International Commission of
Agricultural and Biosystems
Engineering

Newsletter 127

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"...to serve - on a world-wide basis and through its members - the needs of humanity by fostering mutual understanding, improvement and rationalisation of sustainable biological production systems while protecting nature and environment and managing landscape through the advancement of engineering and allied sciences..."

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Registration and Abstract Submission for the CIGR World Congress is Open

Noboru Noguchi
Congress General Chair
Hokkaido University
Japan

We are pleased to announce that the Registration and abstract submission for the XX CIGR World Congress 2022, "Sustainable Agricultural Production - Water, Land, Energy and Food", is open. The Congress will be held during December 5 - 10, 2022 in Kyoto, Japan. The Congress is supported by the Science Council of Japan, National Committee for CIGR, JAICABE (Japan Association of International Commission of Agricultural and Biosystems Engineering).

Details about the congress, including travel and accommodations, are available at
http://cigr2022.org/index.html.

To register and submit an abstract please go to <http://cigr2022.org/registration.html>. Please note that in order for an abstract to be considered an author must be registered by September 30, 2022.

With best regards,

Congress Secretariat of The XX CIGR World Congress 2022

Japan Convention Services, Inc.

E-mail: cigr2022@convention.co.jp

Hossein Bonakdari
Editor
University of Laval
Canada

Gareth Lagerwall
Co Editor
University of Kwazulu-Natal
South Africa

You are invited to contribute to the CIGR Journal special issue on "Artificial Intelligence in Agricultural and Biosystems Engineering".

Recent developments in high-quality measurement technologies led to the rapid generation of large, unstructured, datasets. This created the need for new techniques and tools for data analysis, and models able to describe, predict and prescribe, that aim towards sustainable development and health in fields related to Agricultural Engineering. As a result, there is an increased interest in the use of Artificial Intelligence and Data Science (AI/DS) techniques to many of the problems currently faced by our society. It is apparent that these AI/DS supported tools will revolutionize many aspects of future agriculture and natural resources. AI/DS promises to address many difficult problems in the domain of agriculture that are of interest in many parts of the world. As often happens with emerging technology, AI/DS methods are opening new opportunities for agricultural practitioners over a wide range of applications.

The goal of this issue is to make available to the world community of agricultural and biosystems engineers, and related professionals, a collection of scientific papers on the current state of the art and recent developments of AI/DS applications the field. This special issue will shed light on many of the on-going research activities on application of AI/DS techniques into a single open-source document as well as current trend. It will consolidate original research on the application of different techniques on AI/DS and machine learning to address social, political, economic, safety, health, and technological issues of agricultural and biosystems challenges and opportunities including, but not limited to:

• Agriculture and Society
• Energy
• In-farm, extra farm and regional logistics
• Animal Systems
• Plant Systems and Postharvest Technology
• Food Science and Technology
• Soil and Water
• Precision Aerial Application.
• Waste Management
• GHG Emissions, Climate change and Adaptation
• Machinery and Robotic Systems
• Image Analysis for Agricultural Processes and Products
• Monitoring, Control and Data Analysis
•

Deadline extended to February 15, 2022

To be considered for this special collection, please submit an abstract to the editors by December 1st, 2021. Your manuscript will be subject to the peer review process of the CIGR journal. For more information or submitting an abstract please contact Profs. Bonakdari and Lagerwall.at: AI@cigr.org.

Fundamentals of Deep Learning Workshop

The NVIDIA Deep Learning Institute (DLI) and the University of Florida invite CIGR members to attend a hands-on deep learning workshop on **January 18th and 20th, 2022, from noon to 4:00pm online(New York Time zone)**. This workshop is exclusively for verifiable academic students, staff, and researchers. NVIDIA DLI offers hands-on training for developers, data scientists, and researchers looking to solve challenging problems with deep learning and accelerated computing.

About This Workshop:

Deep learning is a powerful AI approach that uses multi-layered artificial neural networks to deliver state-of-the-art accuracy in tasks such as object detection, speech recognition, and language translation. Using deep learning, computers can learn and recognize patterns from data that are considered too complex or subtle for expert-written software. Businesses worldwide are using artificial intelligence to solve their greatest challenges. Healthcare professionals use AI to enable more accurate, faster diagnoses in patients. Retail businesses use it to offer personalized customer shopping experiences. Automakers use it to make personal vehicles, shared mobility, and delivery services safer and more efficient.

