

PERSONAL INFORMATION

Pietro Di Stasio



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Gender Male | Date of birth 30th January 1999 | Nationality Italian

IEEE MEMBERSHIPS

2024 - Current IEEE Student Member with affiliation to the IEEE Aerospace and Electronic Systems Society (AESS)

2024 - Current IEEE Student Member with affiliation to the IEEE Geoscience and Remote Sensing Society (GRSS)

CURRENT RESEARCH ACTIVITIES

August 2026 - Current Research Collaboration on Φ sat-2 Marine Anomalies - ESA, IRT Saint Exupéry & Open Cosmos

- Member of the University of Sannio research team collaborating with IRT Saint Exupéry and Open Cosmos under an ESA contract.
- The project focuses on integrating our AI-based water turbidity monitoring application into a unified marine anomaly detection pipeline to be deployed on board the Φ sat-2 mission.

March 2026 - Current Research Collaboration on the In Orbit Space Lab (IOSL) Project - Italian Space Agency (ASI)

- Officially appointed to collaborate with the ASI management team on the In Orbit Space Lab (IOSL) project.
- The activities focus on study and research in synergy with my ASI-funded PhD program, specifically leveraging on-board Artificial Intelligence techniques for rapid response to cascade risks affecting anthropic areas.

November 4th, 2024 – October 31st, 2025 Research Collaboration on the FLARE (RESTART) Project

- Collaborated on the FLARE (RESTART) project alongside the research groups of the University of Sannio and Politecnico di Milano.
- Investigated multimodal and multispatial data fusion techniques, integrating high-resolution X-band UAV/drone imagery with satellite data.
- Focused on Earth Observation applications, such as change detection and land classification, over the peripheral urban areas of Milan.

2021 - Current Collaboration with the Telecommunications group of the University of Sannio

- As can be seen from my publications, I have been collaborating for years with the Telecommunications group of the University of Sannio, specifically with professor Silvia Liberata Uilo.

November, 2024 - Current Visiting Researcher at Italian Space Agency

- As part of my PhD program fully funded by the Italian Space Agency (ASI), I am currently working on the development of lightweight, AI-based on-board processing systems to address cascade risks in anthropic areas, focusing on near real-time analysis and response. My research involves applying AI techniques, Quantum Machine Learning, and Multidimensional Datasets to improve risk prediction and management for complex scenarios, such as natural disasters, that can affect human settlements.

EDUCATION AND TRAINING

- | | |
|---------------------------|---|
| July 4th–11th, 2026 | XXV ISPRS Congress and 47th Canadian Symposium on Remote Sensing - Toronto, Canada <ul style="list-style-type: none"> – Presented the research titled “AI-based multi-temporal analysis of urban dynamics using Sentinel-2 data. A case study over Osmaniye, Turkey”. – Volunteered at the IEEE Geoscience and Remote Sensing Society (GRSS) booth, engaging with the international remote sensing community. – Awarded the TIF Travel Grant by the ISPRS Foundation to support participation in the congress. |
| June 8th–11th, 2026 | European Conference on Synthetic Aperture Radar (EUSAR) 2026 <ul style="list-style-type: none"> – Participation in the EUSAR 2026 conference, presenting the research titled “Leveraging the Segment Anything Model with Multi-Modal Sentinel-1 and Sentinel-2 Data for Landslide Detection”. The work was showcased within the invited session “SAR Meets Foundation Models: From Pretraining to Downstream Tasks”. |
| March 9th–13th, 2026 | Advanced Training on Hyperspectral Remote Sensing - Italian Space Agency (ASI), Rome <ul style="list-style-type: none"> – Participation in an advanced capacity-building week on hyperspectral satellite remote sensing and PRISMA data within the Horizon Europe “EXPERT Twinning Project”. The training featured lectures and practical tutorials by experts from ASI, CNR-IREA, and INGV, focusing on downstream applications for water quality parameters, agriculture, and active wildfire detection. |
| September 16th–19th, 2025 | Selected to participate in the IEEE GRSS IADF School on Computer Vision for Earth Observation, 4th edition - University of Sannio, Benevento <ul style="list-style-type: none"> – Participation in the IEEE GRSS IADF School on Computer Vision for Earth Observation (https://iadf-school.org/), organized by IEEE GRSS IADF Technical Committee, and hosted by the University of Sannio. The summer school took place in Benevento (Italy) between the 16th and the 19th of September 2025 |
| August 3rd–8th, 2025 | IEEE International Geoscience and Remote Sensing Symposium (IGARSS) - Brisbane, Australia <ul style="list-style-type: none"> – Participation in the IGARSS 2025 conference presenting two research contributions. The first work, titled “Haiti Earthquake Landslide Detection: A Comparative Analysis of ML Algorithms Using Sentinel Data”, was presented within the geohazard monitoring session. The second contribution, “Impact of Atmospheric Correction for Turbidity Estimation in Coastal Waters with Sentinel-2 Data and AI Techniques”, was showcased in the session dedicated to coastal sustainability. |
| June 23rd–27th, 2025 | ESA Living Planet Symposium (LPS25) - Vienna, Austria <ul style="list-style-type: none"> – Presented the poster titled “Advancing Multi-Hazard Risk Management With On-Board AI and Earth Observation: A Conceptual Framework for Addressing Cascading Hazards”. – Awarded a travel grant by the ESA Academy to support participation in the symposium. |
| June 3rd–6th, 2025 | Selected to participate in the IEEE GRSS HDCRS School, 5th Edition - CiTIUS, Santiago de Compostela, Spain |

