

## Academic curriculum vitae

### Francesco Pirotti

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Nationality: Italian

Education, Habilitation and other Career Milestones .....	2
Academic-related skills .....	2
Programming skills.....	3
Developed software solutions in research .....	3
Academic activities – courses, mentoring and service .....	4
Teaching in higher education – course list .....	4
Mentoring of thesis for master and PhD students thesis .....	5
Mentoring of International Graduate and PhD students thesis .....	5
Academic-related services and committees .....	5
Scientific Committee (SC) and/or Organizing Committee (OC) .....	6
Editorial and publishing activities .....	6
Publication and Citation Metrics .....	6
Guest Editor in special issues/proceedings .....	6
Editorial Board in Scientific Journals.....	7
Reviewer in international scientific journals.....	7
Awards and certifications .....	7
Reviewer of project proposals .....	7
List of Funded Projects / Initiatives .....	7
Submitted projects.....	10
Relevant submitted projects not selected for funding.....	10
List of invited talks.....	11

### Short Bio

Francesco Pirotti is currently tenured Professor at University of Padova, teaching several GIS and Remote Sensing related courses to forestry and environmental science students. His research is oriented towards the application of Geomatics for supporting solutions related to environmental sciences, in particular forestry. He is author of more than one hundred scientific papers (in national and international journals) and associate editor in three international scientific journals and has guest-edited several special issues for different journals. He is active in the International Society of Photogrammetry and Remote Sensing having served as secretary of the Laser Scanning (WG V/3) and currently as co-chair of ISPRS WGIII/10 “*Remote Sensing for Agriculture and Natural Ecosystems Modelling and Monitoring*” and as official representative of the Italian Society in ISPRS. Francesco is also involved in several international and national projects with different roles.

## Education, Habilitation and other Career Milestones

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- 01/09/2014                    **Habilitation** to professorship by the Italian Ministry of Education (MIUR) in the field of Geomatics (SSD ICAR/06)
- 04/03/2014–01/04/2014    **Course - M.I.T. - Tackling the Challenges of Big Data**  
M.I.T. Professional Education Program  
Certificate available upon request
- 01/10/2007 - present        Assistant Professor at University of Padova - 2010.
- 01/01/2006–31/12/2006    **Post-Doctoral Research Grant**  
CIRGEO – Interdepartmental Research Center in Geomatics, Padova (Italy)  
Research on filters applied to digital images from remote sensing for improving classification and recognition in subsequent analysis.  
Implemented a module for open source GIS GRASS (Geographic Resources Analysis Support System) of the Canny Filter for parametric edge detection - programming ANSI C language
- 19/11/2002–01/12/2005    **Ph.D.**  
University of Padova, Padova (Italy)  
Ph.D. at the Land Environment Resources and Health (L.E.R.H.) Doctorate School at the University of Padova (<http://intra.tesaf.unipd.it/school/lerh.asp>).  
General research topic on models from remote sensing data. Final Thesis related to quality assessment and control of geo-spatial accuracy of remote sensing images; title "*Geometric Correction of Digital Images from Remote Sensing*".
- 01/08/2001–01/08/2002    **Scholarship U.C. Berkeley**  
University of California at Berkeley, Berkeley (United States)  
I successfully applied for a scholarship which allowed me to access courses for which I had a high interest at UC Berkeley's College of Natural Resources; I chose and successfully passed the following courses at the Biometrics and Spatial Analysis Lab (<http://vcresearch.berkeley.edu/faculty/gregory-s-biging>) and at the Remote Sensing Laboratory  
(now Geospatial Innovation Facility <http://gjf.berkeley.edu/>):  
(i) ESPM 271 - **Advanced Remote Sensing of Natural Resources** (Prof. Peng Gong)  
(ii) ESPM 172 - **Photogrammetry and Remote Sensing**(Prof. Peng Gong)  
(iii) ESPM 102b - **Natural Resource Sampling** (Prof. Greg Biging)  
In this one-year period I finished my final Thesis for graduation at the University of Padova.
- 28/11/1995–02/09/2002    **Major in Forestry and Environmental Sciences** (full marks + cum Laude)  
University of Padova, Padova (Italy)  
Specialization: "Land Management and Modelling".  
Final Thesis completed as exchange student at University of California at Berkeley (UCB) titled: "*Principles of Remote Sensing Applied to Environmental Monitoring*".
- 01/06/1985–01/06/1995    Middle - High School  
Graduated with the **International Baccalaureate**

