

Alessandro Montaghi

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Education

- 2016–2019 **Università degli Studi di Firenze**, Scuola di Scienze Matematiche, Fisiche e Naturali, Department of Mathematics and Informatics "Ulisse Dini",
5 June, 2020 - *Degree in Computer Science*, final grade: *110/110 summa cum laude*
- 2007–2010 **Università degli Studi di Firenze**, Scuola di Agraria, Department of Agriculture, Food, Environment and Forestry (DAGRI),
19 March, 2010 - *PhD in Forestry Economy, Assessment and Wood Sciences (topic in Forestry Remote Sensing and Applied Informatics)*
- 1996–2002 **Università degli Studi di Firenze**, Scuola di Agraria, Department of Agriculture, Food, Environment and Forestry (DAGRI),
11 December, 2002 - *Degree in Forestry and Environmental Sciences*, final grade: *110/110 summa cum laude*

Technical Skills

- Computer Science *Computational Theory, Machine-learning, Methods and Techniques of Object-Oriented Software Design, Design principles and Design patterns, UML (class diagrams and interaction diagrams), Test-Driven Development (TDD), Numerical Analysis, approximation and optimization method, Graph theory, software quality and certification Software, concurrent and parallel programming, Algorithm design and data structures, Databasing as SQL and NoSQL types, Docker and Kubernetes, Spring Boot, API RESTful, Cloud applications and Services (i.e., Microsoft Azure), Git repository, Python, Java, C#.*
- Remote Sensing *LiDAR (Light Detection and Ranging) sensors, Unmanned aerial vehicle (UAV), Hyperspectral, Object Based Image Analysis (OBIA), High and Low Spatial resolution multi-spectral imagery, Monitoring Forest Health, Terrestrial Laser Scanning (TLS), Geographic Object-Based Image Analysis (GEOBIA).*
- Forestry Science *Forest Ecology, Management and Planning, Dendrometry, Forest Decision Support Systems, Landscape Ecology, Precision forestry, Forest conservation, Fire Ecology, Silviculture.*

Thesis

Computer Science (2019)

- Title *Meta-Learning to combine Intrusion Detectors*
- Supervisor Prof. Andrea Bondavalli
- Description The aim of the work described in this thesis was to improve the anomaly detection capabilities of the Intrusion Detection Systems (IDS) using a meta-learning approach together to a combination of several non-supervised algorithms.

PhD in Forestry Economy, Assessment and Wood Sciences (2010)

Title	<i>A comparison of statistical methods for estimating forest standing volume from Light Detection and Ranging data (LiDAR)</i>
Supervisors	Prof. Susanna Nocentini and Prof. Gherardo Chirici
Description	The purpose of this research was to analyse and compare the performance of several statistical methods to retrieve the forest growing stock using LiDAR data as primary source of information.

Forestry and Environmental Sciences (2002)

Title	<i>Analysis of the Italian Dutch Elm Disease fungal population</i>
Supervisors	Prof. Paolo Capretti, Dr. Alberto Santini, and Dr. Giovanni Giuseppe Vendramin
Description	The goal of this thesis was to study and characterize the structure population of the fungal agents of Dutch Elm Disease (DED) in Italy.

Certifications

Certification	24 CFUs (University Educational Credits)
Institution	Università degli Studi di Firenze
Year	July - 2021
Description	The 24 CFUs (University Educational Credits) are university exams that are required as Teacher requirement to teach in the Italian middle and high schools. The 24 Formative Credits (CF) are distributed in the following way: 6 CFU of <i>Pedagogy, special pedagogy and didactics of inclusion</i> (final score: 30/30), 6 CFU of <i>Psychology</i> (final score: 30/30), 6 CFU of <i>Anthropology</i> (final score: 30/30 cum laude), and 6 CFU of <i>General teaching methodologies and technologies</i> (final score: 30/30 cum laude).
Certification	Qualification to the profession of agronomist and forestry doctor
Institution	Università degli Studi di Firenze
Year	First session, June - 2006
Description	Final Score 162/240.