- Participation in the 5th Edition of the school on "High Performance and Disruptive Computing in Remote Sensing" (HDCRS) (<https://www.hdc-rs.com/>), supported by the IEEE GRSS and hosted at CiTIUS - Research Centre on Intelligent Technologies.
- The school featured training sessions and lectures by experts from leading organizations such as NASA, Google, and IBM.

May 27th–28th, 2025 **Workshop on Satellite Technologies and Multi-Risk Analysis - Italian Space Agency (ASI), Rome**

- Participation in the workshop organized by ASI focusing on multi-risk analysis, the I4DP_SCIENCE program (GEORES and GRAW projects), and the future of national scientific downstream.

May 5th–7th, 2025 **ESA-NASA International Workshop on AI Foundation Models for Earth Observation - ESA ESRIN, Frascati (RM)**

- Participation in the joint ESA (Φ-lab) and NASA workshop focused on the development and downstream applications of large-scale AI Foundation Models for Earth Observation data.

February 10th–14th, 2025 **Participation in technical meetings for the "EXPERT Twinning Project" - Italian Space Agency (ASI), Rome**

- Participation in a week of technical meetings focused on European project management and hyperspectral satellite technologies for Earth Observation, hosted by ASI in collaboration with the Romanian Space Agency (ROSA).

September 10th–13th, 2024 **Selected to participate in the IEEE GRSS IADF School on Computer Vision for Earth Observation, 3rd edition - University of Sannio, Benevento**

- Participation in the IEEE GRSS IADF School on Computer Vision for Earth Observation (<https://iadf-school.org/>), organized by IEEE GRSS IADF Technical Committee, and hosted by the University of Sannio. The summer school will take place in Benevento (Italy) between the 11th and the 13th of September 2024

June 20th–21th, 2024 **#MarineData4Coastal 2024 - Copernicus Marine Service**

- Participation in this online workshop "Marine Data 4 Coastal Monitoring" organised by Copernicus, the Copernicus Marine Service and Mercator Ocean International

December 2023 **Selected to be in the Top-5 Teams of the European Space Agency-ESA Φsat-2 OrbitalAI Challenge**

- Selected to be in the Top-5 Teams of the European Space Agency-ESA Φsat-2 OrbitalAI Challenge. The Team is composed by me, Professor Silvia Liberata Ullo, Gabriele Meoni, Francesca Razzano, Francesco Mauro and Marco Esposito. The aim of the Team is the analysis and study of Artificial Intelligence techniques on board for the detection of pollutants in water bodies and in particular in coastal and open sea.

PhD Course
2024 November 1st - Current **PhD Program in Information Technologies for Engineering - University of Sannio**

- Expected degree date: October 2027
- Won a PhD Scholarship fully paid by the Italian Space Agency (ASI) with a topic on the Cascade Risk Phenomena Analysis, Use of AI Techniques, Quantum Machine Learning and Multidimensional Datasets. Title: Lightweight on-board AI-based processing for near real-time response to cascade risks affecting anthropic areas.
- Supervisor: Prof. Silvia Liberata Ullo (University of Sannio)
- Co-Supervisor: Prof. Paolo Gamba (University of Pavia)
- Industrial Co-Supervisor: Eng. Deodato Tapete (ASI)

Master Degree
2022 - Sept.17 2024

Master Degree in Electronic Engineering for Automation and Telecommunications - University of Sannio