## Academic-related skills

**Mother tongue(s)** Italian, English

**Other language(s)**

English

UNDERSTANDING		SPEAKING		WRITING
Listening	Reading	Spoken interaction	Spoken production	
C2	C2	C2	C2	C2

Levels: A1 and A2: Basic user - B1 and B2: Independent user - C1 and C2: Proficient user  
Common European Framework of Reference for Languages

**Programming skills**

Proficient in **MS-Windows** and **Linux Operating Systems**: ability of scripting (DOS and BASH syntax respectively). For the following **GIS software** I have programming/scripting competence:

- GIS-based: GRASS, QGis, Saga-GIS
- Remote-Sensing/Photogrammetry: Leica Photogrammetry Suite, Erdas Imagine, PCI Geomatica
- Statistics/GIS: R-cran
- Multi-D Visualization: Paraview

**Proficiency in the following programming/scripting languages:**

- ANSI C, C++ (Qt IDE), Java (Eclipse IDE), Python, R-CRAN
- PHP, Javascript, ActionScript (FLEX)
- SQL and PL/pgSQL procedural language.

**Familiar with the following libraries/APIs related to spatial data:**

- GDAL/OGR - GeoData Abstraction Library (Raster and Vector versions respectively -<http://www.gdal.org/>)
- Proj4 – Cartographic Projections Library (<http://trac.osgeo.org/proj/>)
- PCL - Point Cloud Library (<http://pointclouds.org/>)
- Shapelib - Shapefile vector format read/write library (<http://shapelib.maptools.org/>);
- Liblas - Laser Scanning spatial data format LAS (<http://www.liblas.org/>)
- VTK-Visualization Toolkit (massive 3D geo-data formatting and visualization)

**Developed software solutions in research**

- **LOF outlier detection in point clouds** – C++ and GUI – Point cloud library (PCL) implementation of Local Outlier Factor (LOF) for outlier detection in point clouds .
- **treeXT** – C++ and GUI - tool to extract tree positions, heights and volumes from CHMs or LiDAR airborne data – currently under development.
- **Grid2ntv2** - Past and present Italian geographic data have different DATUMS which require grid transformation parameters for accurate coordinate conversion. This software converts grid transformation information from the Italian system (IGM's .gr2 format) to the NTV2 format allowing common GIS software to carry out accurate re-projection between the two DATUMS.
- **DBT\_SnapNodes**: C++ in Qt IDE software for implementing KDTree spatial charts for fast automatic correction of the topology in a geo-spatial dataset in compliance of a Topographic Database with INSPIRE directives. This software solved a big problem related to the required precision of 10E-8 m in identity between overlapping vertices' coordinates which was not respected in some

production of Topographic Databases.

- **TLS trees** - C++ module using Point Cloud Library to automatically extract ground surface and tree position from massive (>> 10 million points) terrestrial laser scanning data.
- **GRASS GIS modules** (older 5.x version of GRASS)
  - **i.spectral** - spectral signature extraction from image groups
  - **r.canny** - Canny filter – parametrical edge detection and extraction from rasters.
- **LiDARFunctionsIII** : C++ in Qt IDE software to process full-waveform LIDAR (from Optech ALTM sensor in particular) for extracting metrics for forest and environmental research
- **kernelRaster** - a suite of convolution methods applicable to grid/raster data - <http://www.cirgeo.unipd.it/fp/kernel.html>

## Academic activities – courses, mentoring and service

### Teaching in higher education – course list

#### Legend

Years: "course title" (course duration - average number of participants\*) - \* h=hours, st=average number of students

