



Alessio CALANTROPIO

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ABOUT ME

I graduated in Architecture at Politecnico di Torino, with a thesis on the use of UAV for safety application in construction sites and in technical measures for seismic emergency response. I currently work as a researcher in the Department of Architecture and Design.

Along with the Lab G4CH (Laboratory of Geomatics for Cultural Heritage) and the student team DIRECT (Disaster REcovery Team) I've carried out mapping research in earthquake-hit regions in central Italy and other relevant projects in collaboration with the firefighters and first responders.

Since 2017 I have been working at PIC4SeR (PoliTO Interdepartmental Centre for Service Robotics) as industrial representative for DJI, the world's leader in commercial and civilian drone industry.

From 2019 I am pursuing a PhD in Architectural and Landscape Heritage, with a thesis focused on Photogrammetric multisensor application for the documentation of the Underwater Heritage.

I have an extensive knowledge of drones and their application for research, mapping, humanitarian relief, public safety, built heritage monitoring and damage assessment.

EDUCATION AND TRAINING

PhD student in Architectural and Landscape Heritage

Politecnico di Torino [05/2019 – Current]

Address: Torino (Italy)

National classification: ICAR/06 - Geomatics

Thesis: Photogrammetric multisensor application for the documentation of the Underwater Heritage

Laboratory of Geomatics for Cultural Heritage (Lab G4CH).

PoliTO Interdepartmental Centre for Service Robotics (PIC4SeR).

ERASMUS+ Programme

CUT - Cyprus University of Technology [08/2021 – 12/2021]

Address: Limassol (Cyprus)

Master of Science in Architecture City & Construction

Politecnico di Torino [2014 – 2017]

Address: Torino (Italy)

National classification: 110/110 cum laude

Thesis: *Drones application for safety in construction sites and in technical measures for seismic emergency response (Mentioned by the degree committee and published by AiFOS).*

Degree class LM-4: *Architecture and architectural engineering.*

ERASMUS+ Programme

KTH - Kungliga Tekniska Högskolan (Royal Institute of Technology) [08/2015 – 06/2016]

Address: Stockholm (Sweden)

Bachelor's degree in Architecture

Politecnico di Torino [2011 – 2014]

Address: Torino (Italy)

Degree class L-17: *Architecture.*

WORK EXPERIENCE

Research Fellow

Politecnico di Torino [12/2017 – 05/2019]

Address: Corso Duca degli Abruzzi, 24, 10129 Torino (Italy) - <https://www.polito.it>

- *Research activities for the **Torino 1911 Project**: Geomatics and 3D modeling for the development of Web-Based applications for the visualization of point clouds. (12/2018 - 04/2019).*
- *Research activities in the framework of the Italian **PRIN GAMHer**: Geomatics Data Acquisition and Management for Landscape and Built Heritage in a European Perspective. (12/2017 - 11/2018).*

Research topics: **UAV & Close Range Photogrammetry** for Cultural Heritage.

Teaching Assistant

Politecnico di Torino [03/2014 – Current]

Address: Corso Duca degli Abruzzi, 24, 10129 Torino (Italy) - <https://www.polito.it>

- **Business or sector**: Education

- Laboratory of Geomatics for Architecture modeling
- Prof. *Filiberto Chiabrando* (2020/2021)
- Prof. *Antonia Teresa Spanò* (2019/2020)
- Prof. *Fulvio Rinaudo* (2018/2019)
- Prof. *Filiberto Chiabrando* (2016/2017)
- Prof. *Antonia Teresa Spanò* (2014/2015)
 - Fundamentals of Architectural Technology
- Prof. *Elena Piera Montacchini* (2014/2015)
 - Architectural construction Studio
- Prof. *Laura Sasso* (2013/2014)

Student Ambassador

DJI GmbH [12/2016 – Current]

Address: Platz der Einheit, 1, 60327 Frankfurt (Germany) - www.dji.com

Industrial representative of DJI at Politecnico di Torino.