- Degree mark: 110/110 cum Laude (starting weighted average: 28.371/30)
- Date of achievement: 17/09/2024
- Age at graduation: 25
- Official duration: 2 years
- Thesis supervisor: Professor Silvia Liberata Ullo
- Thesis subject: Artificial Intelligence for Earth Observation (AI4EO) to ensure availability and sustainable management of water resources (Sustainable Development Goal 6 of United Nations)
- Thesis title: "Near Real-Time monitoring of water turbidity in coastal areas through PhiSat-2 mission and Artificial Intelligence on-board techniques. Alert notification through WASDI platform"
- Thesis abstract: The contamination of water resources is becoming increasingly severe due to rapid industrial and urban development. Monitoring water quality has emerged as a key tool to safeguard human health and water resources. Through advanced technologies such as in-situ sensors and satellite data, it is possible to obtain a detailed and real-time overview of the conditions of surface and groundwater. The proposed work focuses on the use of Artificial Intelligence (AI) for near real-time monitoring of contaminants in coastal waters, leveraging satellite data from the PhiSat-2 mission, and the proposed application is part of the participation in the OrbitalAI challenge. The objective of the study is to introduce AI on-board satellites to ensure effective monitoring of water contaminants, such as turbidity and pH, which are crucial parameters for human health and aquatic ecosystems. Moreover, the idea is to realize a commercial product, through the creation of an "alert system/service". For the application of interest, a regression model is proposed, a Fully Connected Neural Network (CNN), allowing for efficient regression calculation. A WASDI platform was realized, in order to allow authorities and decision-makers to create and send alerts on the presence of contaminants in coastal waters.

September 26th–29th, 2023

Understanding the Earth system with Satellite Observations - University of Sannio, Benevento

- Participation in this course held by Dr. Cinzia Zuffada from JPL at the University of Sannio in Benevento. At the end of the course, the assigned topic concerned the analysis of raw CYGNSS data for inland water detection and comparison with SAR data. Final exam passed on 02/01/2024.

September 13th–15th, 2023

Selected to participate in the IEEE GRSS IADF School on Computer Vision for Earth Observation - University of Sannio, Benevento

- Participation in the IEEE GRSS IADF School on Computer Vision for Earth Observation (<https://iadf-school.org/>), organized by IEEE GRSS IADF Technical Committee, and hosted by the University of Sannio. The summer school took place in Benevento (Italy) between the 13th and the 15th of September 2023

Junior Research Fellowship
01/08/2022 - 31/10/2022

"Early detection of volcanic eruptions through Sentinel-5P data analysis for the development of Artificial Intelligence applications onboard - University of Sannio

- Winner of a three-month junior research fellowship at the University of Sannio, with the Department of Engineering and carried out research on the use of AI on-board techniques for the early detection of volcanic eruptions, in collaboration with professor Silvia Liberata Ullo, Dr. Gabriele Meoni and Dr. Alessandro Sebastianelli, with the opportunity to spend part of this period at the Φ – lab at ESA ESIRIN in Frascati (RM), Italy.

Bachelor Degree
2017 - 2022

Bachelor Degree in Electronic Engineering for Automation and Telecommunications - University of Sannio

- Graduation mark: 98/110
- Age at graduation: 23
- Official duration: 4 years and 6 months
- Graduation date: 25/03/2022
- Thesis supervisor: Professor Silvia Liberata Ullo
co-supervisor: Dr. Alessandro Sebastianelli, Dr. Gabriele Meoni
- Thesis subject: Remote Sensing
- Thesis title: "Use of Sentinel-5P data for early detection of volcanic eruptions through Artificial Intelligence onboard"
- Thesis abstract: The aim of this study was to propose a warning system based on Machine Learning (ML) techniques to allow early detection of volcanic eruptions. The use of Artificial Intelligence (AI)-based algorithms and the early detection purpose can be exploited together to carry out the specific detection and inform the Civil Protection and the authorities in charge to guarantee immediate intervention for the protection of people. Indeed, the main goal presented in this work is to conceptualize and realize a system to be mounted on-board of satellites with the intent of producing swift alerts useful for decision makers. In the initial phase the proposed ML model is trained with SO_2 data acquired by Sentinel-5P. The final scope is to define an onboard system similar to PhiSat-1, with its own sensor and its own systems. The proposed study has shown that it is possible to classify and identify volcanic eruptions in advance with an accuracy of 80% and 70% respectively.