In this workshop, you'll learn how deep learning works through hands-on exercises in computer vision and natural language processing. You'll train deep learning models from scratch, learning tools and tricks to achieve highly accurate results. You will also learn to leverage freely available, state-of-the-art pre-trained models to save time and get your deep learning application up and running quickly.

Dr. Matt Gitzendanner's background is in plant evolutionary genetics and genomics where he uses genetic tools to study the conservation, evolution, and diversity of plants. The field is generally computationally intensive, and Matt has worked for 10 years training users how to use HiPerGator and other high-performance computing systems to do the amazing research that is done across the University of Florida campus. Matt is an NVIDIA DLI Certified Instructor and a University of Florida Ambassador. **Prerequisites:**
An understanding of fundamental programming concepts in Python 3, such as functions, loops, dictionaries, and arrays; familiarity with Pandas data structures; and an understanding of how to Compute a regression line.

Suggested materials to satisfy prerequisites: Python Beginner's Guide.

Register at
https://AI.cigr.org
Available spots will be awarded on a first time first serve basis.

This workshop is brought to you by:

Invitation to Attend ASABE´s Global Initiative Conference, Costa Rica

Sustainable Energy for a Sustainable Future
An ASABE Global Initiative Conference
May 16 -19, 2022, San Jose, Costa Rica

Dear Colleagues:

We are pleased to invite you to attend an ASABE Global Conference - the Sustainable Energy for a Sustainable Future that will be held May 16 – 19th, 2022 at the Intercontinental Hotel in San Jose, Costa Rica.

A fast-growing world population, estimated to reach 9.1 billion in 2050, coupled with megatrends such as rapid urbanization and diet transformation will require nearly doubling of food production worldwide. While increasing food production is critical, issues such as water and energy security are equally important to ensure sustainability of the global food system while addressing climate change. The goal of the conference is to bring together agricultural and biological engineers and peers from academia, government, and industry including growers/farmers from across the world with local stakeholders to enable interdisciplinary dialogs among international scientists, business owners, and government agents to explore renewable energy technologies and innovations. It is expected that partnerships will be developed among individuals and organizations to address issues and barriers that are most relevant to local/regional energy security.

The conference scope includes innovative renewable energy production technologies; agriculture and circular bioeconomy for sustainable energy production; distributed renewable energy systems and global climate change; food-energy-water nexus; social, environmental and economic perspectives of energy security.

Please visit the conference website at: www.energy.asabe.org to submit your abstracts.

Please feel free to contact us if you have any questions.

We look forward to meeting you in San Jose, Costa Rica.

Sincerely,

Wei Liao, Ph.D., P.E., Co-Chair, Conference Committee
Professor, Department of Biosystems & Agricultural
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Director, Anaerobic Digestion Research and Education
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The American Society of Agricultural and Biological Engineers strives to be a leader in advancing engineering and technological solutions toward creating a sustainable world, with abundant food, water, fiber, fuel, and a healthy environment. The Society is the home of engineers and others worldwide who apply engineering principles to processes associated with providing these necessities of life in a sustainable manner.

Update on the 7th International College Students Intelligent Agricultural Equipment Innovation Competition, Update

The 7th International College Students Intelligent Agricultural Equipment Innovation Competition attracted more than 2,300 participants from 59 Chinese universities, received 506 entries, including 372 works related to scientific and technological inventions and 108 entries related to agricultural robotics, and the Seedling Replenishment Robot Competition.

The Secretariat invited a total of 61 well-known experts to conduct online evaluation of the submissions in October 2021. Of the submitted entries, 203 were selected as finalists.

The original December date for the finals was postponed due to the current health situation. The finals will be scheduled during May, 2022.

ASABE's International Meeting: Call for abstracts Closes January 5th

The 2022 ASABE Annual International Meeting will be held July 17 through the 20 at the Marquis Marriot, Houston. Abstract submission deadline is January 5th. Those attending that will also be presenting an abstract in one of our 115+ sessions will want to ensure to be registered by this date to confirm their presentation. Early bird registration is open until May 2.

Meeting activities, CPDs, tours, and more will be added in the spring. We will be posting all of those options with their descriptions on the website as soon as we can confirm them. February 1 is the deadline to submit these tours, socials, and CPDs if you are interested in hosting one.

The AIM website has all of the information currently available from registration rates to hotel information, technical session listings, to the form to host a social, tour, or CPD.

A reminder that the deadline for submitting abstracts is January 5. Refer to the list of session topics for options.