Lecturer

DTN Group S.r.l. [06/2017 – 06/2017]

Address: Corso Martiri della Libertà, 38, 95131 Catania (Italy) - www.dtn.it

Lecturer of "Health & Safety at workplaces" in training courses accredited to the Sicily Region

IT staff - Information Technology Area

Politecnico di Torino [09/2016 – 04/2017]

Address: Corso Duca Degli Abruzzi, 24, 10129 Torino (Italy) - <https://www.polito.it>

- Business or sector: Education

Prepare, maintain and re-order the documentation and the equipment needed to carry out laboratory tests and the very functioning of the laboratory. Support activities in laboratories, vigilance on the correct use of the equipment, support for users and maintenance.

Judiciary Police support staff (Internship)

A.S.L. Torino 1 (S.Pre.S.A.L.) [09/2016 – 12/2016]

Address: Via Alassio, 36/E, 10126 Torino (Italy) - <http://www.asl102.to.it>

Supervision and control in construction sites, for verification of compliance with legislation on health and safety at work (D.Lgs. 81/08 e s.m.i)

LANGUAGE SKILLS

Mother tongue(s): **Italian**

Other language(s):

English

LISTENING C1 READING C1 WRITING C1

SPOKEN PRODUCTION C1 SPOKEN INTERACTION C1

Swedish

LISTENING A1 READING A1 WRITING A1

SPOKEN PRODUCTION A1 SPOKEN INTERACTION A1

NETWORKS AND MEMBERSHIPS

Memberships

- 01/2021 - **ISPRS WG II/9** - Underwater Data Acquisition and Processing (Member).
- 04/2020 - **Italian Civil Protection** - Rescue Drones Network (RDN OdV) (Volunteer).
- 03/2020 - **WFP UAS TWG** - World Food Programme Unmanned Aircraft System Technical Working Group (Member).
- 02/2020 - **CIPA EP** - Comité International de Photogrammétrie Architecturale - Emerging Professionals (Regular member).
- 12/2019 - **ISPRS SC** - The International Society for Photogrammetry and Remote Sensing Student Consortium (Member)
- 07/2019 - **IEDO** - International Emergency Drone Organisation (Regular member).
- 12/2018 - **GEER** - Geotechnical Extreme Events Reconnaissance (Regular member).
- 01/2018 - **SIFET** - Società Italiana di Fotogrammetria E Topografia (Member of the "Communication, Media & Social" commission).
- 04/2017 - **AIFES** - Associazione Italiana Formatori Esperti in Sicurezza sul Lavoro (Trainer)
- 09/2016 - **DIRECT** - Disaster REcovery Team (Tutor member).

CONFERENCES AND SEMINARS

Conferences

- 18/02/2020 - 22/02/2020 **FOSS4G-it 2020**: Free and Open Source Software for Geospatial. Torino, Italy.
- 12/12/2019 - 13/12/2019 **AI4CH**: Artificial Intelligence in Geomatics for Cultural Heritage. Torino, Italy.
- 12/11/2019 - 14/10/2019 **#ASITA2019**. Trieste, Italy.
- 10/10/2019 - 11/10/2019 **R³ in GEOMATICS**: Research, Results and Review. Napoli, Italy.
- 19/06/2019 - 21/06/2019 64° Convegno Nazionale **SIFET**. Venezia, Italy.
- 10/06/2019 - 14/06/2019 **ISPRS Geospatial Week 2019**. Enschede, The Netherlands.
- 06/02/2019 - 08/02/2019 62° 8th International Workshop **3D-ARCH**. Bergamo, Italy.
- 30/11/2018 - **TOPO@DRONE 2018** - Invited speaker. Athens, Greece.
- 04/06/2018 - 07/06/2018 **ISPRS TC II Symposium** - Towards Photogrammetry 2020. Riva del Garda, Italy.
- 08/04/2018 - 13/04/2018 **EGU** - European Geosciences Union - General Assembly 2018. Vienna, Austria.
- 04/09/2017 - 07/09/2017 4th International Conference on Unmanned Aerial Vehicles in Geomatics **UAV-g 2017**. Bonn, Germany.
- 21/06/2017 - 23/09/2017 62° Convegno Nazionale **SIFET**. Ragusa, Italy.