2012-2017 High School Diploma - I.T.I. "G.B.Bosco Lucarelli", Benevento (BN)

- Diploma mark: 100/100
- Telecommunications, Systems, Informatics, TPSIT
- Realization of an automatic telescope managed by the web thanks to the Arduino board and different applications of electrical components such as transistors
- Resolution of assigned tasks

PROFESSIONAL ACCOLADES AND AWARDS

April 26th, 2026 2025 "Frank Marzano" Best Remote Sensing Thesis Award - IEEE GRSS Italy Chapter

- Honored with the prestigious 2025 "Frank Marzano" Best MSc Thesis Award by the IEEE Geoscience and Remote Sensing Society (GRSS) Italy Chapter and the IEEE Italy Section. The award recognizes the innovative contributions of my Master's research in the field of Earth Observation, developed in collaboration with the European Space Agency (ESA), specifically leveraging on-board Artificial Intelligence for the near real-time monitoring of coastal water quality.

March 24th, 2026 2025 Best Master Thesis Award - IEEE AESS Italy Chapter

- Selected as one of the three best Master's theses of 2025 by the IEEE Aerospace and Electronic Systems Society (AESS) Italy Chapter. The award recognizes the research conducted in my thesis, titled "Near Real-Time monitoring of water turbidity in coastal areas through Φsat-2 mission and Artificial Intelligence on-board techniques. Alert notification through WASDI platform", developed in collaboration with the European Space Agency (ESA).

3-7 June 2024 Special Prize for OceanHack4EU Hackathon

- Our team, "AI4 Early Detection of Environment Threats" AI4EDofET, developed an innovative Machine Learning-based solution for monitoring anomalies in marine Pollution using satellite Data. Our solution empowers local administrations to monitor environmental conditions accurately, ensuring beach access is limited only when pollution levels are high, thus safeguarding the tourism economy. By identifying pollution patterns and sources, long-lasting countermeasures can be implemented effectively. Additionally, citizens can check the quality of seawater before engaging in marine activities, promoting safety and awareness.
- Other team members: Silvia Liberata Ullo, Francesca Razzano, Francesco Mauro, Cristiano Nattero (WASDI), Marco Esposito (cosine).

31 May-1 June 2024 **2nd place - Special Award for the Best Idea Space and Global Health Hackathon, Geneva, Switzerland**

- I took part in this hackathon with the "SENTINELS" team and our application is about monitoring trees' health status by combining data from in-situ IoT devices and EO satellites.

STUDIES AND EXPERIENCES ABROAD

2017 IRELAND

- Place: Dublin (Ireland) | Language: English | Duration: 1 month
Study journey to improve English language
- Trinity exam LEVEL 5 QCER LEVEL B1

WORK EXPERIENCES

Manual worker on packaging
14/06/2016 - 06/08/2016

Confezioni San Giorgio Società a Responsabilità Limitata Unipersonale e Semplificata

San Giorgio la Molara (BN) - ITALY

Postman
01/07/2019 - 30/09/2019

Poste Italiane

Molinara (BN) - ITALY

VOLUNTEERING

10/07/2018 - 10/07/2019

National Civil Service

- Voluntary activities in the municipality of Molinara thanks to the National Civil Service project "Educating to food, educating to values".
- Voluntary service carried out both in public service work in the municipality and in the "CARPA" nursing home as a support for staff and for recreational activities for the elderly.

SOCIAL AND POLITICAL ACTIVITIES

2020 - 2024

Pro Loco Molinara APS

- Auditor of the Pro Loco Molinara APS.
- Organization of activities for the cultural promotion of the territory.

2024 - Current

Pro Loco Molinara APS

- Role of treasurer

FOREIGN LANGUAGE SKILLS

Mother tongue Italian

Other languages

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	B1	B1	B1	B1	B1
French	A1	A1	A1	A1	A1

Levels: A1 and A2: Basic user – B1 and B2: Independent user – C1 and C2: Proficient user
[Common European Framework of Reference for Languages](https://european-council.europa.eu/media/146714/EN/Content/CEFR/CEFR_framework.pdf)

PERSONAL SKILLS

Communication skills

Good relational skills acquired during the various training and work experiences already mentioned and in other voluntary activities. These experiences were fundamental during my thesis work and allowed me to relate appropriately to the working group.

Organisational / managerial skills Good coordination skills and teamwork skills thanks to the different work experiences and the studies undertaken which have often led me to engage with colleagues and interact with different working groups.

INFORMATION TECHNOLOGY SKILLS

- Ability to work with QGIS;
- Ability to work with Matlab and LTspice;
- Ability to work with Office programs, in particular, Word, Power Point and Excel;
- Ability to work with Latex;
- Ability to work with the Google Earth Engine platform;
- Experience with Python, Java, Java Script, C++, C
- Fast Typing Certificate
- ICDL FULL Standard
- ECDL-IT Security

SOFT SKILLS

Autonomy, ability to plan and organize, manage information, precision/attention to detail, achieve objectives, communication skills, problem solving, team work

Driving licence AM, B

PUBLICATIONS

2022 Early detection of volcanic eruptions through Artificial Intelligence on board

- P. D. Stasio, A. Sebastianelli, G. Meoni and S. L. Ullo, "Early Detection of Volcanic Eruption through Artificial Intelligence on board," 2022 IEEE International Conference on Metrology for Extended Reality, Artificial Intelligence and Neural Engineering (MetroXRINE), Rome, Italy, 2022, pp. 714-718, doi: 10.1109/MetroXRINE54828.2022.9967616.

