

## Monica Alderighi

### Professional experience

- 9/01 - present Researcher. IASF Milano (formerly IFC-CNR), INAF. Full-time position that involves theoretic and applied research concerning the design and implementation of fault tolerant computing systems for space applications. Her research interest include: fault detection and tolerance methods, radiation effects and mitigation techniques, design methodologies, formal specification, parallel and massively parallel models of computation.
- Member of the Italian Working Group on the SKA Low Frequency Aperture Array (LFAA), 2019-2020.
  - Research Unit Coordinator, "Digital Platform development for back end design of new generation SKA Aperture Arrays", TECNO INAF 2012
  - Technical Responsible and WP Leader, Thales Alenia Space Italia, Contract n. No. 1550003636, "Hi- Reliable COTS Based Computer, Step 2 (Prototyping and Validation)", 2012-2014.
  - Research team member, "Design, Simulation and radiation experiments on memories and other complex digital circuits for on-board space application (SPRAD)", Ref. AYA2009-13300-C03-01, 01/01/2010-31/12/2012, Institution Fundación Antonio de Nebreja, Madrid, Spain.
  - Project Responsible, GIGAVISION s.r.l., Consulenza scientifica relativa alla definizione di architetture di calcolo ad alte prestazioni per la migrazione in dispositivi FPGA di algoritmi di analisi video realtime per la rilevazione di eventi specifici, Bando Programma Operativo Regionale POR-SEFR (2009 - 2013).
  - Technical Responsible and WP Leader, Thales Alenia Space Italia, Contract n. No. DCC.IA.MK.335.09, "Hi- Reliable COTS Based Computer", 2009-2010.
  - Project Responsible, ESA/ESTEC, Contract No. 18559/04/NL/LvH/gm, "Mitigation of SEUs affecting Configuration Memory and Reconfiguration Logic in Virtex II FPGAs", and successive Contract Change Notice N1 and N2, 2004-2015.
  - Principal Investigator, "SIDERALE: Balloon Flight Experiment", ASI Payload Opportunity, 2008.
  - Project Responsible, Technology Transfer Project, UIT-INAf, "Feasibility study for a spin-off operating in the field of digital electronics (Studio di fattibilità per uno spin off in tecnologie elettroniche digitali)", 2005.
  - Research team member, Bando ASI Ricerca Fondamentale 2000, "Development of fault tolerance techniques for computing systems based on programmable logic devices (Definizione e sviluppo di tecniche di identificazione e tolleranza di guasti per la progettazione di sistemi di calcolo basati su componenti logici programmabili)", Contract n. I/R/073/01, 2001-2003.
  - Research team member, Bando ASI Ricerca Fondamentale 1999, "Development of fault tolerance techniques for computing systems based on programmable logic devices (Definizione e sviluppo di tecniche di identificazione e tolleranza di guasti per la progettazione di sistemi di calcolo basati su componenti logici programmabili)", Contract n. I/R/216/00, 2000-2002.
  - Member of the European Consortium on Single Event Effects (2004-2007).
- 12/88 - 8/01 Researcher. IFC-CNR, Milano. Fixed Term position. Researcher. Worked on fault detection and tolerance issue in space applications. Involved in the activities leading to the definition of a self-checking version of the neural network for a photon event identification problem. Cooperated with the INFN Milano on the CHIMERA project. Furthermore, worked on parallel, massively-parallel, and adaptive systems applied to space research. Contributed to the development and evaluation of a massively-parallel model of computation and helped defining and implementing a feedback neural network for a photon event identification problem.

*Co-authored more than one hundred papers.*

**Education** Laurea degree in Physics, University of Milan, Italy, 1984

**Nationality** Italian

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