Public recruitment competitions (permanent positions)

- 2023 Eligibility for the competition for Technologist III level (permanent position) at the National Research Council (CNR), Istituto per la Bioeconomia (IBE), ranking of the 22/03/2023 (prot. 85964), notice call: 367.336 TEC IBE.
- Position: *2nd ranking (88.5/100)*.
- 2023 Eligibility for the competition for Technologist III level (permanent position) at the National Research Council (CNR), Istituto per i Sistemi Agricoli e Forestali del Mediterraneo (ISAFOM), ranking of the 20/04/2023 (prot. 119806), notice call: 367.338 TEC ISAFOM.
- Position: *3rd ranking (69.00/100)*.
- 2016 Eligibility for the competition for Researcher III level (permanent position) at the Council for Agricultural Research and Economics (CREA), unità di ricerca per il monitoraggio e la pianificazione forestale di Trento (CREA-SEL), ranking of the 27/12/2016, notice call: 05-R-FL-MPF (10/08/2016).
- Position: *6th ranking (55.17/100)*.

Teaching activities at university level

Actual teaching activities

Course Title **Mathematics 2 and Computer Science**
Institution Università degli Studi della Tuscia, Italy
Degree Forestry and Environmental Sciences (Classe L-25)
CFU 60 (48 hr)
Accademic Year 2023/2024

Past teaching activities

Course Title **Mathematics 2 and Computer Science**
Institution Università degli Studi della Tuscia, Italy
Degree Forestry and Environmental Sciences (Classe L-25)
CFU 60 (48 hr)
Accademic Year 2022/2023

Course Title **Master in Precision Agriculture**
module: *simulation models and decision support systems in precision agriculture*
Institution Università degli Studi di Teramo, Italy
Degree University Master's degree - Level I
CFU 2 (25 hr)
Year 2023

Research and work experiences

- Nov 2023 – **Director of Technology - Level I**, National Research Council (CNR), Institute of Research on
now Terrestrial Ecosystems (IRET), Firenze, Italy.
- Activity: *software developer for the scientific platform of the ENVRI cluster research infrastructure for ITINERIS.*
- Feb 2021 – **Director of Technology - Level I**, Council for Agricultural Research and Economics (CREA),
Jul 2023 Center of Agriculture and Environment, Bologna, Italy.
- Activity: *software developer for the scientific platform of the ENVRI cluster research infrastructure.*
- Dec 2020 – **Term-contract worker**, Dipartimento di Ingegneria dell'Informazione (DINFO), University of
Feb 2021 Florence, Italy.
- Activity: *software developer for snap4city, a smart city IT platform.*
- Nov 2020 – **Teacher in Computer Science**, Istituto tecnico e commerciale Paolo Dagomari, Prato, Italy
Feb 2021 (*upper secondary school*).
- Activity: *teacher in computer science.*
- Jan 2014 – **Postdoc researcher**, Department of Geography, Faculty of Arts, University of Calgary, Alberta,
Jan 2016 Canada.
- Activity: *development of computer platform for processing and managing data from remote sensing to investigate the effects of climate change on boreal forest ecosystems.*

