Curriculum vitae

PERSONAL INFORMATION

Paolo Di Marcantonio

Aurisina 167, 34011 Aurisina (TS) (Italy)

paolo.dimarcantonio@inaf.it

Sex Male | Date of birth 30 May 1968 | Nationality Italian

EDUCATION AND TRAINING

Oct 1987–26 Apr 1994 — Degree in Physics (application-astrophysical address)

Università degli studi di Trieste, Trieste (Italy)

Degree thesis: "*Modellizzazione della FDT (funzione di trasferimento) dello spettrometro ESO VLT UVES*" developed at Osservatorio Astronomico di Trieste (OATs)

supervisor: prof. G. Sedmak co-supervisor: dott. M. Franchini

degree marks: 110 with honour (summa cum laude) / 110

1982–1987 — Scientific high school diploma

at liceo scientifico "F. Prešeren" (Trieste) with marks 60/60

WORK EXPERIENCE

1994–1997

Teacher of Mathematics and Physics in various High Degree Schools (Trieste region)

Feb 1997–Nov 1997

Two-year contract, as part of the OATs – ESO collaboration (Trieste Astronomical Observatory - European Southern Observatory), for the development and implementation of control software for the ESO / VLT UVES spectrograph

Nov 1997–Nov 1997

Winner of a staff position ad OATs as "funzionario di elaborazione dati – ottava qualifica funzionale" (November 1997)

Dec 1997–Dec 1999

Winner of the competition for two positions as "funzionario tecnico – ottava qualifica funzionale – area tecnico scientifica" at OATs

Dec 1999–Dec 2002

Winner of a staff position as researcher "ricercatore astronomo – settore tecnologie astrofisiche" at OATs

17 Dec 2002–Jun 2020

Confirmation as a researcher at the OATs

1 Jul 2020–Present

Winner of a staff position as "Primo Tecnologo, Secondo Livello Professionale"

Feb 2021–Present

Direttore Vicario of INAF-OATs

PERSONAL SKILLS

Mother tongue(s) Italian, Slovenian

Foreign language(s)

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C1	C1	C1	C1	C1
German	A2	A2	A2	A2	A2

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

Communication skills Excellent interpersonal and communication skills acquired thanks to the participation in both international projects with coordination and management roles and European and national funding applications.

Organisational / managerial skills Excellent managerial, organizational and leadership skills acquired as:

- software system engineer and member of the project office of the ESO / VLT ESPRESSO project; responsible for the design, implementation, installation and release to the world astronomical community of both scientific software and control software with the responsibility of coordinating an international team;
- software system engineer and project manager deputy of the ESO / ELT HIRES project; responsible for Phase A feasibility study for all aspects related to the software with the function of coordinating an international team; also responsible for the initial organizational phases aimed at building the international team;
- responsible for the design, implementation and installation of the control software for the ESO / VLT FLAMES / GIRAFFE and ESO / VLT XSHOOTER projects with management of personnel within the OATs (both technical and scientific)
- referee of the local UdR (Research Unit) in various projects funded by the European community:
  - FP7-INFRASTRUCTURES-2007-1: "EST: The large openings European Solar Telescope"
  - FP7 INFRA-2012-1.1.26: "SOLARNET: Research Infrastructures for High-Resolution Solar Physics"
  - H2020 Grant Agreement number: 824135 - "SOLARNET" - H2020-INFRAIA-2018-2020 / H2020-INFRAIA-2018-1
- local representative of the instrumentation and control group of INAF-OATs
- local project manager of the ESO/VLT FORS refurbishment
- project manager during Phase A for the spectrograph ESO/VLT CUBES, deputy PM for its construction phase
- project manager for the construction phase of the ELT ANDES spectrograph which is a cumulative effort of almost 40 institutes spread in 13 countries worldwide for a duration exceeding 10 years and with an overall foreseen investment of more than 50 MEuros

Scientific responsible (supervision) of various types of contracts (research grants, scholarships, co.co.co.). In particular:

- as part of the ESO / VLT XSHOOTER project, supervisory role of 1 research contract for the control software;
- as part of the ESO / VLT ESPRESSO project, supervisory role of 1 research contract for the control software;
- as part of the ESO / VLT ESPRESSO project, supervisory role of 1 research contract for the control electronics;
- as part of the ESO / ELT HIRES project responsible for a fixed-term contract (TD) approved by the

CdA INAF

Job-related skills

Design and implementation of the control software both for the advanced focal plane instrumentation of modern 8m-class optical telescopes and future ones, in particular the ELT (European-Extremely Large Telescope), and large astronomical facilities such as ALMA (Atacama Large Millimeter Array) and SKA (Square Kilometer Array) using the most up-to-date IT solutions. Skills acquired through participation in the following projects (indicative time interval):

- ESO/VLT UVES (1997 - 2000)
- ESO/VLT FLAMES-GIRAFFE (2000 - 2002)
- ESO/VLT Test Camera (2003)
- AVES-IMCO (2003 - 2004)
- ESO/VLT XSHOOTER (2006 - 2010)
- ESO/VLT ESPRESSO (2010 - 2018)
- ESO/ALMA ACS (2002 - 2008)
- ESO/ELT CODEX (2008 - 2010)
- ESO/ELT DIORAMAS e EVE (2008 - 2010)
- ESO/ELT HIRES (2014 - 2018)
- SKA OBSMGT (2015 - 2016)
- EST (2008 - 2011)
- SOLARNET I (2014-2018)
- TNG BATMAN (2010 -)
- ESO/AOF GALACSI (2015-2017)
- HARPS - N (2019)
- ESO/VLT FORSUp (2019 -)
- ESO/VLT CUBES (2019 -)
- ESO/ELT ANDES (2019 -)
- SolarnetH2020 (2019 - 2022)
- IBIS (2019 -)

Digital skills

Thanks to the participation in various projects both national and international in the field of control and scientific software, the undersigned has acquired considerable IT experiences, in particular:

- excellent and in-depth knowledge of C language and object-oriented languages such as C ++ and Java
- excellent and in-depth knowledge of scripting languages such as Tcl / Tk, shell programming and Python
- excellent knowledge, also at the administrator level, of various Unix-like systems (HP-UX, Solaris, Linux) and Windows (in particular in the real time variant Windows CE)
- excellent knowledge of design languages such as UML and modeling of systems such as SysML
- excellent knowledge of versioning (SVN and GIT) and integration (Jenkins) systems
- excellent knowledge, also as administrator, of document management systems (owncloud, plone)
- excellent knowledge of project management tools (Twiki, Redmine, Jira, Confluence)

Having worked on systems with real-time needs (VME, PC / 104 +, PLC), the undersigned also claims to have excellent knowledge of real-time operating systems such as VxWorks, RTAI Linux and Beckhoff and Siemens automation technologies. In the field of distributed systems and parallel

computing, the undersigned has in-depth knowledge of CORBA and a good knowledge of MPI.

Finally, as far as the scientific software is concerned, the writer states that he has an excellent knowledge of the main astronomical packages such as IRAF and IDL and engineering packages such as Matlab.

ADDITIONAL INFORMATION

Schools and courses

- Participation in the "National School of Astronomical Technologies" (Naples, 21-26 September 1998);
- Participation in the SPIE Short course "Astronomical Optics for Astronomer" (München, 31/03/2000)
- Participation in the "Real-time Unified Modeling Language" course (Stuttgart, 09/10/2001);
- Participation in the course "Embedded Linux development" (Padua, 10-14 June 2002);
- Participation in the Inaf course, with a limited number of participants, "Fare sistema: Innovare per crescere" organized at the LUISS Business School (Rome, 23 June - 25 November 2010);
- Participation in various workshops (in the years 1999 - 2014) organized by ESO as part of projects for the VLT control software and ALMA Control Software (ACS) also as "invited speaker"

Appointed tasks (institutional)

- Member of "Consiglio di Struttura" of INAF-OATs from 18 July 2011 until 2014;
- member (appointed by INAF) of the TAG (Technical Advisory Group) of EST (from 2018);
- commissioner in competitions for various types of contracts (research grants and fixed-term) at INAF-OATs
- Direttore “Vicario” dal 08.02.2021 al 31. 12. 2023