HONOURS AND AWARDS

Honours and awards

- 06/2019 - **ISPRS** - *Travel Grant* for attending the Geospatial Week 2019.
- 06/2019 - **SIFET** - Società Italiana di Fotogrammetria E Topografia. *Best Poster Award for "Unconventional Positioning and Mapping"*.
- 02/2018 - **AIFOS** - Associazione Italiana Formatori ed Operatori della Sicurezza sul lavoro. *Best Master Thesis Award for "Health & Safety at workplaces"*.
- 06/2017 - **SIFET** - Società Italiana di Fotogrammetria E Topografia. *Best Poster Award for "Earthquakes and Emergencies"*.
- 2007 - **PRISTEM** centre of Bocconi University. *2nd place - Category L1 - Autumn Games*.

ORGANISATIONAL SKILLS

Organisational skills

- **Promoter of the MOU** (Memorandum Of Understanding) signed between *Politecnico di Torino and World Food Programme* (11/2020 - 07/2022).
- **Promoter of the MOU** (Memorandum Of Understanding) signed between *Politecnico di Torino and UNICEF* (10/2019 - 10/2022).
- **Promoter of the MOU** (Memorandum Of Understanding) signed between *Politecnico di Torino and DJI* (11/2018 - 11/2021).
- **Co-organizer** of the course "*MicMac in a Nutshell*" (08-11/05/2020).
- **Organizer and chair** of the seminar "*La Geomatica e il rilievo metrico 3D: tecniche avanzate per la documentazione dell'architettura*" at *RESTRUCTURA 2019* (14/11/2019).
- **Co-organizer** of the conference "*DRONES: Current application and future perspectives*" at the Politecnico di Torino (18/05/2018).
- **Co-organizer and tutor** of the *2nd MicMac course* at the Politecnico di Torino (19-22/02/2018).
- **Organizer and chair** of the seminar "*UAV DAY*" at the Politecnico di Torino (25/05/2017).

COMMUNICATION AND INTERPERSONAL SKILLS

Communication and interpersonal skills

- **Head of the Public Relations Committee** and **press director** at the *Provincial Students' Council* of Siracusa (2009/2010).
- Member of the **Guarantee Committee** and **Student Representative** at *Liceo Scientifico Statale Luigi Einaudi High School* of Siracusa (2009/2010).

JOB-RELATED SKILLS

Job-related skills

- **PADI** Advanced Open Water Diver (2008UU6234).
- **APR Pilot** Attestation N° I.APRA.012801 (Issued in accordance with Remotely Piloted Aerial Vehicles Regulation).
- **Health & safety** at workplaces trainer (crit. 2 of D.M. 6/3/2013 - Italian legal system).
- **Safety coordinator** in construction sites (art. 98, par. 4 of D.Lgs. n. 81/2008 - Italian legal system).

INTERNATIONAL RESEARCH PROJECTS

International research projects

- (2020) **Co-Investigator** in the **ISPRS** Educational and **Capacity Building** Initiative "**UP4DREAM**" (UAV Photogrammetry for Developing Resilience and Educational Activities in Malawi).
- (2020) Collaboration with the Submerged Resource Center of the **US National Park Service** and the **University of California San Diego** on the image-processing experimentation of shipwrecks datasets in **Biscayne National Park**.
- (2020) Involvement in the Interreg Italy-Croatia project "**UnderwaterMuse**", for the valorization, promotion and fruition of the underwater archaeological heritage in the Adriatic Sea.
- (2019) Member of the **Steering Committee** in the pilot "**Sustained UAV Operations Malawi**" (UK Department For International Development - DFID).
- (2018/2020) Involvement in the project "**The Complete Geophysical Survey of the Valley of the Kings**", for the realization of multi-sensor and multi scale 3D models of The Valley of the Kings in Luxor, Egypt.
- (2017/2018) Collaboration with **IGN** (French National Geographic Institute) and **ENSG** (French national school for geographic sciences) for the realization of the "**GEMINI**" MicMac GUI.

