



Lorenzo Cimino

EDUCATION

○ PHD IN AERONAUTICAL AND SPACE ENGINEERING

Sapienza University of Rome
NOVEMBER 2023 - CURRENT

○ MSc IN SPACE AND ASTRONAUTICAL ENGINEERING

Sapienza University of Rome
SEPTEMBER 2020 - OCTOBER 2023

Thesis: Multiband photometric observations of GEO objects through Sloan filters

Abstract: With the precipitous growth of the population of objects in Earth's orbit, all major space agencies and companies have made space surveillance a priority to ensure the safety of space missions. With the application of the methods of space surveillance, this thesis aims to characterize the population of objects in Geostationary Earth Orbit (GEO) using optical measurements across multiple spectral bands. The study takes place in a context in which the existence of space debris poses a continuous hazard to the operations of active satellites in GEO. Photometric observations of both space debris and active satellites in the Sloan spectral bands will be presented to provide a comprehensive view of the GEO population. This research not only improves the understanding of objects in GEO, but it also contributes to the wider objectives of Space Situational Awareness (SSA) and Space Surveillance and Tracking (SST), ultimately supporting the safe and sustainable use of outer space for future missions and satellite operations.

Advisor: Prof. Fabrizio Piergentili

○ BSc IN AEROSPACE ENGINEERING

Sapienza University of Rome
SEPTEMBER 2017 - DECEMBER 2020

Thesis: Space debris magnitude calculation starting from optical observations

Abstract: The growth of the satellites injected in Earth orbit, in the years, has brought an exponential growth of the space debris population, artificial objects that cannot be controlled by humans. Space debris might be involved in undesirable collisions with operative satellites, so they must be tracked and monitored. This thesis illustrates a procedure aimed at determining the magnitude of these objects, starting from their optical observation. Magnitude calculation may be very important to determine the attitude of the debris and predict their orbit.

Advisor: Prof. Fabrizio Piergentili

Personal information



25/04/1998



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Digital skills

- MATLAB
- C++
- Python
- Microsoft Office
- Linux

Soft skills

- Written production
- Interpersonal skills
- Teamwork
- Time management
- Problem solving
- Adaptability

Language

- Italian – native
- English – C1

ACCORDING TO LAW 679/2016 OF THE REGULATION OF THE EUROPEAN PARLIAMENT OF 27TH APRIL 2016, I HEREBY EXPRESS MY CONSENT TO PROCESS AND USE MY DATA PROVIDED IN THIS CV AND APPLICATION FOR RECRUITING PURPOSES.

PROJECTS

○ RESEARCH PROJECT - ASI/INAF

JANUARY 2020 - CURRENT

Participation in the activities related to the agreement ASI-INAF: "*SUPPORTO ALLE ATTIVITÀ IADC E SST 2019-2022, Accordo di collaborazione tra ASI e INAF N. 2020-6-HH.0, WP 2200 - Osservazioni Sapienza*"

Activities

- IADC Action Item 38.2 "Attitude motion characterization of LEO upper stages using different observation techniques"
- IADC Internal Task 39.2 for fragmentation events
- LEDSAT observations for Space Traffic Management
- Mega constellations impact on the night sky
- Light curves inversion for attitude reconstruction
- Joint observations Sapienza - University of Michigan
- Sapienza telescope network management

○ RESEARCH PROJECT - ESA'S FLY YOUR SATELLITE!

Participation in the ESA's Fly Your Satellite! programme with the LEDSAT cubesat mission.

AUGUST 2021 - CURRENT

Role: Member of the ground segment team, with responsibilities in optical observations and photometric analysis.

○ RESEARCH PROJECT - GEA

Participation in the programme GEA (Analog Explorations Group) in collaboration with the Italian Alpine Club (CAI).

APRIL 2022 - CURRENT

Role: Member of the logistics team and speleonaut.

○ RESEARCH PROJECT - RETINA

Participation in the ESA's REXUS/BEXUS programme with the RETINA experiment

OCTOBER 2023 - CURRENT

Role: System engineer.

EXPERIENCE ABROAD

○ VISITING RESEARCH STUDENT

University of Michigan - Department of Astronomy
AUGUST 2022

Research fields

- Daytime optical observations
- Optical observations for studying the impact of the new mega constellations on the night sky
- Joint observations Sapienza - Michigan

Advisor: Prof. Patrick Seitzer

GRANTS

○ JUNIOR RESEARCH GRANT - 2022

Sapienza University of Rome
Department of Mechanical and Aerospace Engineering
JULY 2022

Topic: Space Surveillance and Tracking activities with specific attention to tumbling bodies and mega constellations

Advisor: Prof. Fabrizio Piergentili

○ JUNIOR RESEARCH GRANT - 2021

Sapienza University of Rome
Department of Mechanical and Aerospace Engineering
JUNE 2021

Topics: Deployment and testing of the Sapienza telescope network, optical observations and photometric analysis

Advisor: Prof. Fabrizio Piergentili

PUBLICATIONS

○ **JOURNAL:** 3 publications

○ **CONFERENCE:** 14 publications