

SMART GLOBAL
ECOSYSTEMS
UNIVERSITY OF VALLADOLID + SINGULAR



Diputación
DE PALENCIA



CONFERENCE

ARTIFICIAL INTELLIGENCE AND ECOSYSTEMS MANAGEMENT



17-21
April
2023

PROGRAM

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The Skill For Action is founded by the European Union's Horizon 2020 research and innovation programme under the Marie Skłodowska-Curie - GA 294355

AN EVENT IN THE FRAMEWORK OF



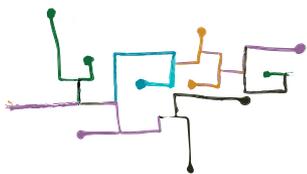


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Monday. April 17th 2023. Place iuFOR - Universidad de Valladolid (Campus at Palencia)

16:00 - 19:00 Side Events

- **SIMANFOR.** www.simanfor.es
- **Forest Explorer.** forestexplorer.gsic.uva.es
- **Presentation of the Operational Group:** "Forests 3.0. Digitisation and remote sensing of the sustainable use, biodiversity and resilience of Spanish forests" www.pefc.es/que-hacemos/nuestro-impacto-colectivo/nuestros-proyectos/go-bosques-3-0

Tuesday. April 18th 2023. Palencia provincial palace (Diputación Provincial de Palencia)

9:00 - 9:30 Accreditation (participant reception)

9:30 - 10:00 Keynote speaker

- **Mark Ducey:** *Can AI teach us about ingrowth in a complex forest?*

10:00 - 11:00 Voluntary communication

- **Raquel Martínez Rodrigo:** *AI for modelling edible mushroom yields: the challenge of its effective inclusion in sustainable forest management tools*
- **Giovanni Vignali:** *Application of Machine Learning algorithms to evaluate the effect of climate changes on livestock products*
- **Rocío Tarjuelo Mostajo:** *Applicability of Artificial Intelligence in Wildlife Management*
- **Johannes Hirn:** *Generative AI for Restoration Ecology*

Questions

11:00 - 11:30 Coffee break

11:30 - 12:00 Opening ceremony

12:00 - 13:00 Hands on session

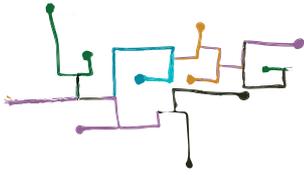
- **Charlotte Pelletier:** *Crop Type Mapping from Remote Sensing Time Series using Deep Learning*

13:00 - 14:00 Voluntary communications

- **Felipe Bravo Oviedo:** *Artificial Intelligence in Forest Management: unpaved road ahead*
- **Spiros Michalakopoulos:** *Data Augmentation for Site Index Estimation*
- **José M. Giménez-García:** *Forest Ontologies and Linked Open Data for the Iberian Peninsula.*
- **Natalia Crespo Lera:** *Automatic assignment of plots from the Spanish national Forest Inventory to municipalities using Linked Open Data*

Questions

14:00 - 15:30 Lunch



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Tuesday, April 18th 2023. Palencia provincial palace (Diputación Provincial de Palencia)

15:30 - 16:30 Hands-on session

- **Frederico Tupinmaba-Simoes:** LIDAR point cloud automatic classification by using FSCT and Deep Learning

16:30 - 18:00 Voluntary communications

- **Omid Abdi:** Fine-grained Soil Particles Prediction Based on GeoAI and LiDAR for Precision Harvesting Applications
- **Antonio Canepa Oneto:** SEN4CFARMING: Sentinel imagery to monitor agricultural practices and their contribution to the initiative «4 per 1000» increase in soil organic carbon
- **Cristina Gómez:** Estimation of carbon content and change in southern-Chile permanent forests during the 2010-2015 monitoring period with K-NN and ALOS PALSAR mosaics
- **Jerry Vanclay:** Challenges and opportunities for the use of AI in Forest Inventory

Questions

18:00 - 19:00 Guide Tour to Palencia City

Wednesday, April 19th 2023. Palencia provincial palace (Diputación Provincial de Palencia)

9:00 - 9:30 Accreditation

9:30 - 10:00 Keynote speaker

- **Eleana Spavento:** Machine Learning applied to grading timber

10:00 - 11:15 Voluntary communication

- **Chien Chen:** Algorithms For Multi-Pith And Tree-Ring Detections Of Stem Images – A Preliminary Research On CT-Scanned Fresh Discs
- **Miguel García:** Bordering tree rings for Quantitative Wood Anatomy analysis using Deep Learning methods
- **Abhilash Dutta Roy:** Comparing the allometric model approach with machine learning algorithms for estimating tree-level aboveground biomass in tropical forests of Tripura, Northeast India
- **Clara Antón Fernández:** Building a wall-to-wall high-resolution productivity map for Norway using remotely-sensed data and machine learning

Questions

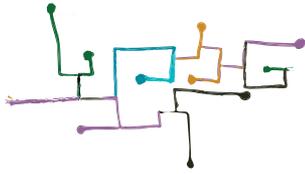
11:15 - 11:45 Coffee break

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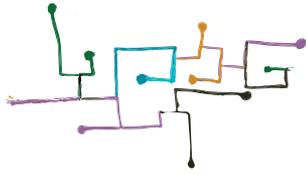


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Wednesday, April 19th 2023. Palencia provincial palace (Diputación Provincial de Palencia)