Invitation to the 30th Mediterranean Conference on Control and Automation, Greece

30th MEDITERRANEAN CONFERENCE ON CONTROL AND AUTOMATION
https://www.med-control.org/med2022/
JUNE 28 - July 1, 2022
DIVANI APOLLON PALACE & THALASSO
VOULIAGMENI, GREECE, GR-16671

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MCA AND PREVIOUS CONFERENCE INFORMATION:
www.med-control.org
www.med-control.org/main/conferences/

FOR INFORMATION ABOUT GREECE, SEE:
www.visitgreece.gr
greeklandscapes.com

The **30th** Mediterranean Conference on Control and Automation, **MED 2022**, returns to its birthplace, in Greece. The venue is the Divani Apollon Palace & Thalasso resort (https://divaniapollonhotel.com), located in the most prestigious part of the Athenian Riviera. The venue is just a 25-minute drive from the Athens city center and less than a 30-minute drive from the Athens International Airport.

The theme of **MED 2022** centers on the control and automation challenges and opportunities in the 21st century, focusing on system design for autonomy and resilience in high confidence cyber physical systems.

MED 2022 spans four full days: June 28 is devoted to Tutorials and Workshops, followed by the three-day technical conference on June 29-30 and July 1. Following the current trends of combining control and systems theory with hardware/software and communication technologies, new developments in robotics and unmanned systems, autonomous systems, mechatronics, cyber physical systems, network-controlled systems are included in the topics of interest to strengthen cooperation of control and automation scientists with industry.

TOPICS OF INTEREST

Adaptive Control	Energy Efficient Systems	Optimization
Aerospace Control	Event-Based Systems	Petri Nets
Agents/Agent-based Systems	Fault-tolerant Control	Power Systems
Autonomous Systems	Formation Control	Predictive control
Autonomy	Fuzzy Logic and Fuzzy Control	Process control
Biologically Inspired Systems	Genetic and Evolutionary Computation	Prognostics and Diagnostics
Computational Intelligence	Hybrid Systems	Real-time Control
Computer Aided Control System Design	Image Processing	Robotics
Computer Controlled Systems	Industrial Automation, Manufacturing	Robotic Teams
Communication Systems	Integrated Control and Diagnostics	Robust Control
Cooperative Systems Control	Intelligent Control	Smart Grid
Cyber Physical Systems	Intelligent Transportation Systems	Soft Computing
Decentralized Control	Linear Systems	Spectral Estimation
Digital Control Systems	Marine Control	Swarms
Discrete Event Dynamic Systems	Mechatronic Systems	System Identification
Distributed Parameter Systems	Modeling and Simulation	Uncertain Systems
Disturbance Rejection	Network Controlled Systems	Unmanned Systems
Education and Training	Neural Networks	Verification and Validation
Embedded Control Systems	Non-linear Systems	Virtual and Augmented Reality

SUBMISSIONS

PAPERS: The paper format must follow IEEE paper submission rules, two-column format using 10-point fonts, Times New Roman. The maximum number of pages per submitted paper is 6. Up to two additional pages will be permitted for an additional charge. Illustrations and references are included in the page count.

INVITED SESSIONS: Proposals for invited sessions should contain a summary statement describing the motivation and relevance of the proposed session, the invited paper titles and the names of the authors. Authors must submit FULL invited papers. Each paper must be marked as "Invited Session Paper".

WORKSHOPS AND TUTORIALS: Proposals for workshops and tutorials should contain title, list of speakers, and extended summaries (2000 words) of their presentations.

All contributions (papers, invited papers, proposals for invited sessions, workshops, and tutorials) must be submitted electronically through https://controls.papercept.net by February 1, 2022.

REVIEW: All submitted papers will undergo a peer review process coordinated by the Program Chairs, Advisory Committee Members, IPC members and qualified reviewers. Authors will be notified of results at the latest by April 15, 2022. Accepted papers must be uploaded electronically no later than May 10, 2022. Accepted papers will be submitted for inclusion into IEEE Xplore subject to meeting IEEE Xplore's scope and quality requirements.

