PERSONAL INFORMATION Stefano Zatti

EXPERTISE & INTERESTS

Cyber Security of space systems; Cyber Risk management; Security of information systems and communications networks; Computer networks engineering and operations; Internet technologies; Network, Systems, and Security Management.

WORK EXPERIENCE

November 2019-present

Independent consultant – Teacher
- Retired from ESA
- Independent cybersecurity consultant
- Contract Teacher of the course on "Cyber Risk Management" in the Cybersecurity Master Program at the University of Rome La Sapienza (A.Y. 2019-20, 2020-21)

September 1993-October 2019

European Space Agency, ESRIN, Frascati, Italy
Head of the ESA Security Office (07/2015-10/2019)
- Advisor to the ESA Director General on all security matters.

ESA Security Office Manager (06/2007-06/2015)
- Established the new corporate security set-up of ESA, based on the separation of the institutional aspects (assigned to the ESA Security Office) from the operational ones (with the respective Directorates) and took responsibility for the management of the ESA Security Office, including: Manage the day-to-day activities of the Security Office and its staff in all its aspects (physical security, personnel, information protection, information and communications system security); Monitor the correct performance of the security services, performing regular inspections and audit campaigns; Develop and maintain the ESA corporate security policy (ESA Security Regulations, 2003-2015 and ESA Security Directives, 2008-2015); Lead the ESA strategic process for corporate security, by developing and maintaining the ESA Security Master Plan and managing as ESA Executive the ESA Security Committee; Organize security training and awareness campaigns, in particular delivering directly the COMSEC training courses; Liaise with National Security Authorities for the assessment of all kinds of security risks facing the Agency and for incident response; Security Accreditation Authority for all ESA classified facilities; Liaise with EU authorities (Council, Commission, External Action, EDA, GSA) in support of EU-sponsored projects; Cryptographic key custodian. Regular attendance of the security working group of CCSDS (Consultative Committee on Space Data Systems), developing security standards for space communications, in collaboration with NASA, CSA, JAXA, DLR, CNES, ASI.

Head of the ESA Information Security Office, Department of Information Systems (November 2004 - May 2007)
- Establish, organize, and coordinate Cyber security within the Agency; Define the technical means to produce, store, transmit, and destroy ESA sensitive and classified information; Participate in the ESA strategic process for corporate security, supporting the ESA Executive in the ESA Security Committee for INFOSEC matters; Focal point for security at ESA; Collaborate as security expert within ESA in tender evaluation boards

and working groups on the security of space missions (e.g., Galileo and GMES); Support to projects in the assessments of space security systems. Responsible for the ESACERT. Detached to ESOC to assist D/OPS in the establishment of the ESA Security Office in 2005-2006.

Head of the ESA Infrastructure System Section, Department of Information Systems (July 2001- November 2004)

- System manager of the ESA corporate information technology infrastructure, in charge of the full lifecycle of ESA Information Systems services, including communications, distributed computing, storage, mobility, security, and management of the whole service delivery supply chain. Contributed to the certification of the organization to the ISO 9001 quality standards. Infosec authority for the ESA information system and executive responsible for the ESACERT, established under his responsibility and formally affiliated to the international cooperation bodies First and Terena..

Head of the ESA COMMUNICATIONS INFRASTRUCTURE SERVICES SECTION, (June 1997 - June 2001)

- Responsible for the full lifecycle of ESACOM, the ESA corporate data network: planning, engineering, operations, security, change and configuration management, and customer satisfaction. Led ESA's effort on the outsourcing of the wide-area network to a commercial managed service and on the engineering and operations of the local-area networks at ESA sites across Europe. Extended the ESACOM capabilities to support voice and video on a single IP-based virtual private network. Developed the Agency's Network Security Policy and led it through the corporate approval and implementation, via a firewall perimeter protecting all the Agency's sites, procured from Industry as a managed service. ESA Interface to NASA for inter-Agency interconnections, took part regularly in the inter-Agency reviews and joint user groups.

