the field. Furthermore, panelists recognized the historical contribution of many brilliant women. In addition to this, the difficulties of the gender gap in science were reflected from the side of women. In the same panel session, news on the improvement of the policies for women's rights was explained to the participants. Correspondingly, European Commission publishing its Horizon Europe proposal for 2023 was announced to the participants of the session with chances to figure out more on the issue. Besides, a limited number of topics and action proposals were discussed based on proposals of the participants.

Roundtable Panel "Can OR save the world?" investigated right that question; it was a joint session with the new Governance Analytics stream. The main idea of the panel was to discuss how OR can help to respond to the enormous challenges which mankind now faces. Additionally, Practitioners' stream was organized to present applications of OR in industry, business or public sector organizations.

During the three days of the event, "Editor Speed Review Sessions" were very informative for the scholars. For example, some important published works of The European Journal of Operational Research (EJOR) were presented by the authors which were carefully selected by the Editors of the official publications of EURO, the Association of European Operational Research Societies: European Journal of Operational Research (EJOR), EURO Journal on Computational Optimization (EJCO), EURO Journal on Decision Processes (EDDP), and EURO Journal on Transportation and Logistics (EJTL). The EURO journals are closely introduced at https://www.euro-online.org/web/pages/106/publications.

The conference presented a wide range of plenary presentations, panels, tutorials and other types of presentations by and for researchers, experts, academics. This variety and diversity of the presentations helped the participants to understand other aspects of contemporary and future OR studies, which provided a chance to discuss about further collaboration projects between the attendees.

Gala dinner was organized at Aviva Stadium of Dublin which is the oldest sports stadium in Europe. During the night Irish hospitability was shown to the participants and they enjoyed the excellent food with the traditional music and cultural entertainment at that unforgettable evening.

On Wednesday evening, attendees were invited to celebrate excellence in profession at EURO 2019 Awards and Closing Ceremony. Here, EURO presented some of its most prestigious awards to recognize leading contributions from OR practitioners, students, and academics:

- EURO Gold Medal (EGM 2019): Martine Labbé (Université Libre de Bruxelles),
- EURO Distinguished Service Medal Award (EDSM 2019): Paolo Toth, (University of Bologna),
- EURO Doctoral Dissertation Award (EDDA 2019): Martina Fischetti (Technical University of Denmark): "Mathematical Programming Models and Algorithms for Offshore Wind Park Design",
- EURO Excellence in Practice Award (EEPA 2019): Yves Lucet and Warren Hare (University of British Columbia),

- EURO Award for the Best EJOR Paper, Innovative Applications of OR (EABEP 2019): Jasper Schuijbroek (Eindhoven University of Technology), Robert Hampshire (Transportation Research Institute, University of Michigan), Willem van Hoeve (Tepper School of Business, Carnegie Mellon University): "Inventory rebalancing and vehicle routing in bike sharing systems",
- EURO Award for the Best EJOR Paper, Theory and Methodology (EABEP 2019): Adiel Almeida, Jonatas Araujo De Almeida, Ana Paula Costa and Adiel de Almeida-Filho (Universidade Federal de Pernambuco): "A new method for elicitation of criteria weights in additive models: flexible and interactive tradeoff",
- EURO Award for the Best EJOR Paper, Review (EABEP 2019): Mika Marttunen (Finnish Environment Institute (SYKE)), Judit Lienert (Swiss Federal Institute of Aquatic Science and Technology), Valerie Belton, (University of Strathclyde in Glasgow, Scotland): "Structuring problems for Multi-Criteria Decision Analysis in Practice: A literature review of method combinations".

To learn more please visit the Prizes & Awards page at https://www.euro2019dublin.com/. Sponsorships of our valuable event were given by Gurobi Optimization, Elsevier, AMPL, JMP and FICO.

In the last day of EURO 2019, upcoming conferences were introduced to the attendees: IFORS 2020 at Coex Convention Center in Seoul, South Korea, June 21-26, 2020, and EURO 2021, Athens, Greece, July 11-14, 2021. We are cordially invited to these and further valuable, exciting and sparking events in our *OR family!*



Panel "How can better governance save the world with the help of OR?" with participants: Anna Nagurney, Dick den Hertog,
Cathal MacSwiney Brugha, Ulrike Reisach, Dennis Huisman and Joaquim Gromicho



After plenary speech of Professor Cook on "The Traveling Salesman Problem: postcards from the edge of impossibility" with Gerhard-Wilhelm Weber, William Cook, Burcu Gürbüz and Malgorzata Spychala



Closing party of EURO-2019 in University College Dublin (UCD)



Ha'penny Bridge, beautiful Dublin, Ireland.