- Sep 2013 – **Research consultant**, Research Centre for Forestry and Wood of the CREA (*Council for Agricultural Research and Economics*).
 Jan 2014 - Activity: *software developer for the implementation of a Web-GIS platform for analyzing remote sensing and dendrometric data to support the development of Forest Management Plans for the Presidential Estate of Castelporziano (Rome)*.
- Sep 2012 – **Postdoc researcher**, Department of Agroecology - Soil Physics and Hydropedology, Aarhus University, Denmark.
 Sep 2013 - Activity: *development of a web service system to evaluate farmers' declarations against the European Land Parcel Identification System (LPIS)*.
- Aug 2010 – **Postdoc researcher**, Section of Forest Remote Sensing, Department of Forest Resource Management, Swedish University of Agricultural Sciences (SLU), Umeå, Sweden.
 Sep 2012 - Activity: *research activities aimed at the development of a cloud computing infrastructure to process LiDAR data in forestry*.
- Jan 2007 – **PhD**, Department of Agriculture, Food, Environment and Forestry (DAGRI), Università degli Studi di Firenze, Firenze, Italy.
 Mar 2010 - Activity: *study of the application of LIDAR data in forestry contexts through the implementation of appropriate computer frameworks*.
- May 2008 – **Visiting Research Scholar**, Environmental Science and Policy Management Department, University of California Berkeley, Berkeley, CA, US.
 Jan 2010 - Activity: *research activities related to the Ph.D. for the development of computer algorithms for the use of LiDAR data in forestry (the collaboration lasted from March 2008 until November 2008, and from May 2009 until January 2010)*.
- Dec 2006 – **Teacher in Agronomy, Economics, and Valuation**, Istituto tecnico agrario - sede ITAGR, via delle Cascine, 11, Firenze, Italy (*upper secondary school*).
 Jan 2007 - Activity: *teacher in Economics and Rural valuation*.
- Oct 2006 – **Teacher in Agronomy, Economics, and Valuation**, Istituto di Istruzione Superiore Ferraris Brunelleschi, Via Raffaello Sanzio, 187, 50053 Empoli, Firenze, Italy (*upper secondary school*).
 Nov 2006 - Activity: *teacher in Agronomy, Economics and Rural valuation, and Agri-food industries*.
- Jun 2004 – **Research fellow**, Department of Innovation in Biology, Agri-food and Forest systems (DIBAF), Università della Tuscia, Viterbo, Italy.
 Dec 2005 - Activity: *research activities involving the use of an airborne sensor for identifying and mapping chestnut ink disease in central Italy*.
- May 2003 – **Research fellow**, Department of Innovation in Biology, Agri-food and Forest systems (DIBAF), Università della Tuscia, Viterbo, Italy
 Jun 2004 - Activity: *study and application of automatic classification algorithms for the Image & Corine European Land Cover 2000 update*.
- Mar 2003 – **Research trainer**, GeoLab, Laboratory of Forest Geomatics of the Department of Agriculture, Food, Environment and Forestry of the University of Florence, Firenze, Italy.
 May 2003 - Activity: *IT activities in the domain of remote sensing, GIS platforms, and spatial analysis techniques*.

- Jan 2003 – **Research trainer**, *Institute for Sustainable Plant Protection* of CNR (National Research Council),
 Feb 2003 Firenze, Italy.
 - Activity: *conducting lab and field activities to select resistant elm clones to Dutch Elm Disease.*
- Mar 2002 – **Research trainer**, IRSTEA (*Institut national de Recherche en Sciences et Technologies pour
 May 2002 l'Environnement et l'Agriculture*), Nogent sur Vernisson, France.
 - Activity: *conducting field activities to select resistant elm clones to Dutch Elm Disease.*