IMPORTANT DATES

February 1, 2022:	Contributed Papers / Invited Papers / Invited Session Proposals / Tutorial and Workshop Proposals Due
April 15, 2022:	Acceptance / Rejection Notification
May 10, 2022:	Upload Final, Camera Ready Papers
April 15–May 10, 2022:	Early Registration

IEEE

IEEE Control Systems Society

IEEE Robotics & Automation Society

MCA

ICUAS

Webinar Program: Rural landscape, structures and infrastructure planning and valorization working group

Prof. Patrizia Tassinari

Chair, CIGR Working Group on "Rural Landscape Protection and Valorization"
University of Bologna

The newly formed WG RESTART has planned the activities for 2022 and I am very pleased to bring them to your attention. As you will notice, it is a very rich program, which addresses topics of great relevance and interest, with interdisciplinary approaches, approaches that are considered with increasing attention by most of the scientific communities. We would also be very glad if it were possible to schedule a session to host the activities of this WG within the program of the next CIGR world conference in Kyoto. I take this opportunity to send you and your families my best wishes for happy holidays and good health. If you are interested in collaborating with this workgroup, please write to the email below:

patrizia.tassinari@unibo.it
www.unibo.it/sitoweb/patrizia.tassinari/en

PROGRAM FOR 2022 WEBINARS

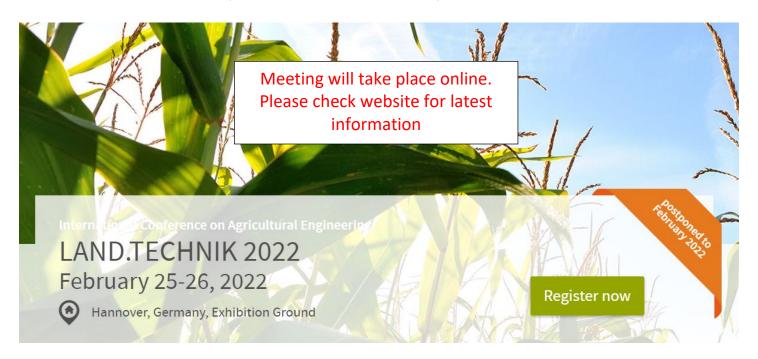| Webinar title	Member(s) of the WG organizing the event	Tentative Period
The 'landscape' of Farm to Fork: what others are doing?	Ernesto Marcheggiani, Andrea Galli, *Polytechnic University of Marche UnivPM*	February, 2022
Regenerative approaches for wastescapes in peri-urban areas. The case-study of the Metropolitan Area of Naples in the South of Italy.	Michelangelo Russo, Libera Amenta, Anna Attademo, *University of Naples Federico II*	March, 2022
GIS-based green infrastructure planning for sustainable rural and urban landscape in riverine areas	Maurizia Sigura, Elisabetta Peccol, *University of Udine*	April/May, 2022
Marginal coastal and riverine landscapes.	Laura Cipriani, *TU Delft*	April/May 2022
Benefits and shortcomings of tourism as a sustainable development solution for landscapes.	Guillermo Reher, *International Studies Foundation - Spanish National Research Council*	May 27, 2022
Ecosystem Services of green areas: assessment and applications in rural and urban context.	Giulio Senes, Natalia Fumagalli, *University of Milan*	May/June, 2022
Monitoring rural landscape in relation to European strategies, challenges, and innovation opportunities.	Maria Nicolina Ripa, *University of Tuscia*	May/June, 2022
Adaptation to climate change, evaluation and planning.	Andrea De Montis, *University of Sassari*	June/July 2022
Continuities and perspectives within Rural Networks.	Tana Lascu, "Ion Mincu", *University of Architecture and Urbanism*	September 2022
Sharing local traditional knowledge on food processing and agro-biodiversity to delineate innovative approaches to landscape enhancement.	David Grohmann, Maria Elena Menconi, *University of Perugia*	November 2022

Upcoming Conferences

2022 Agricultural Equipment Technology Conference February 14-16, Omni Louisville Hotel, Kentucky

Join us February 2022, as we gather again, in-person, for this annual specialty conference!

For more information contact ASABE Headquarters at hq@asabe.org

Land.Technik 2022, February 25-26, Hannover, Germany,

Meeting will take place online. Please check website for latest information

LAND.TECHNIK 2022
February 25-26, 2022
Hannover, Germany, Exhibition Ground

Register now

postponed to February 2022

For more information see https://www.vdiconference.com/ageng/

Sustainable Energy for Sustainable Future. 16-19 May 2022. San Jose, Costa Rica.