Burcu Gürbüz burcu.uskudar@edu.tr

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

Report on EWG-ORD 2019 Dublin: A Move towards Sustainability



"Renewable: Energy, Health and Sustainability" was the theme of the recently concluded European Working Group - Operations Research for Development Workshop (EWG-ORD) 2019 held at the University College Dublin (UCD) last June 20, 2019 (https://www.nkd-group.com/EWG/home.html). The workshop was a Satellite Event of the EURO 2019 International Conference which took place last June 23-26, 2019, at the same venue (https://www.euro2019dublin.com/).

The EWG-ORD was established in 2006 and aimed at providing and facilitating communication links among European and other researchers working on areas of Operational Research for Development (https://www.euro-online.org/web/ewg/29/ewg-ord-euro-working-group-on-operations-research-for-development, https://www.euro-online.org/websites/ord/). It has organized annual workshops to promote the importance of Operations Research in improving the lives of people in developing and developed countries.

The EWG-ORD 2019 Workshop aimed to continue the 2018 forum for debate and exchange of knowledge and experiences towards the achievement of the Sustainable Development Goals through the application of OR and an in-depth discussion into renewable energy, health, and well-being, and other topics on sustainability. It was highlighted by the Keynote Speech of Prof. Maria Teresa Ortuno of Complutense University of Madrid who discussed "Protecting Life, Health and Well-being of Populations Along the Disaster Cycle, Some OR Models in Humanitarian Logistics". Four Sessions were organized: (a) Session Logistic Models for Sustainability chaired by Prof. Milagros R. Baldemor which included the following papers: "Multistage Stochastic Programming Model for Strategic Facility Location", "Tactical Resources Allocation for Humanitarian Logistics" and "Reverse Logistics for Medical Equipment Use of MCDM Methods"; (b) Session Public Policy Decisions for Sustainability chaired by Prof. Begonia Vitoriano with the papers: "Supporting Public Decision-Makers in the Design of Energy Efficiency Program: A Portfolio-Based Approach", "Policies of Government Subsidies in a Green Dual-Channel Supply Chain" and "Dynamic Lot Sizing and Promotion Decision with the Impact of UK Tax Legislation"; (c) Session Development, Sustainable Communities and Innovation chaired by Prof. Dr. Carla Henriquez with the papers: "Operational Research: A Tool for Economic Development, Advancing Water-Resource Management: Application of Novel OR Analytics Snow Classification on Sentinel-2 Imagery by MARS" and "Analysis of Workplace Characteristics and Blood Pressure Status Among Civil Servants in Rural and Urban Communities of Niger State, Nigeria"; and lastly, (d) Session Quality Education chaired by Prof. Gerhard-Wilhelm Weber with the papers: "The 7Es Instructional Model and Its Longitudinal Impact on the Mathematics Achievement of Tertiary Students" and "Higher Education for Sustainable Development: Its Importance and Risks".

Each paper presentation was enriched by the Reactions of the assigned participants and questions from the other researchers. There was also an active atmosphere of sharing the best

practices among the institutions and methodologies/strategies in the teaching-learning process.

After the closing session, a Dinner took place as a bonding session among the participants and paper presenters which served as an avenue to discuss among themselves future collaborations.

On June 21, the Organizing Committee co-chaired by Prof. Nina Kajiji and Prof. Gordon Dash of the University of Rhode Island, USA, brought the participants to a Full-Day Tour to Glendalough, Wicklow Mountains, Kilkenny and sheep dog trials for them to see the beauty of historical Ireland which they enjoyed most.

The friendly support and guidance of Honorary Chair of EWG-ORD, Dr. Elise del Rosario, and of Prof. Cathal MacSwiney Brugha (University College Dublin) contributed much to the success of the workshop. The organizers' encouragements opened the doors for future collaborations. Moreover, EWG-ORD offered a limited number of grants to partially support the expenses of participants from weak currency countries. The support of the workshop sponsors - EURO, University College Dublin, and the University of Rhode Island was very much appreciated.



