The 2nd International Conference on Applied Mathematics, Informatics, and Computing Sciences (AMICS 2023)

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The 2nd International Conference on Geosciences and Remote Sensing (GeoRS 2023)

Conferences Programme

Venue: online (MS Teams)

December 20-21, 2023

For online: to join the conference sessions, please click on the following link:

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All presentations are scheduled in Central European Time (CET)

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Videos GeoRS: http://www.academicconf.com/video?confname=GeoRS2023

The 2nd International Conference on Applied Mathematics, Informatics, and Computing Sciences (AMICS 2023)

December 20-21, 2023

Chairman
Prof. Magd Abdel Wahab
Ghent University, Belgium

International Scientific Committee
Prof. Campilho Raul D.S.G., School of Engineering, Instituto Superior de Engenharia do Porto (ISEP), Portugal
Assoc. Prof. Asifa Tassaddiq, Department of Basic Sciences and Humanities, College of Computer and Information Sciences Majmaah University, Saudi Arabia
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Dr. Yuvraj Sunecher, Department of Accounting and Finance, School of Business, Management and Finance University of Technology, Mauritius
Phd. Zeeshan Ali, School of Engineering, Monash University Malaysia, Subang Jaya, Selangor, Malaysia
Dr. Ismail, A Mageed, Space AI centre, University of Bradford, United Kingdom
Dr. Arbi Adnène, Laboratory of Engineering Mathematics (LR01ES13), Tunisia Polytechnic School, University of Carthage, Tunisia

The 2nd International Conference on Geosciences and Remote Sensing (GeoRS 2023)
December 20-21, 2023

Chairman
Prof. Magd Abdel Wahab
Ghent University, Belgium

Technical Committee Chair
Dr. Komali Kantamaneni, University of Central Lancashire, UK

International Scientific Committee
Prof. Shuisen Chen, Guangzhou Institute of Geography, Guangdong Academy of Sciences, China
Prof. Radhakrishna, R. V. College of Engineering, India
Prof. (emeritus) Yossi Mart, University of Haifa, Israel
Prof. Rasik Ravindra, Commission on the Limits of Continental Shelf, United States (Former Affiliation)
Prof. Maurizio Barbieri, Sapienza University of Rome, Italy
Prof. Victor M. Calo, Curtin University, Australia
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Prof. Hijaz Ahmad, International Telematic University UNINETTUNO, Italy
Assoc. Prof. Lei Ma, Nanjing University, China
Dr. Ashraf Dewan, Curtin University, Australia
Dr. Dedalo Marchetti, Jilin University, China
Dr. R. S. Ajin, Kerala State Disaster Management Authority (KSDMA), India

Wednesday 20 December 2023
Time: 10:10 am to 11:00 am
Keynote speaker: Professor Christine De Mol
Affiliation: Department of Mathematics and ECARES, Université libre de Bruxelles, Brussels, Belgium
Title: Some Variations on the Theme of Sparsity

Abstract: In recent years, the concept of sparsity has played a major role in various problems of applied mathematics and engineering sciences. We will review some of these developments from a personal point of view. The review will include wavelet denoising, sparsity-enforcing regularization for inverse problems, compressive sampling, as well as lasso and elastic net strategies for variable selection in statistics and learning theory, with applications in computer vision, genetics, economics and finance.

Theoretical progress in such matters would have been less significant if not going in parallel with the development of efficient numerical algorithms to compute the solutions. We will also review some of these algorithms for sparse recovery, with particular emphasis on the so-called iterative soft-thresholding algorithm and its descendants. We will also show how they can, in some cases, shed some light into the black box of neural networks.

Biographical Sketch: Christine De Mol is a Professor at the `Université Libre de Bruxelles' (ULB) and a member of the Royal Academy of Science, Letters and Fine Arts of Belgium (`Académie royale de Belgique, classe des sciences'). She holds a Ph.D. in Physics (1979) and a habilitation degree in Mathematical Physics (1992) from ULB. Since 1975, she has held several research positions with the Belgian National Fund for Scientific Research (FNRS). She left the FNRS in 1998 as an Honorary Research Director to become a full-time Professor at ULB, where she is affiliated with both the Mathematics Department and the European Centre for Advanced Research in Economics and Statistics (ECARES). She has also held several visiting positions at the Universities of London, Rome, Montpellier, Paris-Sud, Genoa, Bonn and St. Gallen. In 2012 and 2013, she served as the elected Chair of the SIAM Activity Group on Imaging Science. She is an Associate Editor of the `SIAM Journal on Imaging Sciences' and a member of the Editorial Board of the journal `Numerical Functional Analysis and Optimization'. She is the author or co-author of more than eighty publications (see her Google Scholar profile) and a co-author with M. Bertero and P. Boccacci of the textbook `Introduction to Inverse Problems in Imaging'. Her research interests in applied mathematics include inverse problems, sparsity-enforcing regularization theory, wavelets and applications, learning theory, portfolio theory in finance, as well as the analysis and forecasting of high-dimensional time series.