University – Graduate Level	University – Post-Graduate Masters	Professional	Summer school
<ul style="list-style-type: none"> <li>▪ 2015+2017: "Classification and validation of 3D point clouds with a data-rich set of descriptors" @Innsbruck Summer School on Close Range Sensing (16h – 30st)</li> </ul>			
<ul style="list-style-type: none"> <li>▪ 2014 - present: "Introduction to GIS", in English (16h – 20st)</li> </ul>			
<ul style="list-style-type: none"> <li>▪ 2015 – present: "GIS for Agro-Environmental Studies", in English (32h – 20st)</li> </ul>			
<ul style="list-style-type: none"> <li>▪ 2015 - present: "GIS Applications in Environmental Sciences" (32h – 90st)</li> </ul>			
<ul style="list-style-type: none"> <li>▪ 2012 - present: "Remote Sensing and Geographic Information Systems" (48h – 40st)</li> </ul>			
<ul style="list-style-type: none"> <li>▪ 2017 + 2019: "Automatic 3D Data Classification" - First Level Master "Produzione e trattamento dati tridimensionali da terra e da drone" (18h – 30st)</li> </ul>			
<ul style="list-style-type: none"> <li>▪ 2015 - present: "GeoDatabase Management" - Second Level Master "GIScience and RPAS for Integrated Management of Land and Environmental Resources" (32h – 30st)</li> </ul>			
<ul style="list-style-type: none"> <li>▪ 2015/2016 - "Remote Sensing of Vegetation" shared with Prof. Filiz Sunar (48h – 6st)</li> </ul>			
<ul style="list-style-type: none"> <li>▪ 2014/2015 - "Spatial Analysis for Forest Resources" shared with Prof. Gregory Biging (48h – 6st)</li> </ul>			
<ul style="list-style-type: none"> <li>▪ 2012 - 2015: "Cartography and Geographic Information Systems" (48h – 40st)</li> </ul>			
<ul style="list-style-type: none"> <li>▪ 2008 - 2011: "Environmental Indicators and Practical Geography" (48h – 30st)</li> </ul>			
<ul style="list-style-type: none"> <li>▪ 2008 - present: actively participating at the <i>Education Programme for Professionals of CIRGEO (Interdepartmental Research Center in Geomatics – <a href="http://www.cirgeo.unipd.it">http://www.cirgeo.unipd.it</a>)</i> - <a href="http://www.formazione.cirgeo.unipd.it/">http://www.formazione.cirgeo.unipd.it/</a>) teaching the following courses:                     <ul style="list-style-type: none"> <li>▫ "PostgreSQL/PostGIS Geo-databases" - Introductory course (16h – 10st)</li> <li>▫ "Principles of Web-GIS programming" – Mapserver engine ( 24h – 10st)</li> <li>▫ "Open source Lidar processing" (8h – 5st)</li> </ul> </li> </ul>			
<ul style="list-style-type: none"> <li>▪ 2013 – 2015: Teaching program for candidates to the habilitation for high/middle -school teaching holding</li> </ul>			

every year a short course titled "*Cartography and Geographic Information Systems*".

### **Mentoring of thesis for master and PhD students thesis**

- I have tutored 20+ Graduate-level students in their thesis work, list of names and thesis title available upon request.

### **Mentoring / co-supervision of International Graduate and PhD students**

The following foreign students have been/will be mentored for thesis/research work – title of work is in quotes:

- 2018 – Mengran Liu – PR China: NEFU Scholarship Council Fellow, visiting for one year. Research topic "Optical Remote Sensing for Inferring Genetic Variance in Plants"
- 2017 - Antonio Božić – Croatia: Erasmus+ "Investigation on the potential of medium-resolution satellite imagery to assess renovation of vegetation after a fire event".
- 2016 - Ing. Erico Heinz Kutchartt Ruedlinger- Erasmus+ – Chile: " Estimation of the quantity of dead wood after of windthrow through aerial images, geographical information system tools and line intersect sampling in Tuscany, Italy" – *paper published in "ISPRS Archives..."*, 2016.
- 2015 - Dongmei Chen - PR China – "Fire regimes in China from MODIS data" – *paper published in "Applied Geography"*, 2017.
- 2015 - Ana Martin Ariza – Portugal – "Optimisation of fuel treatment type and locations to reduce fire severity when considering timber supply" – *paper published in "Forest Systems"*, 2016.
- 2014 - Emmeline Topp – England – "Vegetation cover change in three mountain regions of Vancouver Island (British Columbia, Canada)" – Co-supervisor
- 2013 - Stanislav Carbol – Visiting PhD from Mendel University, Czech Republic "Production Forest Characterization from LiDAR Metrics".