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Report on the International Public Lecture at AMIK-STMIK Tunas Bangsa, Pematang Siantar

The International Public Lecture took place in collaboration with AMIK and STIKOM Tunas Bangsa Pematangsiantar, during February 11st, 2019, in Pematang Siantar, North Sumatra, Indonesia. It was a collaborative effort between Tunas Bangsa Higher Institution, Indonesian Mathematical Society (INDOMS), Ikatan Profesi Komputer dan Informatika Indonesia (IP-KIN). The theme of the Public Lecture were dedicate to the motto from Operational Research "Managing Disaster with Operations Research", which is of vast of importance worldwide, especially for an emerging nation like Indonesia with its young population and experience a lot of natural disasters. This lecture aimed (1) to bring together the students, scientists, researchers and practitioners in the scientific forum; (2) to share and to discuss theoretical and practical OR knowledge about innovation in computer sciences and applied mathematics. Specifically, this event can be used as a scientific forum for accommodating discussion among young researchers, students in particular, that mostly are from the field of Computer Sciences, Applied Mathematics and, in particular, Operational Research. Therefore, some of the invited speakers and many participants at this International Lecture were young and promising researchers that are becoming more and more well-known and reputable in the world. In fact, Operational Research has served at Tunas Bangsa Higher Institution as our charismatic intersection with the real life, with all of its industrial, financial, economic, developmental and educational challenges, regime-switching and disruptions, and as a unique chance of the youth to getting in touch with modern research and the international academic family.

Pematang Siantar, with its famous Animal Zoo from the Dutch era, that hosted The International Public Lecture is an important city located at North Sumatra Province - offering a spectacular view on a unique landscape and nature, and of the culture of the local Batak and Simalungun people. This quite particular venue provided the opportunity to numerous further considerations and discussions, e.g., on creation of future industries and working places, on environmental protection - of rain forest, orangutans, elephants..., on eco-friendly tourism, e.g., related to the new project on making neighboring Lake Toba another main touristic destination in Indonesia, together with Bali Island. It is our conviction that Operational Research with its wide range of subjects, powerful tools and academic network can become the missing link and a real key technology to providing answers on global and emerging challenges of humankind.

The speakers' talks focused especially on the OR, Computer Sciences and Applied Mathematics. There were five speakers of the lecture: Prof. Dr. Gerhard-Wilhelm Weber (Poznan University of Technology, Poland, and METU, Ankara, Turkey): "Optimization for Supply Chain Planning after Disasters with Cooperative Game Theory under Uncertainty"; and "Voxel-MARS and CMARS: Methods for Early Detection of Alzheimer's Disease by Classification of Structural Brain MRI", as well as Prof. Dr. Saib Suwilo (University of North Sumatra, Medan, Indonesia), Prof. Dr. Herman Mawengkang (University of North Sumatra, Medan, Indonesia), Dr. Dedy Hartama (STIKOM Tunas Bangsa, Pematangsiantar, Indonesia), and Dr. Sajadin Sembiring (University of North Sumatra, Medan, Indonesia).

This International Public Lecture became a great success event; attracting students, staff members and researchers gained a great academic experience. It was attended by about 200 participants.

Organizers and many of the participants share a long-ranging and warm friendship within IFORS and EURO, especially, at their conferences with streams and sessions. In reverse, many of our EURO and IFORS friends have been invited to North Sumatra, to the city of Medan and to Lake Toba, and received hospitality in recent ten years. During the event, Willi (Gerhard-Wilhelm Weber) warmly invited to the upcoming meeting highlights of EURO 2019 in Dublin, Ireland (https://www.euro2019dublin.com/), and IFORS 2020 in Seoul, Korea (www.ifors2020.kr).

As the Editor-in-Chief of the Public Lecture, I -Prof. Dr. Herman Mawengkang- would like to extend my deepest appreciation to all local organizers, the team around the host Dr. Ahmad Ridwansyah Putra who worked very hard and showed a great care and warmth, to all speakers, participants and all the many friends from near and far. Without their support this Public Lecture was not a success. Finally, I wish you all a great success in the years to come.

Hope to see you again at Pematang Siantar.