Telecommunications Engineer (September 1993- June 1997)

- In charge of the operations and the configuration control of the ESRIN network and of the ESA wide-area data dissemination network. Responsibilities included network management, routing, addressing, and security. Project leader for the outsourcing of the ESA Wide Area Network via an industrial contract; Project leader for the re-engineering and re-organization of the ESRIN LAN on the basis of structured cabling and switching. Established the first network protection firewall at ESRIN.

July 1985 - September 1993   IBM Research Laboratory, Rueschlikon, Switzerland

Research Staff Member, Communication and Computer Science Department (May 1990-August 1993)

- Project leader for IBM in **SAMSON**, a project on management of security services, within the RACE (Research on Advanced Communications in Europe) program sponsored by the European Community. Goal was the design and realization of a network management system, based on ISO standard technology, to securely manage and operate network security services for authentication, access control, audit and recovery, and key distribution. Member of a project on security of interconnected heterogeneous networks, for transparent authentication of principals, key distribution, single sign-on, and access control. Design and development of **KryptoKnight,** a fully operational software package (in C on AIX) providing integrated security services to a distributed system. The KryptoKnight prototype has been integrated into the mainstream industrial network security product of IBM, **NetSP.**

ON INTERNATIONAL ASSIGNMENT, IBM Advanced Programming Centre, Palo

Alto, California (January 1989-April 1990)

- Principal network Architect for the development of an integrated directory service for IBM products, compliant with the X.500 International Standard. IBM representative in the industrial OSI Implementers' Workshop (OIW), sponsored by the US National Institute for Standards and Technology (NIST), participating in the development of the X.509 public-key-based standard for authentication and key distribution, which implied regular travel to Washington, DC, and Toronto, Canada.

RESEARCH STAFF MEMBER, Communication and Computer Science Department, (July 1985-December 1988).

- Member of a research project aimed at the integration of the ISO-OSI standard communication protocol family into IBM SNA networks nodes, with the goal of hiding network idiosyncrasies to users and application developers. Main role in the integration of the different naming and addressing spaces. Received an IBM **Outstanding Technical Achievement Award** for this project. Design and implementation of an application-layer interconnection scheme between standard ISO-OSI and SNA networks. based on the mapping of the OSI Transaction Processing and IBM SAA CPI-C programming interfaces. Demonstrated at International Exhibitions in Europe, US, and Canada. Received an IBM Research **Division Award for this project.** Research on internetworking.

From August 1983 to May 1985   **University of California, Berkeley**

POSTGRADUATE RESEARCHER, Computer Systems Research Group, Computer Science Division, Electrical Engineering Department, University of California at Berkeley, USA, August 1983-May 1985.

- Design and implementation of TEMPO, a network time synchronization service that keeps the clocks of machines on a computer network synchronized, thus allowing the establishment of causal sequencing of events. The service has been integrated in the 4.3 version of Berkeley UNIX and since become part of the standard distribution package. Design and implementation of a distributed, fault-tolerant election algorithm to select a *leader* from within a set of processes running on different machines. Research on load balancing in distributed systems: performance studies of the appropriate indices to measure the load, and of various placement strategies. Demonstrated in a prototype implementation on the network of VAX and SUN machines of the university.

EDUCATION AND TRAINING

1983-1985   **Master of Science** in Electrical Engineering and Computer Science, University of California at Berkeley, 1985.
Thesis: *A Multivariable Information Scheme to Balance the Load in a Distributed System.*

1986-1980   **Laurea *cum laude*** in Applied Mathematics, University of Pavia, Italy, 1980.
Thesis: *An Artificial Intelligence Algorithm for Automatic Classification and Forecast. (Learning machines.)*

PERSONAL INFORMATION

| Mother tongue(s) | Italian |

Other language(s)	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C2	C2	C2	C2	C2
	Used English as main working language for most of his career				
French	C1	C1	B2	B2	B1
	Used French as secondary working language for all his career in ESA				
Spanish	B2	B2	B2	B2	B1
	Acquired broad practice with reading, conversations and travel in Spanish-speaking locations				
German	B2	B2	B2	B1	B1
	Studied at school and practiced while living 8 years in Switzerland and 2 years in Germany				

Communication skills
- Excellent communication skills acquired through delivery of seminars, presentations, and university lectures. See attached list of public interventions.