Research activities

- Feb 2021 – **ENVRI-FAIR, Work Package 11**,
 Jul 2023 *Project coordinator: Dr. Marcello Donatelli,*
Place: CREA (Council for Agricultural Research and Economics), research center of Agriculture and Environment, Bologna, Italy,
Position: Director of Technology - Level I
- The overarching goal of the ENVRI-FAIR project is to improve findability, accessibility, interoperability, and reusability (FAIRness) of the data and services offered by the ENVRI Cluster research infrastructures and connect them to the emerging European Open Science Cloud. Taking into consideration the connection with other subdomains in terms of drivers and variables, WP 11 aims to enhance harmonisation, integration, and interoperability. I've been working in Envri-fair as a software developer to develop and integrate data management plans. This is to ensure the development of modelling techniques and tools through the provision of distributed e-services associated with them. As part of the activity, appropriate IT components were built using major OOP languages (e.g., C# and Python) and Design Patterns principles. As the release cloud environment was Microsoft Azure, an appropriate build versioning system for continuous integration was set up in Azure DevOps Pipelines. Additionally, the implementation of the various IT components included their integration with several PaaS (*Platform-as-a-Service*) services made available by the cloud provider Microsoft Azure. We can mention the integrated PaaS services for using SQL databases provided by Azure SQL Database, which included the development of Object-Relational Mapper (ORM) layers for mapping SQL queries. Finally, in order to achieve the project goals, various microservices-based solutions were developed and tested (from unit tests to integration tests) using Docker-type containerization technology and Kubernetes orchestrator. In order to facilitate interoperability between the multiple platforms and the use of such microservices, API (acronym for Application Programming Interface) endpoints conforming to the REST architectural style constraints were defined.
- Dec 2020 – **Studio e sviluppo di modello di data e process flow in Piattaforme Big Data nel con-**
 Feb 2021 **testo dei progetti SII MOBILITY, LIFE WEEE, HERIT DATA, FEEDBACK, TRAFair, REPLICATE.**,
Project coordinator: Prof. Paolo Nesi,
Place: Dipartimento di Ingegneria dell'Informazione (DINFO), Università degli Studi di Firenze, Firenze, Italy,
Position: Term-contract worker
- I worked as a programmer on the Snap4city platform (Smart Analytic App Builder for Sentient Cities and IOT) to develop a tool for analyzing and visualizing sensor data based on graph theory. The activity involved the implementation of various microservices based on the Restful API architecture style. Using a containerization approach, based on Docker, the microservices were deployed within a cloud service, like On-site Server, that can be found here: <https://www.snap4city.com>.

Jan 2014 – **Eyes High Postdoctoral Scholars program,**

Jan 2016 *Project coordinator: Prof. Greg McDermid,*

Place: Department of Geography, Faculty of Arts, University of Calgary, Alberta, Canada,

Position: Postdoc researcher

My postdoctoral research has been focused on the use of Unmanned Aerial Vehicles (UAVs) to acquire 3D information for planning and forestry purposes. In particular, my recent research involved developing new and alternative methods to create a highly dense point cloud using Structure-from-Motion (SfM) computer vision techniques and multiview-stereo (MVS) algorithms to large sets of images acquired from consumer-grade cameras mounted on boards of different unmanned aerial vehicles (fixed-wing or rotary-wing). To process this data efficiently, an IaaS (*Infrastructure-as-a-Service*) cloud computing infrastructure managed by Microsoft Azure was designed as a prototype. A Grafana-based dashboard and an application programming interface (API) were developed to visualize and analyze data interactively. At the macro-area level, the post-doctoral research has focused on the development of an integrated system for processing remote sensing images from NASA's MODIS (Moderate-Resolution Imaging Spectroradiometer) mission and running various phenological models to gain a better understanding of how climate change affects plant-animal interactions, leading to an increase in trophic asynchrony. Streaming image processing on Azure Virtual Machines, based on Apache Spark, was developed due to the size of the study area (Rocky Mountains of western Alberta, Canada). Using the Linux job scheduler Crontab, appropriate shell scripts were implemented to automate the ingestion of MODIS data on a daily basis. PostgreSQL was used to store the processed information. To calibrate and execute phenological models, specially developed queries were developed to retrieve information in an efficient manner. This architecture allowed results to be published in the *Nature Climate Change*(2019) journal.

Sep 2013 – **ELITE/SIFTeC projects for the Presidential Estate of Castelporziano (Rome),**

Jan 2014 *Project coordinator: Dr. Gianfranco Scrinzi,*

Place: Research Centre for Forestry and Wood of the CREA, Trento, Italy,

Position: Research consultant

This project aimed at developing and implementing Web-GIS (Geospatial Information System) and LiDAR (Light Detection and Ranging) remote sensing solutions to support the development of Forest Management Plans for the Presidential Estate of Castelporziano (Rome). ELITE was a work package that developed novel computer techniques to describe, characterize, and quantify the biomass of trees on the Presidential Estate. Through the processing of LIDAR data as the first source of information, various statistical and dendrometric methods were implemented for forest inventory purposes. The project involved the automatic processing of LiDAR data as well as the implementation of statistical and dendrometric methods based on laser data. The implementation was based on an Object-Oriented Programming (OOP) language and Design Patterns to reduce technical debt and to make the infrastructure applicable to other forestry contexts. Through the work package SIFTeC, an information system was created to permanently update and organize the knowledge of the Castelporziano Estate forest heritage. For the implementation of this work package, a cloud infrastructure consisting of various components was developed. In particular, all geographical information regarding the Castelporziano Estate was stored in a Postgresql (PostGIS) database, using the Azure Database for PostgreSQL service as the solution. For easy access to the forest information system, a Web-GIS interface hosted on a specially purchased Linux-based virtual machine (VM) through the Azure Virtual Machines service was developed.