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Report on Manufacturing 2019

Manufacturing Meets Operational Research International Scientific and Technical Conference

Poznan University of Technology, May 19-22, 2019

The aim of Manfacturing 2019 was to review the state-of-the-art of knowledge, present the results of scientific research, innovations and implementations, and provide an international forum for spread and exchange of experience in the fields of Design and machines building, Manufacturing technologies, Metrology, Rapid prototyping and Virtual reality as well as Management and Production management. In fact, through all these fields, especially the latter areas, Operational Research comes in and has become appreciated so much by the Manufacturing 2019 community. Additional goals of the Manufacturing 2019 were: integration of the scientific community with the economic environment; establishment of cooperation with partners from industry, business and domestic and foreign research and development centers (http://manufacturing.put.poznan.pl/en/). The immense success of Manufacturing 2019 is owed to the hard work and enthusiasm of the organizing team headed by the hosts and Conference Chairs Prof. Dr. Adam Hamrol, Prof. Dr. Olaf Ciszak and Prof. Dr. Stanislaw Legutko. Conference Topics included: Machine design and testing Manufacturing process planning; Manufacturing techniques; Metrology and measurement systems; Material engineering; Management and production engineering; Solutions for Industry 4.0. The Manufacturing 2019 proceedings were published as a book by Springer as Lecture Notes in Mechanical Engineering series. The conference strongly succeeded in broadening the issues of manufacturing discussed in previous years. Conference venue was Poznan University of Technology (PUT) Lecture and Conference Center (that also hosted EURO 2016). The conference was attended by overall nearly 200 participants.

There were 5 **Keynote Speakers** in plenary sessions: Cezary Tadej (Volkswagen Company Volkswagen Poznan): Our way to Industry 4.0; Jose Machado (University of Minho, Portugal): Production systems on the context of I4.0; Sandra Heffernan (Textile Design Massey University, New Zeland): Design and manufacturing systems: New Zealand's novel perspectives; Josu Takala (University of Vaasa, Finland): Validating a Decision Making Method basing on Technology and Knowledge Priorities for Sustainable Strategies for Innovative Start-ups. The **social events** included a Gala Dinner - where also Best Paper Awards and Best Session Awards were handed out, a Boat Float, and a Company Tour to Volkswagen Września.

I was one of the Speakers and, in fact, supporters, on an Invited Stream and Session named Staff for the industry of the future, and gave my presentation Multi-Objective Aggregate Production Planning Model Considering Overtime and Outsourcing Options under Fuzzy Seasonal Demand, coauthored with one of my young Iranian research team. In fact, I took part actively in lively discussions that resulted from many oral talks and poster presentations, gave feedback and advice on the basis of my knowledge about OR research in our community of EURO and worldwide OR. Orally and electronically, I along with Dr. Magda Graczyk-Kucharska and Dr. Maciej Szafranski (PUT, Poznan, Poland), introduced EURO to the participants and invited old and new friends to actively take part at our conferences, such as EURO 2019 in Dublin, Ireland (https://www.euro2019dublin.com/) and IFORS 2020 in Seoul, Korea (http://www.ifors2020.kr/) where we welcome friends to attending and building up Streams

and Sessions. Already our invitation became very positively responded by organizers and participants of Manufacturing 2019.



At the Stream Staff for the industry of the future



Visiting the Lab on Knowledge Acceleration project at Poznan University of Technology

Gerhard-Wilhelm Weber gerhard.weber@put.poznan.pl

Report on Workshop of Mathematical Solutions in Business and Industry, from subtropical Lithuania

Palanga, Lithuania, June 10-14, 2019



The 3rd Workshop of Mathematical Solutions Business inIndustry and https://mathworkshop.ktu.edu/ (also known as European Study Groups with Industry, https://ecmiindmath.org/study-groups/) has been organized 10-14 June in Palanga (a seaside resort on Baltic Sea). While weather in the venue had beaten all times heat records, 25 analysts (divided into 4 groups) from around the globe were solving real-world business and industry problems. This year all problems submitted by industry were directly related to the field of operational research and decision making.

- SBA group, one of the biggest furniture producers in Lithuania and a local partner of IKEA, posed a problem of optimal cutting for reducing the waste of the laminating film. The insights and the optimization software, provided by the workshop participants, is likely to minimize both the economical and the environmental costs of the production.
- Telecommunication operator BITE is facing a problem of predicting whether a customer will leave BITE in a near future. Accurate prediction would help to improve its services and customer satisfaction. The problem was attacked using various big data analytics methods and machine learning algorithms.
- While SPA center EGLE in their daily life is dealing with optimal facility, workload and medical procedures scheduling problems. As almost every client is unique in many aspects such problems often requires advanced mathematical solutions.
- Challenge 4: Forecasts of wheat commodity price. Industry: Baltic-Mill. Sector: Food Products. One of the largest Baltic States milling company Baltic-Mill challenges an increasing competition in the marker of wheat flour and its products. As part of this concern, the company decided to use the advanced decision support methods to reduce the possible financial losses as a result of uncertain wheat prices in commodity exchange. The difficulty lies in the uncertainty and exposure of prices that are usually driven by nature highly unpredictable weather conditions around Europe and other wheat exporting countries.