Organisational / managerial skills
- Seasoned managerial and political skills, gained in the context of introducing security in an open organisation like ESA, enabling it to participate in classified activities at all levels, dealing with colleagues, managers (reporting to Director General) and the Member States' representatives.

Job-related skills
- Expert in designing the security of cyber system and leading its implementation.
- Expert in producing security regulations and directives and ensuring the compliance therewith.
- Expert in auditing and inspecting the security of cyber systems and installations.

Digital skills

SELF-ASSESSMENT				
Information processing	Communication	Content creation	Safety	Problem solving
Proficient	Proficient	Proficient	Proficient	Proficient

ITIL: Foundation Certificate for IT Service Management, IS Examinations Board, September 2004
ISO: Certified Lead Auditor ISO 27001 (2013-2014)

Other skills
- Agriculture – farmer of olive grove and producer of olive oil
- Painting – watercolour and ceramics
- Singing – member of a street band in support of disabled mental patients

Driving licences
Driving licence category A and B, Sailing licence with no limits from coast (skipper)

ADDITIONAL INFORMATION

Publications
- Program Committee member and chair of the session on "Cyber Security Threats for Space Systems" at the International Astronautics Conference, 66th IAC 2015 in Jerusalem, Israel, 67th IAC 2016 in Guadalajara, Mexico, 68th IAC 2017 in Adelaide,

Australia, 69th IAC 2018 in Bremen, Germany, 70th IAC 2019 in Washington, DC, USA, and 71st IAC in Cyber Space Edition, 2020.

- Certified Lead Auditor for ISO/IEC 27001, June 2013. Refreshed in July 2014.
- From 2004 to 2018, Contract Professor and Member of the Scientific Council of the "Master for Information Systems and Network Security for the Enterprise and the Public Administration", University of Rome "*La Sapienza*". Instructor of the course on "Corporate Security Policies", aimed at industrial practitioners in the security field.
- Chairing regularly Agency's tender evaluation boards on various procurement activities, mainly related to Earth Observation.
- Regular lecturer on ESA security-related subjects at academic, industrial, and institutional venues.
- Regular production of scientific publications. See attached list of publications.
- Attended the 1st (in 2008) and 4th (in 2011) Summer School on Network and Information Security (NIS), organized by ENISA in Crete.
- Foundation Certificate for IT Service Management, IS Examinations Board, September 2004.
- Representative of ESA in TERENA, the Trans-European Research and Education Networks Association.
- Representative of ESA at the NASA Internal Services Networks (NISN) Customers forum, and interface of ESA to NASA for networking matters.
- Member of the ESA Staff Association Committee, 1995-2001, Chairman of the ESRIN SAC, 1997-2000, Chairman of the Italian section of ARES, association of ESA retired staff, 2020
- Program Committee member, IFIP "Networking 2002" conference, Pisa, May 2002.
- Program Committee member, IFIP WG 6.1 International Workshop on Distributed Applications and Interoperable Systems (DAIS '97), Cottbus, Germany, October 1997.
- Chairman of the panel *on "Limitations of the approach of solving a network's computing problems with a Firewall",* at the " ESORICS 96 - 4th European Symposium on Research in Computer Security", Rome, September 25-27, 1996.
- Co-Chairman of the Awards program at the 13th International Conference on Distributed Computer Systems, organized by the IEEE in Poznan, Poland, June 1994. Chaired a session on Experimental Systems. Member of a Panel *on "Standards for Distributed Systems in the Industry".*
- Program Committee member, 13th International Conference on Distributed Computing Systems, Pittsburgh, PA, May 1993.
- IBM Outstanding Technical Achievement Award, 1989.
- IBM Research Division Award, 1988.
- Program Committee member, 8th International Conference on Distributed Computing Systems, San Jose, CA, June 1988.
- Rotary Foundation International Scholarship, 1983.
- Senior Member IEEE, Member IEEE Security Society

Available upon request:

- List of publications
- List of public presentation and interventions