Appointed tasks (projects)

- Responsible for planning, implementation and installation of Maintenance Software and Secondary Autoguiding for the ESO / VLT UVES instrument;
- Responsible for designing, implementing and installing the ESO / VLT FLAMES / GIRAFFE instrument control software;
- Responsible for the design, implementation and installation of the low-level control software of the ESO / VLT XSHOOTER instrument with the supervision of a contractor;
- Responsible for planning, implementation and installation of specific libraries for ESO / ALMA ACS;
- Responsible for designing the control software for three focal plan instruments for the E-ELT (CODEX, OPTIMOS-EVE, OPTIMOS-DIORAMAS) and the consequent contract with ESO for the study of future technologies to be applied to the E-ELT;
- Responsible as Software System Engineer of the ESO / VLT ESPRESSO project with supervision of the (international) team for the development of the "data flow software" and with the task of supervising various research grants within the same project at the INAF - OATs;
- Responsible for the Telescope Control Work Package in the EST project;
- Member of the technical core team and software system engineer for the feasibility study and subsequent design phase of the HIRES spectrograph for the ELT;
- Responsible for the feasibility study of the control software for the upgrade of the ESO/VLT FORS-UP instrument;
- Project manager of the Phase A ESO / VLT CUBES Spectrograph
- Project manager of the Construction Phase of the ESO / ELT ANDES Spectrograph

Research grants (PI ship)

Research projects with direct funding (as PI):

- ESO 2004: manager / coordinator of the agreement no. 2072 "Development of software for the ALMA" (8 kEuro)
- ESO 2008: manager / coordinator of the project "E-ELT Program OPTIMOS Study", ESO INS / 08-07 dated 11.26.2008 (10 kEuro)
- ESO 2010: manager / coordinator of the project "Evaluation of Technologies for the E-ELT Instrument Control System"; ESO "Purchase Order" PO031358 / HNEU (10 kEuro)
- ESO 2016: manager / coordinator of the project "GALACSI software support tasks"; ESO "Purchase Order" PO068663 / MRIE (36 kEuro)
- ESO 2018: manager / coordinator of the project "FORS UP Control software and hardware feasibility study"; Collaboration agreement No. 11369 / LET / CP / AMA (40 kEuro)
- ESO 2021: manager / coordinator of the project "FORS UP Control software and hardware feasibility study"; Collaboration agreement No. 095423/ESO/21/105065 (200 kEuro)

Research grants (coPI-ship)

Funded research projects in which I participated (often also as head of the local research unit of INAF-OATs):

- PRIN 2001: "*Sviluppo procedure per l'astrometrizzazione e l'analisi di immagini a grande campo su sistemi Beowulf per il pre-imaging dello strumento FLAMES/VLT*"; P.I. prof. G. Sedmak
- PRIN 2004: "*Lo Spettrografo X-Shooter per il VLT: progetto e realizzazione del Software di Controllo*"; P.I. R. Pallavicini
- PRIN 2006: "*Evoluzione chimica e dinamica di galassie nane del Gruppo Locale in relazione all'evoluzione della nostra Galassia*"; P.I. prof. F. Matteucci
- FP7-INFRASTRUCTURES-2007-1.2-02: "*Enabling Virtual Access to Latin-American Southern Observatories*"
- PRIN-INAF 2007: "*The local route to galaxy formation – Tracing the relics of the hierarchical merging process in the Milky Way and in other nearby galaxies*"; P.I. M. Bellazzini
- PRIN 2007: "*Vincoli osservativi all'evoluzione chimica delle galassie*"; P.I. F. Matteucci
- FP7-INFRASTRUCTURES-2007-1: "*EST: The large aperture European Solar Telescope*"
- Tecno-PRIN INAF 2009: "*A DMD-Based Multi-slit spectrograph. On-Sky Breadboarding at the TNG*"; P.I. L. Nicastro
- PRIN 2010-2011 "*Evoluzione chimica e dinamica della nostra galassia e delle galassie del gruppo locale*"; P.I. F. Matteucci
- FP7 INFRA-2012-1.1.26: "SOLARNET: *Research Infrastructures for High-Resolution Solar Physics*"
- Premiale 2012: "*Progetto T-REX: tecnologie italiane per E-ELT, il più grande telescopio del mondo*"; coord. M. Tosi
- Phase A Study of the "*High Resolution Spectrograph (HIRES) for the E-ELT at a firm fixed price of 150.000 EUR*", Call for Proposals CFP/ESO/15/068696/OSZ
- Premiale 2016: "*FRONTIERA: Fostering high ResolutiON Technology and Innovation for Exoplanets and Research in Astrophysics",* P.I. I. Pagano
- Grant Agreement number: 824135 — SOLARNET — H2020-INFRAIA-2018-2020/H2020-INFRAIA-2018-1
- Bando competitivo per l'Innovazione 2019 - *Harsh environment characterization system for ground-based astronomical instrumentation*