JOURNAL PAPERS

Journal papers

- Porcelli, F., Sambuelli, L., Comina, C., Spanò, A., Lingua, A., Calantropio, A., Catanzariti, G., Chiabrandò, F., Fischanger, F., Maschio P., Ellaithy, A., Airoldi, G., De Ruvo, V.: Integrated Geophysics and Geomatics Surveys in the Valley of the Kings. In *Sensors*, 20(6), 1552, 2020.
- Calantropio, A.: The Use of UAVs For Performing Safety-Related Tasks at Post-Disaster and Non-Critical Construction Sites. In *Safety* 5 (4), 64, 2019.
- Calantropio, A., Chiabrandò, F., Spanò, A. T.: Impiego di tecniche di fotogrammetria digitale speditiva a supporto delle opere provvisorie negli interventi tecnici in emergenza sismica. In *BOLLETTINO DELLA SOCIETÀ ITALIANA DI FOTOGRAMMETRIA E TOPOGRAFIA*, ISSN 1721-971X. (Vol. 3), 2018.
- Calantropio, A., Patrucco, G., Sammartano, G., and Teppati Losè, L.: Low-cost sensors for rapid mapping of cultural heritage: first tests using a COTS Steadicamera. In *APPLIED GEOMATICS*, ISSN 1866-9298, (Vol 10:1, pp. 31-45), 2018.
- Dezzani, L., Maggi, E., and Calantropio, A.: Ricostruzione della struttura tardo antica della Porta Piemonte a Susa supportata da tecniche image-based di rilievo 3D. In *SEGUSIUM*, ISSN 2532-5205 (Vol 56, pp. 282-294), 2018.
- Calantropio, A., Patrucco, G., Sammartano, G., and Teppati Losè, L.: Sensori LOW-COST per il Mapping Speditivo di Beni Culturali. Primi test su di una Steadycam LOW-COST. In *BOLLETTINO DELLA SOCIETÀ ITALIANA DI FOTOGRAMMETRIA E TOPOGRAFIA*, ISSN 1721-971X. (Vol. 3), 2017.

CONFERENCE PAPERS

Conference papers

- Calantropio, A., Chiabrandò, F., Comino, J., Lingua, A. M., Maschio, P. F., & Juskauskas, T. (2021). UP4DREAM Capacity Building Project: Uas Based Mapping in Developing Countries. *ISPRS-International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences*, 43, 65-72.
- Calantropio, A., Chiabrandò, F., & Auriemma, R. (2021). Photogrammetric Underwater and Uas Surveys of Archaeological Sites: the Case Study of the Roman Shipwreck of Torre Santa Sabina. *ISPRS-International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences*, 43, 643-650.
- Calantropio, A., Chiabrandò, F., Codastefano, M., & Bourke, E. (2021). Deep Learning for Automatic Building Damage Assessment: Application in Post-Disaster Scenarios Using Uav Data. *ISPRS Annals of the Photogrammetry, Remote Sensing and Spatial Information Sciences*, 1, 113-120.
- Calantropio, A., Chiabrandò, F., Seymour, B., Kovacs, E., Lo, E., & Rissolo, D. (2020). Image Pre-Processing Strategies for Enhancing Photogrammetric 3d Reconstruction of Underwater Shipwreck Datasets. *The International Archives of Photogrammetry, Remote Sensing and Spatial Information Sciences*, 43, 941-948.
- Calantropio, A., Matrone, F., Lingua, A.M.: L'integrazione di tecniche fotogrammetriche e MMS nel rilievo metrico dei Beni Culturali. In *Atti della Conferenza Nazionale #ASITA2019 - pp. 157-164*, 23, 2019.
- Calantropio, A., Chiabrandò, F., Einaudi, D., and Teppati Losè, L.:
- 360° Images for Uav Multisensor Data Fusion: First Tests and Results, In *Int. Arch. Photogramm. Remote Sens. Spatial Inf. Sci.*, XLII-2/W13, 227-234, <https://doi.org/10.5194/isprs-archives-XLII-2-W13-227-2019>, 2019.
- Calantropio, A., Chiabrandò, F., Rinaudo, F., and Teppati Losè, L.: Use and evaluation of a short range small quadcopter and a portable imaging laser for built heritage 3D documentation. In *Int. Arch. Photogramm. Remote Sens. Spatial Inf. Sci.*, XLII-1, 71-78, <https://doi.org/10.5194/isprs-archives-XLII-1-71-2018>, 2018.
- Calantropio, A., Deseilligny, M. P., Rinaudo, F., and Rupnik, E.: Evaluation of photogrammetric block orientation using quality descriptors from statistically filtered tie points. In *Int. Arch. Photogramm. Remote Sens. Spatial Inf. Sci.*, XLII-2, 185-191, <https://doi.org/10.5194/isprs-archives-XLII-2-185-2018>, 2018.
- Calantropio, A., Chiabrandò, F., Sammartano, G., Spanò, A., and Teppati Losè, L.: UAV strategies validation and remote sensing data for damage assessment in post-disaster scenarios. In *Int. Arch. Photogramm. Remote Sens. Spatial Inf. Sci.*, XLII-3/W4, 121-128, <https://doi.org/10.5194/isprs-archives-XLII-3-W4-121-2018>, 2018.
- Calantropio, A., Colucci, E., and Teppati Losè, L.: Rapid Mapping for Built Heritage at Risk Using Low-Cost and Cots Sensors. a Test in the Duomo Vecchio of San Severino Marche. In *Int. Arch. Photogramm. Remote Sens. Spatial Inf. Sci.*, XLII-2/W8, 59-66, <https://doi.org/10.5194/isprs-archives-XLII-2-W8-59-2017>, 2017.