### **Academic-related services and committees**

- 2018 – member of tribunal for evaluation of PhD Candidate Alice Pasquinelli, thesis related to Building Information Modeling , Polytechnic of Milano (ref. Prof. Franco Guzzetti).
- 2016 – present : Part of scientific committee and full member of spin-off company "NEOS S.r.l." – activity: UAV's for environmental applications and precision agriculture and forestry.
- 2016 - present: Official representative of the Italian Society of Photogrammetry and Topography (SIFET) in ISPRS General Assembly
- 2016 - 2020: Co-Chair of Working Group 10 Technical Commission 3 "Remote Sensing for Agriculture and Natural Ecosystems Modelling and Monitoring" of the International Society of Photogrammetry and Remote Sensing (ISPRS)
- 2015 – member of tribunal for evaluation of PhD Candidate José Antonio Palenzuela Baena, Área de Ingeniería del Terreno, Universidad de Granada.
- 2015 - present : member of the Scientific Committee at the Italian Society of Photogrammetry and Topography (SIFET)
- 2015 - present: Organizing and Scientific Committee of the Second Level Master "GIScience and RPAS for Integrated Management of Land and Environmental Resources" ([http://www.mastergiscience.it/en\\_US/](http://www.mastergiscience.it/en_US/))
- 2015 - present: Evaluation Committee for selection of participants to the Second Level Master "GIScience and RPAS for Integrated Management of Land and Environmental Resources" ([http://www.mastergiscience.it/en\\_US/](http://www.mastergiscience.it/en_US/))
- 2015 - present: member of Program Council of Land Environment Resources and Health (L.E.R.H.) Doctorate School at the University of Padova (<http://intra.tesaf.unipd.it/school/lerh.asp>)
- 2016 - present: part of the "Internationalization Working Group" in TESAF Department aimed at fostering international cooperation and selecting student candidates for exchange programmes.
- 2015, 2017 and 2019: Organizing and scientific committee of "Alpine Summer School 2015 and 2017 - Close Range Sensing Techniques in Alpine Terrain" c/o ISPRS and University of Innsbruck - website

<https://www.uibk.ac.at/geographie/summerschool/>

- 2014 - Scientific committee in NASA WW Europa Challenge
- 2013 - Mentor of team of NASA World Wind Europa Challenge 2013 winning team on project "Air-Quality Data 3D Visualization" <http://www.cirgeo.unipd.it/nasaww/>
- 2012 - 2016: Secretary of Working Group 3 Technical Commission 5 "Close Range Sensing" of the International Society of Photogrammetry and Remote Sensing (ISPRS) <http://www2.isprs.org/commissions/comm5/wg3.html>

### Scientific Committee (SC) and/or Organizing Committee (OC)

- 2018 – ISPRS Mid-term Symposium TC-III Beijing China (SC)
- 2018 – SilvaNetwork Annual Conference – Network for Higher Education (OC)
- 2018 - EGU - Vienna – (SC+OC) of IE3.1/GI0.3/BG1.35/CR2.8/ESSI4.4/GM2.12/NH6.5 “Close and Long Range Sensing of Environment (co-sponsored by ISPRS) + PICO (OSPP) Award Judge (SC+OC)
- 2017 - SIFET Conference - Ragusa, Italy, June 21-23 2017 (SC)
- 2017- EGU - Vienna – (SC+OC) of GI3.9/BG9.22/CR2.5/ESSI1.11/GM3.8 – “Close-Range Sensing of Environment and 3D Point Clouds in Geosciences (co-organized)” - Outstanding Student Poster and PICO (OSPP) Award Judge
- 2017 - GeoData2017 – Rosario Argentina April 3-7 2017 (SC+OC)
- 2017 - FOSS4g - Open Source for Geo - Genova, Italy, February 8-11 2017 (SC)
- 2017 - ISPRS "Laser Scanning 2017" Wuhan, China, Sept. 2017 (SC+OC)
- 2016 - ISPRS Congress 2016 – Prague – chair of working group V/3 session (SC)
- 2015 - ISPRS "Laser Scanning 2015" La Grande Motte, France, November 2015 (SC+OC)
- 2015 - FOSS4g - Open Source for Geo - Lecco, Italy, July 14-16 2015 (SC)
- 2015 - SIFET Conference - Florence, Italy, June 24-26 2015 (SC)
- 2014 - ISPRS TC V Symposium, Riva del Garda June 2014 (SC)
- 2013 - ISPRS "Laser Scanning 2013" Antalya, Turkey, November 2013 (SC)
- 2013 - "The Role of Geomatics in Hydrogeological Risk" Padova, Italy, February 2013 (SC+OC).

