

# Joseph Schwarz

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## Personal

Born: 10 March 1946, New York, NY, USA  
Citizenship: USA  
Residence: Milan, Italy

## Employment

1/2000–31/07/2011 Staff, European Southern Observatory (ESO), Garching bei München

### Software System Architect for Atacama Large Millimeter Array (ALMA)

- Collaborated with users (astronomers) to define Software Requirements and Use Cases
- Led a three-person team to define and document the overall software architecture for ALMA. This included defining a preliminary version of the first of two essential data models in UML, the use of XML Schema to generate code to access specifying the ALMA Common Software, a CORBA-based middleware and development framework, as the key technology to support the architecture and provide developers with a shared programming model for Java, C++ and Python.
- Designed and developed GUI application to display and decode CORBA events published by subsystem to facilitate debugging and tuning of CORBA Notify Service. This application was the first in ALMA to be based on the Eclipse Rich Client platform.
- Actively participated in hands-on troubleshooting of successive releases of the ALMA software, first at the Antenna Test Facility (a two-element interferometer) and later, the Operations Support Facility near San Pedro de Atacama, Chile.

### Deputy to European Manager of ALMA Computing Integrated Project Team (CIPT)

- Presented – at least yearly – reports to both internal and external review panels on progress and status of the software development.
- Promoted the use of modern appropriate technology for intra- and inter- subsystem collaboration (Wiki), configuration control (CVS), problem reporting (JIRA), and the use of state-of-the-art Interactive Development Environments (IDEs), in particular, Eclipse and, as a development framework, the Eclipse Rich Client Platform.
- Initiated Human-Computer Interface (HCI) project, enlisting HCI experts to assist and direct ALMA in developing more efficient, intuitive user interfaces to replace some of the preceeding (WIMP) implementations; the new interfaces used visual cues and images to minimize extraneous “cognitive load” (e.g., the tedious task of organizing overlapping windows in limited screen space) on ALMA operators.

9/1995–1/2000 Staff, European Southern Observatory (ESO), Garching bei München

Outsourcing Service Center Manager  
Head, Administrative Data Processing

1/1993–8/1995 Consultant, European Southern Observatory (ESO), Garching bei München

### Office of the Director General & Data Management Division

Reviewed Real-time software systems for the 8-meter Very Large Telescope (VLT) and made recommendations to ESO management

Collaborated in drafting the Upgrade Proposal for the 4-meter New Technology Telescope (NTT) and in design, coding, and preparation for the first on-line test at the NTT of VLT-component-based software.

Researched, procured, installed, and maintained Problem Reporting & Tracking System for the NTT at La Silla, Chile

Served as software reviewer for ISAAC Final Design Review.

Coordinator of Advanced Systems Group (ASG) of Data Management Division (DMD)

Collaborating in selection and trial of videoconferencing systems for improving Garching-La Silla/Paranal communications.  
Coordinating ESO-wide PC upgrades, maintenance, training, and standardization  
Coordinating modernization of Administration computer systems for accounting and procurement (purchase order handling).

1/1990-8/1995 Consultant, Milan, Italy

System Integration, Wide-Area Networking, UNIX training  
Communications issues in banking applications

1/1990-12/1991 Consultant, Apple Computer S.p.A., Milano

Strategic Projects, A/UX Marketing, Database Access Marketing

1974-1990 Physicist, High Energy Astrophysics Division, Harvard-Smithsonian Center for Astrophysics

Director, Programming, Hardware and Software Resources

Responsible for selection and procurement of computer hardware and software for the High Energy Astrophysics Division, a group of 50-75 scientists, programmers, administrators, secretaries, and data aides. Wrote proposals to NASA for contracts to develop and run hardware/software systems for the analysis, archiving, and distribution of astronomical data from the HEAO-1, *Einstein*, and *ROSAT* X-ray observatories. Hired and managed group of 10-15 scientific and systems programmer/analysts writing X-ray analysis applications and system software (e.g., scientific and mathematical algorithms, database management, image processing, and graphical user interfaces). Coordinated scientific and software staffs to ensure that software met requirements, users were satisfied, and communications were clear. Established standards for in-house software development methodologies, tools, techniques, and coding procedures.

Directed development of *Einstein* Observatory CD-ROM and *Einline* on-line service for large-scale dissemination of imaging X-ray data

Developed both scientific application and system-level utility software

1986-1987 Visiting professor, Osservatorio Astrofisico di Arcetri, Firenze

Taught course on observational high-energy astrophysics  
Consultant for establishment of network of Sun/UNIX, VAX/VMS, MS-DOS machines

1972-1974 Postdoctoral fellow, Princeton University Observatory

1967-1970 Part-time employee, IBM Boston Programming Center

Design and development of CPS User's Manual and FORTRAN Compiler Program Logic Manual  
FORTRAN compiler development

1964-1965 Sports Editor, The Daily Standard, Celina, Ohio

## Education

1972 Ph.D., Astronomy, Harvard University, Cambridge, MA

1970 M.A., Astronomy, Harvard University, Cambridge, MA

1967 B.A. cum laude, Physics, Harvard College, Cambridge, MA

## Services

Member, CfA Computer Advisory Committee (CAC)

Member, IRAF Technical Working Group (TWG)

Member, AXAF ASC In-house review team

## Professional Societies

American Astronomical Society

Association for Computing Machinery

IEEE Computing Society

## Languages

English: mother tongue

Italian: fluent speaking, reading, and writing

German: good speaking, reading, and writing

French: fair speaking, reading, and writing

Spanish: rudimentary speaking, fair reading, rudimentary writing

## Systems and Tools

Technical (hands-on) experience with UML modeling tools (*e.g.*, Magic Draw), Eclipse IDE and the development of Rich Clients based upon it (RCP), Linux, Windows XP and 7, computer languages (*esp.* Java), relational database systems utilities

15/10/2012

Joseph A. Schwanitz