Sep 2012 – **European Land Parcel Identification System (LPIS) project,**

Sep 2013 *Project coordinator: Dr. Mogens H Greve,*

Place: University of Aarhus, Aarhus, Denmark,

Position: Postdoc researcher

The European Land Parcel Identification System (LPIS) has often been proposed as a method for managing agriculture and the environment effectively, and a number of land managers have proposed incorporating it into sustainable agricultural instruments. As originally intended, the LPIS was used for the registration of agricultural reference parcels eligible for subsidies under the European Common Agricultural Policy (CAP). A Machine-Learning framework was developed to verify the quality and correctness of parcel declarations by farmers automatically. As part of the project, statistical methodologies were tested to measure the accuracy of automatic segmentation of agricultural plots by various algorithms versus manual plotting. The evaluation algorithms were implemented within a prototype web service developed using GeoServer.

Aug 2010 – **LiDAR for forestry applications in Sweden,**

Sep 2012 *Project coordinator: Prof. Håkan Olsson,*

Place: Swedish University of Agricultural Sciences (SLU), Umeå, Sweden,

Position: Postdoc researcher

During my work, I mainly evaluated forest characteristics derived from a Nationwide Laser Scan across Sweden. A study of view-angle effects on forestry metrics as well as the season-dependent dependence of laser metrics are examples from this research. Additionally, I studied the potential for mapping forest fuel types using Airborne Laser Scanning (ALS) data in conjunction with an IRS LISS-III image. Finally, I explored the possibility of using laser-derived statistics and field measurements to predict common forest variables using machine learning techniques. Specifically, I focus on tuning the Random Forest (RF) algorithm in order to compare its performance respect with other statistical and machine learning algorithms. This experiment was conducted by building a framework using specially developed computer components that were programmed in an Object-Oriented Programming (OOP) language. The framework processed laser data and forest surveys and compared the real algorithms implemented within it with those implemented in the framework.

Jan 2007 – **PhD,**

Mar 2010 *Project coordinator: Prof. Susanna Nocentini and Prof. Gherardo Chirici,*

Place: Università degli Studi di Firenze, Firenze, Italy,

Position: PhD Student

A major component of my Ph.D. was the study of possible applications of LidAR data in forestry, with an emphasis on forest inventories. A dedicated procedure for processing laser data in forestry was developed using Object-Oriented Programming (OOP) languages and appropriate programming methodologies (e.g., Design patterns, testing framework, SQL procedures, etc.). As a result of the developed computing infrastructure, I compared traditional statistical methods with those in Machine Learning (e.g., Random Forest) for estimating forest volume.

May 2008 – **Sierra Nevada Adaptive Management Project (SNAMP),**

Jan 2010 *Project coordinator: Prof. Maggi Kelly,*

Place: University of California, Berkeley, CA, US,

Position: Visiting Research Scholar

To understand ecosystem behavior, incorporate stakeholder participation, and inform the implementation of adaptive management on Forest Service lands in the Sierra Nevada, the research proposed in this project aimed to learn how to use an adaptive management and monitoring system. The collaboration lasted from March 2008 until November 2008, and from May 2009 until January 2010.