## Editorial and publishing activities

### Publication and Citation Metrics

- 145 articles in national and international journals/books (source: **IRIS** University of Padova database accessed 24 February 2017)
- 67 articles indexed in **Google Scholar** (H-index = 17) (source: Google Scholar accessed 24 February 2018)
- 59 articles indexed in **Scopus** (H-index = 15) (source: Scopus accessed 24 February 2018)
- 45 articles indexed in **Web of Science** (H-index = 14) (source: ISI WoS accessed 24 February 2018)

### Guest Editor in special issues/proceedings

- 2017 – Lead Guest Editor “Laser Scanning” (*Applied Science* – MDPI) - [www.mdpi.com/journal/applsci/special\\_issues/Laser\\_Scanning](http://www.mdpi.com/journal/applsci/special_issues/Laser_Scanning)
- 2017 – Lead Guest Editor “Open source geospatial tools and technologies for urban and environment studies” (*Journal of Open Geospatial Data, Software and Standards* – Springer) - <https://www.springeropen.com/collections/ogsue>
- 2016 - Lead Guest Editor “Open source geospatial tools and technologies for urban and environment studies” (*Journal of Open Geospatial Data, Software and Standards* – Springer) - <https://www.springeropen.com/collections/oserm>
- 2015 - Laser Scanning 2015 - ISPRS Workshop (*ISPRS Annals/Archives - Copernicus*) - <http://www.isprs-ann-photogramm-remote-sens-spatial-inf-sci.net/II-3-W5/1/2015/isprsannals-II-3-W5-1-2015.pdf>
- 2015 - The Role of Geomatics in Hydrogeological Risk: (*Geomatics Natural Hazards and Risk - Taylor&Francis*) -

<http://www.tandfonline.com/toc/tgnh20/6/5-7?nav=toCList>

- 2013 - Laser Scanning 2013 - Volume II5/W2, 2013 (*ISPRS Annals/Archives - Copernicus*) - <http://www.isprs-ann-photogramm-remote-sens-spatial-inf-sci.net/II-5-W2/index.html>

### Editorial Board in Scientific Journals

- Remote Sensing Applications: Society and Environment - Elsevier
- Applied Geomatics - Springer
- Open Source Data, Software and Standards - Springer
- Geomatics, Natural Hazards and Risk – Taylor and Francis
- ISPRS Journal of Photogrammetry and Remote Sensing – Elsevier [2012-2016]
- Bollettino SIFET – Journal of the Italian Society of Photogrammetry and Surveying

### Reviewer in international scientific journals

- ISPRS Journal of Photogrammetry and Remote Sensing (Q1)
- Remote Sensing of Environment (Q1)
- IEEE Geoscience and Remote Sensing Letters (Q1)
- Geomatics Natural Hazards and Risk (Q2)
- Remote Sensing (Q1)
- Canadian Journal of Remote Sensing (Q2)
- European Journal of Remote Sensing (Q2)
- Applied Geomatics (Q3)
- Transactions in GIS (Q2)
- Ambio (Q1)

### Awards and certifications

Certificate of Excellence in Reviewing from Elsevier for ISPRS Journal on Photogrammetry and Remote Sensing (2016)

Certificate of Outstanding Reviewer from Elsevier for ISPRS Journal on Photogrammetry and Remote Sensing (2015)