The main motivation of a 5-day workshop is to promote collaboration between business representatives and mathematicians from scientific community in Lithuania and other countries

(participants) by solving real-world problems that face contemporary modern companies.

Whatever the business purpose, the companies usually seek a wide range of operational advancements, such as lower cost, higher efficiency, more accurate prediction or lower cost. These aims usually achieved by mathematical methods within operational research area. Given insights of challenges appearing in the industry, the participants are motivated to tackle them by applying mathematical methods, such as optimization, modelling, simulation, decision analysis, multi-criteria analysis, etc. in order to find a practical and pragmatic solution to the problem provided by a company. This one also encourages mathematicians to apply their knowledge and skills in the areas relevant for industry. Such experience acquired can be further spread during lectures by given application examples and case studies, as well as to be grown up to research projects performed together with SMEs or other useful initiatives. Furthermore, the collaboration between industry and researchers is a key to address technological innovation issues by using successful mathematical methods.

The week starts with brainstorming and analysis of data provided by the company. Then, the time is devoted for implementing and testing these ideas, at the same time coordinating them with business representative. By the end of the week, the preliminary solutions are provided to the company. On the final day, the scientific leader of the team presents the main results achieved by a group, and the business representative gives their feedback. Companies usually are more than satisfied with the results gained, therefore they usually are open for further cooperation and new projects.



Some business representatives emphasise that by participating and working together with scientists, they learn more about the problem itself and later this leads to better business solutions. In addition, they find these week-long brainstorming workshops very attractive since the solution to real-world problem using sophisticated mathematical methods is proposed during one week. Moreover, the participation itself for the representative from company gives a possibility to understand how scientific thinking works and see all the process from brain storming, bad ideas elimination to final stage, when best methods are selected and conclusions are made.

Faculty of Mathematics and Natural Sciences from Kaunas University of Technology organizes Workshop of Mathematical Solutions in Business and Industry (also known as European

Study Groups with Industry) since 2017. During the workshop, solutions for the companies (startups, SME and large enterprises) working in the fields of energy, production, electronics, environmental protection, finance, medicine were developed. Such companies as SBA (regular participant of all events in the past and ESGI in 2019), SEB (Skandinaviska Enskilda Banken), AON Baltic, CallCredit, Citybee, DPD, Finpass, JDE, Bite, Baltic-mills, SPA center EGLE and Gintarine Vaistine already participated in these workshops by providing challenges to the scientific teams. Professionals and young researchers from across Europe (UK, Portugal, Germany, Latvia, Estonia, Belarus, Bulgaria, Poland, Switzerland), USA and (Eur-)Asia (Iran, Turkey) have applied for the participation and jointed to the event.

Main areas of the problems solved during all Lithuanian ESGI workshops are following:

- Machine learning and Big Data analytics application in data analytics,
- Optimization of production,
- Optimization of assortment in pharmaceuticals store warehouse,
- Forecast of coffee beans or wheat prices,
- Optimization of delivery route and scheduling,
- Calculation of sustainable income,
- Forecast of car sharing demand in a city,
- Risk Assessment and Insurance Pricing Model,
- Forecast of client solvency.

European Study Groups with Industry are organised since 1968 (by Oxford University) and are widely recognised as one of the best methods for knowledge exchange between applied mathematics professionals and industry. Such kind of events are mainly coordinated by European Consortium for Mathematics in Industry https://ecmiindmath.org/study-groups/.

In 2019, Lithuanian Workshop of Mathematical Solutions in Business and Industry was partially supported by EURO.



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ISMSI 2020 http://www.ismsi.org

2020 4th International Conference on Intelligent Systems, Metaheuristics & Swarm Intelligence

Technically Sponsored by EU/ME, the Euro Working Group on Metaheuristics



THIMPHU, BHUTAN March 21-22, 2020





An annual international event of India International Congress on Computational Intelligence

Submission Methods

1.Full Paper (Presentation and Publication)

Accepted full paper will be invited to give the oral presentation at the conference and be published in the conference proceeding.