Jun 2004 – **Cooperation Italy-USA on the science and technology of climate change, Line 4: impact**
Dec 2005 **of biotic agents on carbon balance,**

Project coordinator: Prof. Riccardo Valentini and Prof. Andrea Vannini,

Place: Università degli Studi della Tuscia, Viterbo, Italy,

Position: Research fellow

During this project task, the Airborne Multispectral System A.Sp.I.S (*Advanced SPectroscopic Imaging System*) for high radiometric resolution and digital image acquisition was tested to identify Ink Disease foci in natural and cultivated chestnut stands in Central Italy. In addition, the spatial distribution and gradient analysis of Ink disease were studied over two years in an Italian chestnut forest. The forest disease empirical dispersion models were produced by using spatial statistical analysis and GIS techniques.

May 2003 – **Image & Corine European Land Cover 2000 (I & CLC2000),**

Jun 2004 *Project coordinator: Prof. Piermaria Corona,*

Place: Università degli Studi della Tuscia, Viterbo, Italy,

Position: Research fellow

The project had the final aim of producing the new version of the CLC map updated at the year 2006, along with the updated version of the CLC 2000 and the land use/land cover change map 2000-2006. The maps were produced based on the classification of a multitemporal dataset of SPOT and IRS images (IMAGE2006) and were supported by high resolution orthophotos and other ancillary information.

Grants

- 2013 **Eyes High Postdoctoral Scholars Competition of 2013**, *University of Calgary, Alberta, Canada*, grant of \$55,000.00 CAD/year.
- 2012 **Bando per borse/assegni destinati giovani ricercatori post-doc 2011**, *Fondazione Cassa di Risparmio di Trento e Rovereto*, project: using remotely sensed LiDAR data to construct and asses forest attribute maps and related spatial products, grant of 26,000.00 €.

Supervised students

- 2004 – 2005 **MSc in Forestry and Environmental Sciences**, *Title: Nuove tecniche di monitoraggio del Mal dell'Inchiostro del castagno e studi sulla dinamica dell'inoculo dell'agente causale Phytophthora cambivora (New Monitoring techniques to study the Ink Disease and analysis of the dynamics of the Phytophthora cambivora causative agent)*, Università degli Studi della Tuscia, Viterbo, Italy, Graduate student: Sergio Noce.
- 2003 – 2004 **MSc in Forestry and Environmental Sciences**, *Title: Il deperimento delle querce di Macchia Grande di Manziana: sviluppo di mappe tematiche come strumento d'interpretazione del fenomeno (Manziana (Rome) Oaks disease: development of thematic maps as a tool for interpreting the phenomenon)*, Università degli Studi della Tuscia, Viterbo, Italy, Graduate student: Marianna Stradaoli.
- 2004 – 2005 **BSc in Forestry and Environmental Sciences**, *Title: Monitoraggio e gestione del bosco "Macchia Grande" di Manziana (Roma) (Monitoring and management of "Bosco Grande" forest in Manziana, Rome)*, Università degli Studi della Tuscia, Viterbo, Italy, Graduate student: Rinaldo Pernarella.
- 2004 – 2005 **BSc in Forestry and Environmental Sciences**, *Title: Elaborazione di mappe di diffusione del Mal dell'inchiostro utilizzando attività di remote sensing ed elaborazioni GIS (Elaboration of diffusion maps of Ink disease using Remote Sensing and GIS technologies)*, Università degli Studi della Tuscia, Viterbo, Italy, Graduate student: Gianluca Tramontana.
- 2003 – 2004 **BSc in Forestry and Environmental Sciences**, *Title: Elaborazione e gestione di un data-base sull'impatto delle malattie delle specie forestali in Italia (Elaboration and Management of a Database on the impact of forest species diseases of Italy)*, Università degli Studi della Tuscia, Viterbo, Italy, Graduate student: Giacomo Nicolini.
- 2003 – 2004 **BSc in Forestry and Environmental Sciences**, *Title: Censimento e mappature dei rimboschimenti a prevalenza di pino nero nella provincia di Rieti (Survey and Mapping of Black pine reforestation in the Province of Rieti, Italy)*, Università degli Studi della Tuscia, Viterbo, Italy, Graduate student: Raffaele Sampalmieri.

Languages

Italian mother tongue. Good proficiency in written and spoken English.