NASA World Wind Europa Challenge 2013 Crystal Bull Award - "3D Viewer of Air Quality Data" <http://www.cirgeo.unipd.it/nasaww/airSite/index.html> - (2013)

Best Poster Award , XXXII Italian Conference of Hydraulics and Hydraulic Constructions (2010)

### Reviewer of project proposals

- *ERC Starting Grants Proposals* 2016
- "IQumulus": Framework Programme 7 - Project Book (final deliverable)
- "EXTRAFOR" Project Proposal - Free University of Bozen

## List of Funded Projects / Initiatives

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30/03/2018–30/12/2018 **Co-Principal Investigator**

**ISPRS Education and Capacity Building Initiatives 2018**

*Funding source: International Society of Photogrammetry and Remote Sensing*  
Funding for and e-learning platform for ISPRS and related events.

**3'000 Euro**

- 04/07/2017–11/07/2017 **Co-Organizer**  
*Funding source: University of Padova*  
Funding for Summer School “Close Range Sensing in Alpine Terrain” @ Obergurgl Austria co-organized with University of Innsbruck and ISPRS  
**6'000 Euro**
- 01/10/2016–01/10/2019 **Head of Research Unit**  
*Funding source: Italian Ministry of Education (MIUR)*  
Three-year project - "URBAN GEOmatics for Bulk Information Generation, Data Assessment and Technology Awareness"  
Scientific objective: integrate multiple sources of geospatial data for decision support. My group is responsible mainly for implementing a model and software to integrate LiDAR data and cartographic vector data into a 3D representation model and contributing to testing and assessment of methods.  
Contact: Maria Antonia Brovelli ( [maria.brovelli@polimi.it](mailto:maria.brovelli@polimi.it) ) .  
**~110'000 Euro (Total project budget: ~720'000 Euro)**
- 01/03/2015–01/03/2017 **Principal Investigator**  
*Funding source: CPDR145548/14 – Research Grant*  
Two-year project - "Cross-platform 3D virtual analysis engine applied to assessment of volume and biomass in multi-functional mountain forests"  
Scientific objective: integrate multiple sources of geospatial data (remote sensing LiDAR, optical, SAR etc...) to improve estimation of volume and biomass and the monitoring thereof, to support decision making and policy definition.  
Contact: Francesca Fissore ( [francesca.fissore@gmail.com](mailto:francesca.fissore@gmail.com) ) .  
**~50'000 Euro**
- 10/06/2016–20/06/2016 **Principal Investigator**  
*Funding source: University of Padova Cooperation Grant*  
Grant for incoming professor John Radke from UC Berkeley.  
Scientific objective: initiate a consortium for a future Marie Curie RISE Project between JRC-ISPRA, University of Delft, University of Padova and UC Berkeley.  
Contact: John Radke ( [ratt@berkeley.edu](mailto:ratt@berkeley.edu) ) .  
**~8'000 Euro**
- 10/01/2016–01/07/2016 **Principal Investigator**  
*Funding source: Italian Ministry of Education (MIUR) Research/Didactics Grant*  
Grant for incoming professor Filiz Sunar – Technical University of Istanbul (Turkey).  
Scientific objective: course on Remote Sensing for Vegetation Analysis at graduate level of the TESAF Department at University of Padova..  
Contact: Filiz Sunar ( [fsunar@itu.edu.tr](mailto:fsunar@itu.edu.tr) ) .  
**~36'000 Euro**
- 04/07/2015–10/07/2015 **Co-Organizer**  
*Funding source: University of Padova*  
Funding for Summer School “Close Range Sensing in Alpine Terrain” @ Obergurgl Austria co-organized with University of Innsbruck and ISPRS  
**6'000 Euro**
- 10/01/2015–20/06/2015 **Principal Investigator**  
*Funding source: Italian Ministry of Education (MIUR) Research/Didactics Grant*  
Grant for incoming professor Gregory Biging - UC Berkeley – (USA).  
Scientific objective: initiate a consortium for a future Marie Curie RISE Project between JRC-ISPRA, University of Delft, University of Padova and UC Berkeley + course on Spatial Analysis at graduate level of the TESAF Department at University of Padova.  
Contact: Gregory Biging ( [biging@berkeley.edu](mailto:biging@berkeley.edu) ) .  
**~36'000 Euro**
- 01/01/2015–01/01/2016 **Principal Investigator**

*Funding source: AVEPA – Veneto Region Agency for Agricultural Subsidies from European Union – Research Grant*

"Spatial analysis of drone images for classification of agricultural parcels"

Scientific objective: convert high resolution optical raster data from drone surveys into specific land-use classes of interest for monitoring of agricultural resources – pilot study.