CONFERENCE ABSTRACTS

Conference Abstracts

- Calantropio, A., Chiabrandò, F., De Ruvo, V., Lingua, A., Maschio, P., Spanò, A.: Il rilievo metrico integrato della Valle dei Re: software open-source per la documentazione del patrimonio archeologico in Egitto. In *Atti della conferenza nazionale FOSS4GIT*, 2020.
- Calantropio, A., Chiabrandò, F., and Spanò, A.: UAV photogrammetry and thematic maps for environmental risk assessment in construction safety. In *EGU General Assembly Conference Abstracts (Vol. 20, p. 19692)*, 2018.

MASTER THESIS

Master thesis

- Calantropio, A.: Drones application for safety in construction sites and in technical measures for seismic emergency response (M. Sc. dissertation, Politecnico di Torino), *AiFOS - Associazione Italiana Formatori ed Operatori della Sicurezza sul Lavoro*, <https://aifos.org>, 2017.

PEER REVIEW ACTIVITIES

Peer Review activities

Peer Reviewer for the following international scientific journals:

- "Applied Science" (ISSN 2076-3417 - Open Access - citescore 2.52 SCOPUS).
- "Buildings" (ISSN 2075-5309 - Open Access - citescore 2.26 SCOPUS).
- "iForest - SISEF" (ISSN: 1971-7458 - Open Access - SCOPUS indexed).

WORKSHOPS & SEMINARS

Workshops & Seminars

- 04/04/2019 - 05/04/2019 - **Dronitaly 2019** "*Working with Drones*". Milano, Italy.
- 25/02/2019 - 27/02/2019 - Workshop **PARTHENOS** - "*Share – Publish – Store – Preserve. Methodologies, tools and challenges for 3D use in Social Sciences and Humanities*". Marseille, France.
- 12/12/2018 - 14/12/2018 - Seminar "*Introduzione al **Python**: Deep Learning for Beginners*". Ancona, Italy.
- 17/10/2018 - **ResCult** - "*2nd Training session*". Torino, Italy.
- 19/02/2018 - 22/02/2018 - "**MicMac** for UAV & Close Range". Torino, Italy.

COURSES

Courses

- 06/2019 - **SIFET** - "*Monitoraggio*".
- 06/2019 - **SIFET** - "*Sistemi di riferimento*".
- 06/2018 - **ISPRS TC II Symposium** - "*Global Network Orientation by Synchronization*".
- 06/2017 - **SIFET** - "*Fotogrammetria applicata alle immagini da drone*".
- 06/2017 - **SIFET** - "*Historical Building Information Modeling HBIM*".