Wednesday 20 December 2023
Time: 2:00 pm to 2:50 pm
Keynote speaker: Dr. Ismail A Mageed
Affiliation: University of Bradford, United Kingdom
Title: Cutting-edge Fractal Geometrization for Next Generations Science

Abstract: Exploring fractals is necessary to find answers to questions like the length of Britain's coastline, the growth of frost crystals, and the number of questions in a problem set. Fractals, which are self-similar patterns found in nature, provide a systematic approach to capturing the complexity and roughness of objects. By applying fractal analysis, we can gain insights into diverse fields such as geography, crystallography, and problem-solving methodologies.

Fractals are patterns that are created through a recursive process and often exhibit self-similarity. Fractals offer a systematic approach to capturing the intricate and rough characteristics of objects, and their applications extend across diverse fields such as programming and medicine. Fractal cities are cities that exhibit a self-similar pattern of growth, resembling a dynamic network that absorbs neighboring towns and villages. This pattern, initially appearing random, may prove to be more efficient than traditional pre-planned cities. Fractal medicine refers to the application of fractal analysis in medical diagnoses, particularly in detecting cancer.

By utilizing fractal image coding (FIC) and other applications, it becomes possible to convey complex patterns with minimal data, making it advantageous for working with image resolution and even creating 3D models. This approach allows for efficient storage and transmission of images while maintaining their visual quality. Fractals, with their self-similar nature, are useful in designing and operating antennas. Specifically, curves like the Hilbert curve can be employed to create antennas that are both high-performing and low-profile. Fractals offer a captivating range of rules for artists to explore in their creations. The Mandelbrot set is renowned for generating visually diverse scenes depending on the chosen colour scheme for its display. Artists can leverage fractal geometry to create intricate and visually appealing artwork with a wide range of patterns and complexity.

Biographical Sketch: Dr. Ismail A Mageed obtained his doctorate in Applied Probability at The University of Bradford, United Kingdom. Dr Mageed has been nominated by numerous high-profile academic institutions to the world prestigious ABEL PRIZE(NOBLE PRIZE OF MATHEMATICS) FOR THE ACADEMIC YEAR 2024, based on his great services to humanity through revolutionary mathematical applications to advance several scientific disciplines, including Engineering, Computer Science and much more. His current research interests include the unification of queueing theory with information theory and information geometry. His leading research on the relativisation of queuing theory and discovering the geodesic equation of motion for transient queues was greatly received by the world research community, based on spotlighting novel avenues for a UNIFIED THEOREM ON EVERYTHING. Mageed's research on finding the analytic solutions of the longstanding simulative approach of The Pointwise Stationary Fluid Flow Approximation theory (PSFFA) was an exceptional discovery to advance PSFFA theory. Dr Mageed has published numerous papers in many highly reputable journals and IEEE conferences. He is also a reviewer and a member of the editorial board to many international prominent journals.

Mageed's research has been internationally recognized as being revolutionary by providing several breakthroughs and solving many longstanding open problems. He is currently an active member at the NetPen Research Group, which is the strongest research group in queueing networks in the world. Dr Mageed has published a chapter in a book of the best eight queueing theorists in the world, entitled:

Queueing Theory 2: Advanced Trends

By the world-renowned Publishing Company, ISTE WILLEY, which was translated into French by the same Publishing Company. He has also published another chapter in a high-profile book, entitled:

Fractal Analysis - Applications and Updates

By the world leading open access publishing house, IntechOpen. He is currently coaching numerous volunteering several research teams worldwide to deliver more insights on employing research to serve humanity. He is also a fellow of the Royal Statistical Society (RSS), the OR Society of the United Kingdom, a member of INTISCC (Austria), IEANG (world council of engineering) and a life member of the Islamic Society of Statistical Sciences.