An ASABE Global Initiative Conference
Sustainable Energy for a Sustainable Future
May 16-19, 2022 • San Jose, Costa Rica

This conference was postponed to May 16-22, 2022. The planned venue for the meeting is the Intercontinental Hotel, Escazu, San Jose, Costa Rica. Details of the conference are available at https://energy.asabe.org/

Program Highlights

• Novel renewable energy production technologies

• Distributed renewable energy production systems and their economic feasibility
security and food security linkages
  • Regional energy solutions and their impacts on global climate change
  • Regulation and policy for regional and global energy security

Conference

CIGR IV would like to invite you to the International Conference Section IV of CIGR: Energy in Agriculture (3th edition in Olsztyn), to be held in Olsztyn, Poland, in 22-24 June, 2022. The conference aims at promoting exchange of knowledge on research and innovation for the energy in agriculture: **Bioenergy, Renewable Energy Systems, Transmission and Storage of Electricity.**

Important Dates

15.02.2022	Opening of online registration
15.02.2022	Opening of abstract submission
30.03.2022	Deadline for abstract submission
10.04.2022	Notification of abstracts' acceptance
15.05.2022	Deadline for full paper submission
30.03.2022	Deadline for Early bird Registration
05.06.2022	Conference Final Programme availability

Topics

- *Fuel and bio-fuel production and utilization in agriculture,*
- *Small scale bio-power plants (CHP),*
- *Biomass conversion technologies,*
- *Bio-energy markets and sustainable developing considering the aspects of the environment protection,*
- *Solar thermal and photovoltaic systems and wind power systems used in agriculture,*
- *Energy efficiency technologies,*
- *Transmission and storage of electricity.*

For more information please visit:
http://uwm.edu.pl/eia2020
Looking forward to welcoming you there...!!!
Chairman of the Organizing Committee
Associate Professor **Maciej Neugebauer**
Faculty of Technical Sciences
University of Warmia and Mazury in Olsztyn
tel. 0048 895235561
eia2020@uwm.edu.pl

Possibility of on-line participation

Due to the quite dynamically changing situation related to the COVID-19 pandemic in the world and in Poland - we are planning two different forms of participation - in person or online. Both participation ways are appreciated and supported by organizers. Of course, for those researchers who cannot travel, virtual sessions with direct connection will be programmed to facilitate the debate in real-time conditions.

Venue

The University of Warmia and Mazury is located on the outskirts of the city of Olsztyn in the North-East of Poland. The flagship of the University of Warmia and Mazury is Kortowo - an academic town, recognized as the most beautiful academic campus in Poland and one of the most beautiful in Europe. The oldest part of the academic town is remembered at the end of the 19th century. The characteristic red brick buildings, under the protection of the monument conservator, have been meticulously renovated. Today, in the old walls house modern laboratories and lecture halls are located. The buildings of the old part of Kortowo are located in the park, founded at the turn of the 19th and 20th century. The campus occupies 230 ha and lies among greenery, over two lakes. Larger - Lake Kortowskie has a beautiful sandy beach and offers excellent conditions for resting and water sports. The rental of water equipment, which includes kayaks, pedal boats, and sailboats may be used not only by students and university staff, but also by guests. Accommodation will be offered in the campus and in hotels located nearby.

The conference will feature the 70th anniversary jubilee of
Prof. dr hab inż. Janusz Piechocki
former chairman of the Fourth Section of the CICR and honorary vice-chairman of the CIGR

American Society of
Agricultural and Biological Engineers

11the International Drainage Symposium, Des Moines Iowa, USA

We invite your participation and presentations for the 11th International Drainage Symposium, August 30 - September 2, 2022 at Marriott Des Moines Downtown in Des Moines, Iowa.

Presenting at the International Drainage Symposium is an opportunity to share your work with drainage researchers, professionals, and practitioners from around the world. The Symposium will include both oral presentations and poster sessions. The deadline to submit is March 15, 2022. Visit the Soil and Water Conservation Society for all the details.

AgEng 2022, November 22-23, Berlin, Germany

For information see https://www.eurageng.eu/events

Noboru Noguchi
Congress General Chair
Hokkaido University
Japan

It is a great pleasure and an honor to extend to you a warm invitation to attend "The XX CIGR World Congress 2022", to be held December 5th - 9th, 2022 at Kyoto International Conference Center, Kyoto, Japan.

The theme of this CIGR World Congress "Sustainable Agricultural Production - Water, Land, Energy and Food" will underpin the need for collaboration and cooperation of individuals from a wide range of professional backgrounds. This congress will provide an excellent international platform for academicians, researchers, engineers, industrial participants, and students from around the world to share their research findings with global experts in all areas related to agricultural engineering.

Kyoto has flourished as the capital of Japan for over a millennium, since 794. The city has an abundance of historically significant and unique locations, and has preserved its refined culture, historical sites, and innumerable Shinto shrines and Buddhist temples, continuing to fascinate visitors from all over the world.

We hope you will enjoy the content of the Congress, renew old friendships, make new friends, get new ideas, and above all, have a good time, as well as enjoy the city famous for its cultural traditions.

With best wishes,