Contact: Giovanni Lusiani ([giovanni.lusiani@avepa.it](mailto:giovanni.lusiani@avepa.it))

**4'700 Euro**

01/01/2014–01/01/2015 **Participant**

*Funding source: NEWFOR "NEW technologies for a better mountain FORest timber mobilization" – contract n° 2-3-2-FR, Alpine Space Programme Interreg IIIB 2007/2013.*

Scientific objective: for a specific Work Package manage a team to create a web-based service for accessing large datasets provided by partners from the project activities (imagery, terrain models, harvesting metadata etc...). Optimization through multi-scale/multi-resolution solutions and server-based thin-client drivers. Simple analysis tools integrating server-side R-Cran modules and user-input through the web interface. A brief overview can be seen @

<https://www.youtube.com/watch?v=hSW1cr4farQ>

Contact: Frederic Berger ([Frederic.Berger@irstea.fr](mailto:Frederic.Berger@irstea.fr))

**216'000 Euros** (total budget for University of Padova)

01/01/2014–01/01/2015 **Co - Investigator**

*Funding source: Municipality of Lorenzago (BL) - Italy*

Defining a robust algorithm for detection of tree position and metrics on forests from LiDAR and creation of accessibility/harvesting maps through probabilistic methods. High resolution LiDAR data were used to extract metrics and Random Forest machine learning was used to model for volume and biomass.

**6'000 Euros**

02/02/2014–02/02/2015 **Principal Investigator**

*Funding source: European FSE Grant*

Coordinator of European FSE Grant 2105/201/9/1148/2013 - Information Systems for Supporting Advanced Biotechnologies for Environmental Applications. Tutored a candidate with support from Bioprogramm S.r.l. company bringing innovation in enterprises.

Scientific objective: use 3D rendering engine from NASA World Wind to provide interactive online tools to determine fluvial morphological indices as determined by European directives and Italian (ISPRA) directives. Results are seen in parts of video @

<https://www.youtube.com/watch?v=GvJPoYjC9yQ>

in particular at timetag @

<https://youtu.be/GvJPoYjC9yQ?t=128>

Contact: Marco Piragnolo ([marco.piragnolo@gmail.com](mailto:marco.piragnolo@gmail.com)) .

**~30'000 Euros**

01/01/2011–01/12/2011

**Scientific appointment**

*Funding source: Pisa Town / land administration and cadastre management office, Pisa (Italy)*

Coordination of the project titled "Extracting land-cover maps of forested areas using LiDAR technology" requested by the town of Pisa (Italy) land administration and cadastre management office. Scientific objective: lead a team (2 people) on ground surveying and spatial data processing (aerial imagery and airborne laser scanning over cadastre parcels), defining the workflow for defining ownership of land with forest.

**Data only**

02/02/2009–02/02/2011

**Principal Investigator**

*Funding source: Geomatica & Ambiente SRL*

Create a dedicated library with functions for managing and processing Airborne Laser Scanning data to be used as a plug-in for a larger project of a Java-based GIS (AdB-Toolbox) for the National Geoportal (<http://www.pcn.minambiente.it/GN/index.php?lan=en>)

under the patronage of the Italian Ministry of Environment.

Scientific objective: develop functionalities requested as a DLL written in C++ with the necessary functions for interoperability in Java environment. *Coordinate* with other team-members for successful interoperability as AdB-ToolBox, a fork of OpenJump GIS with several extra modules added for hydrogeological modelling and derived applications.

Contact: Agostino Avanzi ( [avanzi.agostino@gmail.com](mailto:avanzi.agostino@gmail.com) or [info@betastudio.it](mailto:info@betastudio.it) ) .