2.Abstract (Presentation only)

Accepted abstract will be invited to give the oral presentation at the conference, the presentation will not be published.

Please log in the Electronic Submission System; (.pdf only) to submit your full paper and abstract. For any inquiry about the conference, please feel free to contact us at: sub@ismsi.org.

Keynote Speakers



Professor Oleg Burdakov Linkoping University, Sweden



Professor Andries P. Engelbrecht Stellenbosch University, South Africa



Professor Hamido Fujita Director, Intelligent Software Systems, Iwate Prefectural University, Japan

Technical Sponsorship





Publication

Accepted Papers after registration and presentation at ISMSI20 will be published in the International Conference Proceedings, which will be indexed by Ei Compendex, Scopus, and submitted to be reviewed by Thomson Reuters (ISI Web of Science).

ISMSI2018- ACM, ISBN: 978-1-4503-6412-6. (Read More) ISMSI2017- ACM, ISBN: 978-1-4503-4798-3. (Read More)

European Journal of Operational Research, an Elsevier Publication [SCIE indexed, 2018 Impact Factor: 3.806, 5 Year Impact Factor: 4.283], will consider for publication a few selected expanded papers of ISMSI20 in its usual reviewing process.

Important Dates

Submission Deadline	October 30, 2019
Acceptance Notification	November 25, 2019
Registration Deadline	December 15, 2019
Conference Dates	March 21-22, 2020

Contact Us

Conference Secretary: Nancy Liu

Phone: +86-13709044746 (GMT 9:30AM-5:30PM)

Email: sub@ismsi.org

Call for papers - Special issue of Mathematical Programming

Forthcoming special issue of Mathematical Programming, Series B, "Continuous Optimization and Stability Analysis"

The special issue aims to gather recent advances in this field, understood in a broad sense. We take this opportunity to show our recognition of the contributions of Prof. Marco A. López on the occasion of his 70th birthday.

The quality and topics of the submissions should correspond to the high standards of publications in Mathematical Programming and its Aims and Scope (https://www.springer.com/mathematics/journal/10107). In particular, manuscripts on the following topics (but not restricted to them) are welcome:

- Linear and Nonlinear Optimization
- Stochastic Optimization
- Vector Optimization
- Semi-Infinite Optimization
- Parametric Optimization
- Convex Analysis
- Set-Valued Analysis
- Variational Analysis
- Stablity and Well-Posedness

Authors are encouraged to submit their manuscripts (maximum 25 pages) **before November 30, 2019**, as well as let us know in advance their intention to contribute to this special issue. The electronic submission process will be available by late September or early October, 2019.

Alexander Shapiro (ashapiro@isye.gatech.edu), Boris Mordukhovich (aa1086@wayne.edu), Juan Parra (parra@umh.es)

Guest Editors

Call for Papers

Special Issue

EURO 2019: Games in economics, finance and biology

of

Journal of Dynamics and Games Endorsed by EURO 2019 Dublin

Deadline for Submissions 01.11.19

1. AIMS AND SCOPE

Game theory is a mathematical framework developed to address problems with conflicting or cooperating parties who are able to make rational decisions. The theory primarily deals with the finding the optimal rational decision in various scenarios. Game theory is a relatively new discipline. The modern game theory was introduced in the works of John von Neumann in the 1920s. John von Neumann, Oskar Morgenstern, and John Nash were the main contributors to the development of game theory. The theory offers a wide number of applications in different fields, including economics, political science, finance, psychology, biology, etc.

The guest of this special issue, Journal of Dynamics and Games is a pure and applied mathematical journal that publishes high quality peer-review and expository papers in all research areas of expertise of its editors. The main focus of JDG is in the interface of Dynamical Systems and Game Theory. It is devoted to the development and the diffusion of mathematical ideas and techniques that arise from the analysis and the modelling of systems where agents (whether they be rational players, markets, plants, animals, ecosystems, communication systems, etc.) interact dynamically over time.

We invite papers challenging mathematical questions occurring in such systems or provide a rigorous mathematical analysis of models where tools from dynamics and games prove to be useful. Areas covered include dynamic games, stochastic games, differential games, evolutionary games, models of learning and evolution, repeated games, mean field models, voting, auctions, matching, assignment games and other research areas of cooperative and non-cooperative game theory, preferentially where dynamics play a role, as well as the associated applications in social, economic, biology, life, physical and computer sciences.