In addition to these grants linked to specific national (PRIN) and international (ESO, FP7 or H2020) calls, I participated and managed specific expense chapters coming from INAF grants directly linked to the projects in which I was involved as an Italian consortium: in particular ESO / VLT FLAMES for the upgrade part of the optical fiber connection to the ESO / VLT UVES, ESO / VLT XSHOOTER, ESO /

VLT ESPRESSO, ESO/VLT CUBES and ESO / ELT HIRES (now ANDES) spectrographs.

Publications

Author of over 300 publications (March 2022) including project studies, manuals, conference proceedings, scientific publications on refereed journals (see NASA ADS for a list of publicly available publications; documentation related to projects are confidential and not available online).

Peer reviewing

- reviewer of Journal of Astronomical Telescopes, Instruments, and Systems (2018)
- reviewer of the electronics and software work-packages for the EUCLID space instrument NISP (Near Infrared Spectrometer and Photometer) (2015)
- reviewer for the multi-object spectrograph WEAVE for the 4.2-m William Herschel Telescope (WHT) (2015)
- unique external reviewer for the ELT Instrumentation control software framework (2017)
- reviewer for the ESO 4MOST fiber-fed spectrograph for ESO VISTA telescope (2018)
- reviewer of Euclid NISP DPU-ASW (2020)

Teaching activities

- From 1994 to 1997 substitute teacher for the teaching of Mathematics and Physics at various High Schools in Trieste;
- A.A. 2005-2012: responsible for various internships offered for students of the three-year / specialist degree from the University of Trieste;
- A.A. 2010-2011: M. Mannetta's master thesis co-supervisor "Analysis and discovery of extrasolar planets - The ESPRESSO spectrograph for the Very Large Telescope: hardware and software prototype";
- A.A. 2011-2012: thesis co-supervisor of A. Pala "Extraction of components in composite astrophysical spectra";
- A.A. 2012-2013: thesis supervisor of S. Taibi "Synthetic databases for the application of a statistical method for the determination of stellar ages";
- A.A. 2017-2018: thesis supervisor by R. Bevilacqua "A new method to extract the individual components of the Algol R CMa binary system based on ICA"
- A.A. 2019-2020: thesis co-supervisor by A. Trost “Cassegrain U-Band Efficient Spectrograph: Calcolatore di Tempo di Esposizione”

Acknowledgments

- Letter of recognition from the UVES Project Scientist for the work carried out under the ESO / VLT UVES (1999)
- Letter of recognition from the "Head of ESO Technical Division" (2002) for the work carried out within ESO / VLT UVES, ESO / VLT FLAMES / GIRAFFE, ESO / VLT Test Camera
- Letter of recognition from the "ESO Head of Otpical Instrumentation Department" for the work carried out within ESO / VLT FLAMES / GIRAFFE and ESO / VLT XSHOOTER (2006)
- Letter of recognition from the ESO Director General for the contribution to the ELT project (2010)

Firmato digitalmente da:
DI MARCANTONIO PAOLO
Firmato il 29/03/2022 12:03
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Valido dal 16/02/2021 al 16/02/2024
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