Organization, service, and other activities

- 2023 – now **Corresponding member of the Italian Academy of Forest Sciences.**
- 2016 – now **Member Forestry Modeling Eroup**, *Italian Society of Silviculture and Forest Ecology (SISEF).*
- 2015 – 2016 **Member of the editorial board of iForest - Biogeosciences and Forestry**, *iForest - Biogeosciences and Forestry is a peer-reviewed online journal published by the Italian Society of Silviculture and Forest Ecology (SISEF).*

- 2015 **Technical workshop organizing committee and courses instructor**,
Summer school in Geospatial workshop on Point Clouds of University of Calgary & AMBI Geospatial Centre,
 17–12 August 2015, Calgary, Alberta, Canada.
- 2014 **International conference organizing committee member**,
ForestSAT2014: a bridge between forest sciences, remote sensing and geo-spatial applications,
 4–7 November 2014, Riva del Garda, Italy.
- 2012 **PhD summer school organizing committee member**,
NOVA 3D Remote Sensing of Forests – PhD summer school,
 1–15 August 2012, Umeå, Sweden.
- now **Reviewer for international scientific journals**,
Journals: Remote Sensing, European Journal of Remote Sensing, Canadian Journal of Remote Sensing, Remote Sensing Letters, International Journal of Remote Sensing

Publication summary

Author of 16 papers indexed in Scopus published or in press in international peer reviewed journals, with the following publication metrics (16 July 2023): SCOPUS (h-index 12, total citations 390).

Publications

**corresponding author*

1. Rocchini, D.*, Thouverai, E., Marcantonio, M., Iannacito, M., Da Re, D., Torresani, M., Bacaro, G., Bazzichetto, M., Bernardi, A., Foody, G.M., Furrer, R., Kleijn, D., Larsen, S., Lenoir, J., Malavasi, M., Marchetto, E., Messori, F., **Montaghi, A.**, Moudrý, V., Naimi, B., Ricotta, C., Rossini, M., Santi, F., Santos, M.J., Schaepman, M.E., Schneider, F.D., Schuh, L., Silvestri, S., Šímová, P., Skidmore, A.K., Tattoni, C., Tordoni, E., Vicario, S., Zannini, P., and Wegmann, M., 2021. *rasterdiv – An Information Theory tailored R package for measuring ecosystem heterogeneity from space: To the origin and back*. *Methods in ecology and evolution*, 12(6), pp. 1093–1102.
 - IF: 8.335, SJR: 2.805.
2. Laskin, N.D.*, McDermid G.J., Nielsen, S.E., Marshall, S.J., Roberts, D.R., and **Montaghi, A.**, 2019. *Advances in phenology are conserved across scale in present and future climates*. *Nature Climate Change*, 9, 419–425.
 - IF: 28.66, SJR: 6.849.
3. Hird, J.N.*, **Montaghi, A.**, McDermid, G.J., Kariyeva, J., Moorman, B.J., Nielsen, S.E., and McIntosh, A.C., 2017. *Use of unmanned aerial vehicles for monitoring recovery of forest vegetation on petroleum well sites*. *Remote Sensing*, 9(5), 413.
 - IF: 5.349, SJR: 4.057.
4. Laskin, D.N.*, **Montaghi, A.**, and McDermid, G.J., 2017. *An open-source method of constructing cloud-free composites of forest understory temperature using MODIS*. *Remote Sensing Letters*, 28(2), pp. 165–174.
 - IF: 2.514, SJR: 0.659.
5. Laskin, D.N.*; **Montaghi, A.**; Nielsen, S., and McDermid, G.J., 2016. *Estimating understory temperatures using MODIS LST in mixed cordilleran forests*. *Remote Sensing*, 8, 658.
 - IF: 5.349, SJR: 4.057.