- 11:45 - 12:15 Keynote speaker
- **Rasmus Astrup:** *Supporting sustainable forest management through improved information flow and AI*
- 12:15 - 13:15 Voluntary communications
- **Jessica Esteban:** *Identification of forest changes using remotely sensed data and AI to focus internal and external audits*
 - **Farooq Ahmad:** *Can machine learning help monitor and diagnose forest pathogens?*
 - **Shamim Ahmed:** *Unveiling the internal patterns: Linking external crown shape and internal Wood traits of trees by using artificial Intelligence*
 - **Irene Cobo Simon:** *Joining Artificial Intelligence with human expertise in the plant big data era: A paradigm shift to improve forest health and productivity in a changing climate*
- Questions
- 13:15 - 14:15 Hands-on session
- **Stefano Mauceri:** *Overview of Time Series Applications for Ecosystems Management*
- 14:15 - 15:45 Lunch
- 15:45 - 16:45 Voluntary communications
- **Linh Ha My:** *Deep Learning Model Development for Detecting Coffee Tree Change in Vietnam Using Sentinel-2 Imagery*
 - **Zeinab Shirvani:** *Detecting Small Fires Using Novel GeoAI Approach and Sentinel Data for Fire Management Applications in Fragile Ecosystems*
 - **Jorge Aldea Mallo:** *Climate change will increase drought damage risk for Norway spruce in Sweden*
 - **Sergio Díez Hermano:** *Natural language processing as a tool for analysing viral flow in forests*
- Questions
- 16:45 - 17:15 **IUFRO presentation and IUFRO World Congress 2024 in Stockholm (Sweden) introduction (iufro2024.com)**
- 17:15 - 19:00 Voluntary communications
- **Juan García Duro:** *Landscape ecophysiological models parameterization and calibration by Genetic Algorithms*
 - **Alba Marquez:** *Fire risk mapping based on machine reasoning and FAIR principles*
 - **Jessica Esteban:** *Forest loss maps in the Amazon basin using Sentinel-1 time series*
- Questions
- **Carolina de Castro de la Cruz:** *Super-Resolution on Geosat-2 Pansharpened images*
 - **Anita Zolles:** *AI4 Trees – AI for climate sensitive tree growth modelling*
 - **Sheng-I Yang:** *Predicting total tree height using a mixed-effects random forest algorithm for diverse tree species in Caribbean*
- Questions

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Thursday, April 20th 2023. Palencia provincial palace (Diputación Provincial de Palencia)

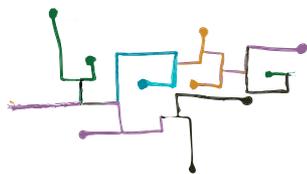
9:00 - 9:30	Accreditation
9:30 - 10:00	Keynote speaker <ul style="list-style-type: none">▪ David Pastor: Carbon mapping forecasting with large scale satellite imagery
10:00 - 11:00	Voluntary communication <ul style="list-style-type: none">▪ Harjaap Singh Mann: AI based assessment of the Forest Carbon Stock over time, as a sacrosanct mechanism for the carbón credit markets▪ Juan García Duro: GA-screening of harvesting impact on forest soil properties▪ Raquel Juan Ovejero: Using drone-acquired RGB and multispectral imagery as an alternative approach to traditional destructive methods for measuring carbon stocks and performance of young forest plantations▪ Andrés Bravo-Oviedo: Multispectral algorithm to classify and monitor urban-tree massive data <p>Questions</p>
11:00 - 11:30	Coffee break
11:30 - 13:00	Voluntary communications <ul style="list-style-type: none">▪ Pilar Valbuena Perez: Enhancing Forest Education through Conversational Agents: A Chatbot for Educational Activities in the Context of the Virtual Forests Project▪ Jorge Olivar: Baseline of Soil Organic Carbon in Mining Areas▪ Borja García Pascual: Composition of cloud-free, super-resolution, Sentinel-2 mosaics using Convolutional Neural Networks and time series <p>Questions</p>
13:00 - 14:00	Hands-on session <ul style="list-style-type: none">▪ Pilar Valbuena: Insight on ecosystems science by using text mining
14:00 - 15:30	Lunch

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Thursday, April 20th 2023. Palencia provincial palace (Diputación Provincial de Palencia)

15:30 - 16:00 Voluntary communications

- **Frederico Tupinamba Simoes:** *AI-Powered quantification of natural regeneration in forest ecosystems using stereoscopic camera and SLAM algorithm*
 - **Laura Martín Collado:** *Forest information system for local forest management: WebGIS for the Palencia Model Forest*
 - **Iván Durango:** *Data-driven Ecosystem Management from a Human-Data Interaction approach*
- Questions**

16:00 - 17:00 Round Table. *Challenges and dangers of integrating artificial intelligence into sustainable ecosystem management*

17:30 - 18:30 Hands-on session

- **Mushtaq Bilal:** *Become an Efficient Academic Writer with AI Apps Mushtaq Bilal*

18:30 - 19:45 Closing ceremony

Friday, April 21st 2023

8:00 - 19:00 **Field trip.** Visit will include: pine and oak forests including marteloscopes and permanent triplets plots in the Palencia province, as well as cultural visits to the 'La Olmeda' roman villa (www.villaromanalaolmeda.com/en) and romanesque monuments.



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