**~27'000 Euro**

02/10/2007–02/10/2011

**Co-Investigator**

*Funding source*: COGEME Informatica, SpA

Scientific objective: quality assessment and control of cartographic products derived from photogrammetric survey - total area managed ~2000 Km<sup>2</sup> of the Lombardy region (Italy).

Contact: Eugenio Boschini ([e.boschini@lgh.it](mailto:e.boschini@lgh.it)).

**~47'000 Euro**

## Submitted projects

29/06/2017

**Principal Investigator**

*Funding source*: National Geographic

Monitoring Soil Sealing with Remote Sensing : from Data to Awareness

Scientific objective: use recent Earth Observation (EO) data available from ESA's Sentinel 2 satellites to create tools for monitoring "sealed soils" over time. The short revisit time (5 days) from these twin satellites and the characteristics of their sensors will allow a "near real time" monitoring of this phenomenon.

**~22'000 Euros**

## Relevant submitted projects not selected for funding

**NATIONAL OR LOCAL**

2014: LEVI-CASES (PI 28'000 Euro) – UAVs for Geoinformation on protection forests

2015: CARIPARO - (PI 120'000 Euro) – GeoRUR – Geoinformation for Rural Areas

**INTERNATIONAL**

2017 EU - Marie S. Curie – ITN-ETN - (900 K Euro) “TRIDENT – Training on 4D Geomatics for Natural Hazards”

2016 Fondo de Investigación del Bosco Nativo (Chile) - (20'000 Euro) “Cuantificación y valorización de los Servicios Ecosistémicos potencialmente afectados por el cambio climático en bosque nativo con Teledetección”.

2015 HORIZON2020: INDUCESST – (19 million Euro) Lighthouse Smart-Cities to Recover Industrial Corridors

2014 COST Action: "Techno Diversity in Forestry"

2014 HORIZON2020: LOCOMET – (3 million Euro) – Building Information Models for Natural Heritage

## List of invited talks

(invitation letters and contacts available upon request)

### International

- 2019 - Invited talk "Photogrammetry vs. LiDAR in Urban Planning", Department of Urban Planning, School of Harbin Institute of Technology, China.
- 2018 – Invited talk "DTM/DSM, from photogrammetry to laser scanning, a change of paradigm", China University of Geosciences, Beijing China.
- 2017 - Invited Talk "Drones for Geomatics in the Next Century" GeoData2017 – Rosario Argentina
- 2017 - Invited talk "Geomatics for Natural Resources: Past Present and Future" ISPRA – Italy – June 13 2016 - Ref. Dr. Jesus San Miguel
- 2015 - Visiting fellow and invited lecture titled "Geomatics for Natural Resources: Future Trends" at University of California at Berkeley (USA) -Sept. 2015 - Ref. Prof. Gregory Biging
- 2015 - Invited talk "Geomatics for Natural Resources: Past Present Future" AFORENSA Workshop - Zagreb Croatia - July 1-2 2015 - Ref. Dr.sc.Ivan Pilas
- 2014 - Invited Chair at ISPRS TC VII Symposium "Thematic Processing, Modeling and Analysis of Remotely Sensed Data" Istanbul, Turkey, 22 Sept. 2014

### National

- Invited Talk "Riquilificazione concertata delle aree golenali del fiume po" – 19 Sept. 2017 (contact TecnoTerr Marco Goldoni) – Mantova Italy
- Invited Talk "SAPR per Agricoltura di Precisione ma non solo" SIFET 2017 – Ragusa Italy
- Invited talk "*Remote Sensing from RPAs in Forestry Applications*" "Droneltaly" Workshop , Milan, 2015
- Invited talk "*the Role of LiDAR in Forestry*" Bergamo Workshop of Professional Higher Education, Bergamo, 2014
- Invited talk and chair at the session "LiDAR Environmental Applications" ASITA\* workshop Trento, 2013  
Youtube available @ <https://www.youtube.com/watch?v=3aeOgpETli4>
- Invited talk "*Role of LiDAR in Geomatic Disciplines*" (in Italian) ASITA\* Workshop Parma, 2011.  
Youtube available @ <https://youtu.be/QZF3P96BLfY?t=45>

\*ASITA is the Italian Federation for Geospatial Information.