KEYNOTE LECTURE 3

Thursday 21 December 2023
Time: 9:00 am to 9:50 am
Keynote speaker: Dr. Komali Kantamaneni

Affiliation: University of Central Lancashire
Preston, England, United Kingdom
Title: Climate Change and Coastal Hazards Vulnerability
Assessment by Using Remote Sensing and GIS: Integrated
Approaches

Abstract: Coastal regions are vulnerable to extreme weather, such as storms, which incur significant costs to coastal societies. As a consequence of climate change, coastal communities are increasingly at risk from sea level rise and increased storm intensities. Rapid large-scale coastal infrastructure development, frequent strikes of intensive natural disasters, and temperature fluctuations increase coastal vulnerability. Therefore, to inform coastal zone management, coastal vulnerability assessments with respect to present and predicted climate change scenarios are important. This keynote talk will emphasize the importance of integrated and interdisciplinary approaches in assessing climate change impacts on coastal regions. Also, this talk will explore how novel procedures and methodologies (Remote Sensing and GIS: Integrated Approaches) can be used to evaluate vulnerability on a global scale. Furthermore, this talk highlights the research findings from our funded projects that have significantly contributed to our understanding of coastal vulnerability and management. These findings offer the valuable acumens into the interactions between coastal hazards and climate change, and the impacts on coastal communities.

Biographical Sketch: Komali Kantamaneni is a SENIOR coastal scientist and environmentalist. Her research focuses mainly on coastal vulnerability, natural disasters, natural hazards, climate change, water infrastructure and GIS mapping. Currently working as a Senior Research Fellow at University of Central Lancashire (UCLan) United Kingdom. She is also a Co-Chair for the Race Equality Net Work, and Theme Lead for GRACE -an Interdisciplinary Research Centre. She is also s Academic Board Member. She is also Honorary Senior Research Fellow of UCL (Dept of Civil, Environ &Geomatic Eng), and Visiting Professor of VIT (Vellore Institute of Technology), India. Komali completed her PhD at the University of Wales Trinity Saint David, Swansea, UK, entitled Assessing coastal vulnerability: development of a combined physical and economic index. Her research produced, for the first time, a combined vulnerability assessment based on physical science parameters and economic drivers. She holds a MSc in Environmental Sciences and a BSc in Biology. Her academic background gives her different perspectives, and she engages with interdisciplinary and multidisciplinary projects such as coastal and water infrastructures, natural disasters, risk assessment and management. Dr. Kantamaneni played a key role in establishing UN-RSO (Regional Support Office) at UCLan. UCLan is the only one base for UN-RSO in the UK. She is a Principal Investigator for 4 projects including British Council and Newton fund and GCRF (Global Challenges Research Fund). Also a Co-Investigator for several international projects. She is widely published and organised international conferences/webinars. She has been an plenary/keynote and invited speaker and presenter at many major and prestigious international conferences and evaluator for various coastal and maritime research projects. She also chaired several international conferences.

CONFERENCE PROGRAM SUMMARY

Wednesday 20 December 2023

Time	Session
10:00 am to 10:10 am	Opening address
10:10 am to 11:00 am	Keynote lecture 1
11:10 am to 1:00 pm	Session 1
1:00 pm to 2:00 pm	Break
2:00 pm to 2:50 pm	Keynote lecture 2
2:50 pm to 5:50 pm	Session 2

Thursday 21 December 2023

Time	Session
09:00 am to 9:50 pm	Keynote lecture 3
09:50 am to 12:50 pm	Session 3
12:50 pm to 1:00 pm	Conference closing address