The objective of this special issue is to explore latest development of mathematical ideas and techniques in modeling, and simulation related with Game theory applied in economics, finance and biology. Papers in newly evolving topics are especially welcomed. We invite researchers and experts worldwide to submit high-quality innovative research papers and critical review articles on the subsequent potential topics.

This Special Issue is endorsed at the occasion of the conference EURO 2019 Dublin (https://www.euro2019dublin.com/).

2. TOPICS COVERED

The topics include but are not limited to:

Games in economics

- o Games in micro-economics
- o Games in macro-ecomomics
- o Prey-predator models in economics
- o Games on information spread in ecomomics
- o Games under interval or ellipsoidal uncertainty
- o Games under grey or fuzzy uncertainty
- o Stochastic and differential games
- o Economic games under regime switching

Games in finance

- o Games in financial and commodity markets
- o Games in auctions
- o Games on wealth processes
- o Games on price processes
- o Games on consumption processes
- o Games on portfolio processes
- o Stochastic optimal control with games
- o Financial games under regime switching

Games in biology

- o Prey-predator models in biology
- o Game theory in bioinformatics and system biology
- o Game theory in epidmology
- o Game theory in the biology of neuroscience
- o Game theory in cancer research and treatment
- o Game theory in environmental protection
- o Gene-environment networks under uncertainty and regime switching
- o Hybrid systems in biology

3. SUBMISSION GUIDELINES

All authors should read 'Information for Authors' before submitting a manuscript https://www.aimsciences.org/journal/2164-6066/JDG Guide

JDG is adopting the online editorial system EditFlow, a system used by all journals of the American Mathematical Society.

For instructions of the new online editorial system EditFlow, go to http://aimsciences.org/others/EditFlow-booklet.pdf
When submitting:

- Ensure you choose "SI: EURO 2019".
- A cover letter must be included which includes the title "EURO 2019: Games in economics, finance and biology".

4. IMPORTANT DATES

1 November 2019 Submission deadline

January 2020	Notification of the first round review)
April 2020	Revised submission due) for guidance only
July 2020	Final notice of acceptance/reject)

5. GUEST EDITORS

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Call for chapters IGI Global on Research Advancements in Smart Technology, Optimization, and Renewable Energy

Dear Colleagues,

Currently, we are in the process of editing a forthcoming publication entitled **Research Advancements in Smart Technology, Optimization, and Renewable Energy**, to be published by IGI Global, an international publisher of progressive academic research. We would like to take this opportunity to cordially invite you to submit your work for consideration in this publication.

We are familiar with your research interests and expertise in Smart Technology, Optimization, and Renewable Energy, and we are certain that your contribution on this topic and/or other related research areas would make an excellent addition to this publication.

Please contact <code>development@igi-global.com</code> for more details information regarding this publication and to submit your work. You can also find detailed manuscript formatting and submission guidelines at http://www.igi-global.com/publish/contributor-resources/before-you-write/. If you have any questions or concerns, please do not hesitate to contact us. Thank you very much for your consideration of this invitation, and we hope to receive your full chapter by <code>July 20, 2019</code>.

With Kindest Regards,
Dr. Pandian Vasant,
Prof. Gerhard Weber,
Prof. Wonsiri Punurai,
Prof. Igor Litvinchev
Editors

Contacts

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

People wishing to submit announcements to the EUROPT mailing list should address their message to europt-announce@lists.strath.ac.uk. The message will then be distributed upon approval by the EUROPT Managing Board.

For specific questions, the members of the Managing Board can be contacted:

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Editor's notes

Dear members of EUROPT, dear readers,

In this Newsletter we are pleased to report on the last EUROPT Workshop that was successfully held in Glasgow, UK, at the end of June, and we are happy to announce our next Workshop, that will be held on 1-3 July 2020 in Toulouse, France, hosted by my institution ENAC - École Nationale de l'Aviation Civile. Please add the Workshop dates to your agenda!

You can also find in this newsletter the laudatio for Jacek Gondzio, who was awarded EU-ROPT Fellow 2019 during the Workshop in Glasgow. The Workshop followed, as by tradition, the EURO 2019 conference. You can find a report of this event, as well as reports of other recent events involving our community.

Call for papers and chapters complete the informations shared in this issue of our newsletter.

Thank you to all contributors! I encourage all the readers to continue sharing informations and announcements that are valuable for our community.

The Newsletter Editor

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