2024 AI techniques for near real-time monitoring of contaminants in coastal water on board future Phisat-2 mission

- Razzano, F., Di Stasio, P., Mauro, F., Meoni, G., Esposito, M., Schirinzi, G., & Ullo, S. L. (2024). AI Techniques for Near Real-Time Monitoring of Contaminants in Coastal Waters on Board Future Φ sat-2 Mission. IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing.

2024 Monitoring water contaminants in coastal areas through ML algorithms leveraging atmospherically corrected Sentinel-2 data

- Razzano, F., Mauro, F., Di Stasio, P., Meoni, G., Esposito, M., Schirinzi, G., & Ullo, S. L. (2024, July). Monitoring water contaminants in coastal areas through ML algorithms leveraging atmospherically corrected Sentinel-2 data. In IGARSS 2024-2024 IEEE International Geoscience and Remote Sensing Symposium (pp. 1046-1050). IEEE.

2024 Benchmarking of a new data splitting method on volcanic eruption data

- Reale, S., Di Stasio, P., Mauro, F., Sebastianelli, A., Gamba, P., & Ullo, S. L. (2024). Benchmarking of a new data splitting method on volcanic eruption data. arXiv preprint arXiv:2410.06306.

2025 Quantum-Enhanced Water Quality Monitoring: Exploiting Φ Sat-2 Data with Quanvolution

- F. Mauro et al., "Quantum-Enhanced Water Quality Monitoring: Exploiting Φ Sat-2 Data with Quanvolution," in IEEE Geoscience and Remote Sensing Letters, doi: 10.1109/LGRS.2025.3576677.

2025 Impact of Atmospheric Correction for Turbidity Estimation in Coastal Waters with Sentinel-2 Data and AI Techniques

- Liparulo, E., Di Stasio, P., Razzano, F., Reale, S., Schirinzi, G., Gamba, P., & Ullo, S. L. (2025, August). Impact of Atmospheric Correction for Turbidity Estimation in Coastal Waters with Sentinel-2 Data and AI Techniques. In IGARSS 2025-2025 IEEE International Geoscience and Remote Sensing Symposium (pp. 1550-1554). IEEE.
- 2026 **Quantum Machine Learning for Earth Observation: A review and future prospects**
 - Sebastianelli, A., Mauro, F., Delilbasic, A., Di Stasio, P., Fan, F., Meoni, G., ... & Ullo, S. L. (2026). Quantum Machine Learning for Earth Observation: A review and future prospects. IEEE Geoscience and Remote Sensing Magazine.
- 2026 **AI-based multi-temporal analysis of urban dynamics using Sentinel-2 data. A case study over Osmaniye, Turkey**
 - Pigna, A., Di Stasio, P., Tapete, D., Gamba, P., & Ullo, S. L. (2026). AI-based multi-temporal analysis of urban dynamics using Sentinel-2 data. A case study over Osmaniye, Turkey. The International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences, 49, 1307-1314.
- 2026 **Leveraging the Segment Anything Model with Multi-Modal Sentinel-1 and Sentinel-2 Data for Landslide Detection**
 - Di Stasio, P., Tapete, D., Gamba, P., & Ullo, S. L. (2026, June). Leveraging the Segment Anything Model with Multi-Modal Sentinel-1 and Sentinel-2 Data for Landslide Detection. In 16th European Conference on Synthetic Aperture Radar (EUSAR) (pp. 288-293). VDE.
- 2026 **Mapping Earthquake-Triggered Landslides Through Multimodal Sentinel-1 and Sentinel-2 Earth Observation Data**
 - Di Stasio, P., Tapete, D., Gamba, P., & Ullo, S. L. (2026). Mapping Earthquake-Triggered Landslides Through Multimodal Sentinel-1 and Sentinel-2 Earth Observation Data (No. EGU26-20527). Copernicus Meetings.

Date 24/09/2026

"I declare that I have read and understood the information for the processing of candidate data pursuant to EU Reg. 2016/679 and I give my consent for the processing of personal data belonging to particular categories, possibly contained in my curriculum vitae".