6. Görgens, E.B.*, **Montaghi, A.**, and Rodriguez, L. C. E., 2015. *A performance comparison of machine learning methods to estimate the fast-growing forest plantation yield based on laser scanning metrics*. Computers and Electronics in Agriculture, 116, pp. 221–227.
- IF: 8.3, SJR: 1.587.
7. **Montaghi, A.***, 2013. *Effect of scanning angle on vegetation metrics derived from a nationwide Airborne Laser Scanning acquisition*. Canadian Journal of Remote Sensing, Vol. 39, No. S1, pp. 152–173.
- IF: 2.242, SJR: 0.619.
8. **Montaghi, A.***, Larsen, R., and Greve, M. H., 2013. *Accuracy assessment measures for image segmentation goodness of the Land Parcel Identification System (LPIS) in Denmark*. Remote Sensing Letters, 4 (10), pp. 946–955.
- IF: 2.514, SJR: 0.659.
9. Chirici, G.*, Scotti, R., **Montaghi, A.**, Barbati, A., Cartisano, R., Lopez, G., Marchetti, M., Mcroberts, R.E., Olsson, H., and Corona, P., 2013. *Stochastic gradient boosting classification trees for forest fuel types mapping through airborne laser scanning and IRS LISS-III imagery*. International Journal of Applied Earth Observation and Geoinformation, 25, pp. 87–97.
- IF: 7.672, SJR: 1.628.
10. **Montaghi, A.***, Corona, P., Dalponte, M., Damiano Gianelle, D., Chirici, G., and Olsson, H., 2013. *Airborne Laser Scanning of Forest Resources: an overview of research in Italy as a commentary case study*. International Journal of Applied Earth Observation and Geoinformation, 23, pp. 288–300.
- IF: 7.672, SJR: 1.628.
11. Maselli, F.*, Chiesi, M., **Montaghi, A.**, and Pranzini, E., 2011. *Use of ETM+ images to extend stem volume estimates obtained from LiDAR data*. ISPRS journal of photogrammetry and remote sensing, 66(5), pp. 662–671.
- IF: 11.774, SJR: 3.308.
12. Vannini, A.*, Natili, G., Anselmi, N., **Montaghi, A.**, and Vettraino, A. M., 2010. *Distribution and gradient analysis of Ink disease in chestnut forests*. Forest Pathology, 40(2), pp. 73–86.
- IF: 1.437, SJR: 0.361.
13. Barbati, A.*, Chirici, G., Corona, P., **Montaghi, A.**, and Travaglini, D., 2009. *Area-based assessment of forest standing volume by field measurements and airborne laser scanner data*. International Journal of Remote Sensing, 30(19), pp. 5177–5194.
- IF: 3.531, SJR: 0.732.
14. Bottai, L., **Montaghi, A.***, and Maselli, F., 2008. *Remote sensing for monitoring the effects of forest fires*. Italian Journal of Remote Sensing, 40(1), pp. 75–87.
15. Santini, A.*, **Montaghi, A.**, Vendramin, G. G., and Capretti, P., 2005. *Analysis of the Italian Dutch elm disease fungal population*. Journal of Phytopathology, 153(2), pp. 73–79.
- IF: 1.5, SJR: 0.461.
16. Vannini, A.*, Vettraino, A. M., Fabi, A., **Montaghi, A.**, Valentini, R., and Belli, C., 2004. *Monitoring ink disease of chestnut with the airborne multispectral system ASPIS*. In: III International Chestnut Congress, October, 2004, pp. 529–534.
- IF: 0.163, SJR: 0.149.

Scientific network

Prof. Paolo Nesi, *Cloud applications in Smart City*, University of Florence (Italy).
Prof. Andrea Bondavalli, *Resilient architectures and systems*, University of Florence(Italy).
Prof. Luigi Brugnano, *Applied Mathematics and Computation*, University of Florence (Italy).
Prof. Greg McDermid, *Environmental monitoring and ecology*, University of Calgary (Canada).
Prof. Håkan Olsson, *Remote Sensing*, SLU (Sweden).
Prof. Piermaria Corona, *Remote sensing and Forest Inventory*, CREA (Italy).
Prof. Gherardo Chirici, *Remote sensing and Forest Inventory*, University of Florence (Italy).

Sincerely,



Alessandro Montaghi
Firenze, February 26, 2024