Wednesday 20 December 2023	
10:00 am to 10:10 am	**Opening address**: **Professor Magd Abdel Wahab**, Ghent University, Belgium
10:10 am to 11:00 am	**Keynote lecture 1**: Some Variations on the Theme of Sparsity, **Professor Christine De Mol**, Department of Mathematics and ECARES, Université libre de Bruxelles, Brussels, Belgium
	Session 1 **Chair: Professor Christine De Mol**
11:00 pm to 11:20 pm	AIC1131: The Existence of families with cyclic sets for a Markov operator, **Yukiko Iwata**
11:20 am to 11:40 am	AIC1152: The conditions of convergence of sequences of conditional expectations on a probability space and some applications, **Takashi Honda**
11:40 am to 12:00 am	AIC1122: Create a Win-win Situation Between the Knowledge Diffusion and the Benefits by Placing the Cost at the Threshold, **Yanan Wang**
12:00 pm to 12:20 pm	AIC1181: Info-Geometric Analysis of Gamma Distribution Manifold with Gamma Distribution Impact to Advance Satellite Earth Observations, **Ismail A Mageed**
12:20 pm to 12:40 pm	AIC1124: Parallel implementations of Riemannian conjugate gradient methods for joint approximate diagonalization, **Nela Bosner**
12:40 pm to 1:00 pm	AIC1154: Operator algebra-based Hilbert transform and its eigenfunctions, **Seiichi Kuwata**
1:00 pm to 2:00 pm	**Break**
	Chair: Professor Magd Abdel Wahab
2:00 pm to 2:50 pm	**Keynote lecture 2**: Cutting-edge Fractal Geometrization for Next Generations Science, **Dr. Ismail A Mageed**, University of Bradford, United Kingdom,
	Session 2 **Chair: Dr. Ismail A Mageed**
2:50 pm to 3:10 pm	AIC1180: Dirac contour representation for quantum systems with finite-dimensional Hilbert space in the extended complex plane, **Aisha Faraj Abukhzam Mohammed**
3:10 pm to 3:30 pm	AIC1172: Optimizing the hyperparameters of 1D-CNN networks using Genetic algorithm, **Irfan Shirazi**
3:30 pm to 3:50 pm	AIC1151: Building the Toughest Networks, According to Graph Theory, **Kevin K Ferland**
3:50 pm to 4:10 pm	AIC1153: Assessment of localization strategies in a radial basis function meshless method to solve two-dimensional convection-diffusion problems, **Julián Mauricio Granados Morales**
4:10 pm to 4:30 pm	AIC1156: Measuring engagement on Twitter using a composite index: An application to social media influencers, **María M. Muñoz**
4:30 pm to 4:50 pm	AIC1166: An improved crayfish optimization algorithm with opposition-based learning and modified competition stages, **Jianfu Bai**
4:50 pm to 5:10 pm	AIC1175: Numerical Investigation of process parameter influences on deep drawing plasticity simulation of 5182 aluminum sheet material, **Acar Can Kocabicak**
5:10 pm to 5:30 pm	AIC1169: Optimization of auxetic Honeycomb sandwich nanoplates for stiffness enhancement, **Usama Hamid**
5:30 pm to 5:50 pm	AIC1184: Fractal Dimension of Ismail's Third Entropy with Potential Fractal Applications to CubeSat Technologies and Education, **Ismail A Mageed**

Thursday 21 December 2023

	Chair: Professor Magd Abdel Wahab
09:00 am to 09:50 am	**Keynote lecture 3**: Climate Change and Coastal Hazards Vulnerability Assessment by Using Remote Sensing and GIS: Integrated Approaches, **Dr. Komali Kantamaneni**, University of Central Lancashire, Preston, England, United Kingdom.
	Session 3 **Chair: Dr. Komali Kantamaneni**
09:50 am to 10:10 am	GEO1073: Context-awareness network with multi-level feature fusion for building change detection, **Haonan Yu**
10:10 am to 10:30 am	GEO1079: Measuring Vertical Densities of the Upper Atmosphere with X-ray Astronomy Satellites, **Satoru Katsuda**
10:30 am to 10:50 am	GEO1089: Monitoring Bambara groundnut canopy state variables at various growth stages using low-cost remote sensing technologies and machine learning techniques, **Shaikh Yassir Yousouf Jewan**
10:50 am to 11:10 am	GEO1100: Facilitating Thematic Mapping with Eurostat-map.js: Exploring Open Statistical Data, **Antonio Banko**
11:10 am to 11:30 am	GEO1102: Lithofacies identification based on wavelet transform, principal component analysis and K-means clustering, **Man Hyok Song**
11:30 am to 11:50 am	GEO1099: Comparison of User Experience and Openness in Google Earth Engine and Open Data Cube for Geospatial Analysis, **Tedi Banković**
11:50 am to 12:10 pm	AIC1182: How Satellite Imaging and Deep Learning are Influenced by Tensor Decompositions: A review, **Ismail A Mageed**
12:10 pm to 12:30 pm	AIC1173: Application of weighted dual criterion in damage assessment of steel structures, **Ngoc Lan Nguyen**
12:30 pm to 12:50 pm	AIC1183: Threshold and Upper Bound for the Controller's Designed Parameter of Fokker Planck Kolmogorov Probability Density Function with Applications to Cryptocurrency, **Ismail A Mageed**
12:50 pm to 13:00 pm	**Conference closing address – Prof. M Abdel Wahab**

AMICS & GEORS 2023

INSTRUCTIONS TO SPEAKERS

- Your oral presentation should not exceed 15 minutes. If your presentation stretches over 15 minutes, you must end your presentation to ensure strict adherence to the programme.
- Your presentation will be followed by a Question and Answer (Q/A) session not exceeding 5 minutes.
- All presentation will be streamed through the MS link: Click here to join the meeting