



## Emilio Ferrari

*Date of birth :*

| *Place of birth :*

*Nationality :*

| *Residence*

*Domicile :*

### ***Educational qualification :***

1969 - Scientific baccalaureate diploma (58/60) at the Liceo Scientifico di Tortona.

1969 – Enrollment at the Politecnico di Torino Aerospace Engineering Faculty.

1976-77 Military service in Italian Air Force

1977 – Degree in Aeronautical Engineering (103/110)

### ***Foreign languages:***

English: fluent written and oral

German: scholar level (high school)

### ***Training before Degree***

Jan 75 – Dec 75 | Alitalia - Major Engines Maintenance Dept – Fiumicino - (Ing Lepri).

**In January 1975** he comes into the Alitalia Overhaul & Maintenance Dept in Fiumicino site to familiarize with the first engine with high bypass ratio, the Pratt & Whitney JT9D.

**In June 1975** he begins to work on a thesis regarding the assembly and disassembly procedures of the engine modules, to build the first Alitalia existing maintenance manual of this type of new engines. This activity allows Alitalia to disengage itself from PWA in Hamburg for the inspection and rebuild on the modules.

**In December 1975** Alitalia publishes the manual as official document

Jan. 76 - May 76 | Politecnico di Torino Department of Mechanics

**In January 1975** he obtains the role of Professor Assistant in the Professor Ciuffi Course on Mechanical Engine design.

**Military service**      *From 10 May 1976 in the National Air Force*

**May 76 - July 76** Training in the Military Center at Vigna di Valle

**Lug76 - May 77** Experience in the Military Engine Maintenance Center in Caselle (Turin) activities also in the Flight Test Center Avio in Caselle.

**During his military service he knows Fiat Aviazione and he participate to the engines J79 (F104) and Orpheus (G91) maintenance activities**

**Professional experience**

*1<sup>st</sup> July 1977 he enters in Fiat Aviazione (Engineering Dept, based in Torino Corso Ferrucci 122) as design engineer*

- **Jul 1977 - Jul 1980**

He is in charge for the responsibility of the office 'New Projects' in the emerging Technical Direction, with the aim of launching new projects and testing the components, starting from an helicopter engine (about 300 shp of power)

- **Dec 1977**

He proposes with success the adoption of Nastran software in Fiat Aviazione for all mechanical calculation, introducing the fem method in the structural analysis.

- **Jul 1980 - Sep 1982**

He becomes the Head of the mechanical design of the Auxiliary Power Unit FA150 Argo, developed by Fiat Aviazione for the fighter aircraft Aeritalia AMX

- **Sept 1980**

He proposes the introduction of Cadam 2d Cad System in the Design Area.

- **Oct 1982 - Jul 1984**

He becomes the Program Manager of FA150 Argo program, interfacing Aeritalia and Military Air Force people

- **Jan 1983**

He proposes the introduction of a new 3D CAD System (Euclid from Matra Data Vision) to start in the design dept with the solid model design. In July 83 he becomes the responsible also for the Cad System Development in Fiat Aviazione

- **Jul 1984 - Oct 1989**

He becomes the Head of the Engine Design Unit, in which are unified all the Design resources. In this period in addition to the RB199 (Tornado) and the FA 150 ARGO he works also for the V2500 engine, within the IAE Consortium and he begins the design activities for the EJ200 (the Typhoon Engine), within the Eurojet Consortium. In 1985 he stays for a year in Bristol (UK) to work together with Rolls Royce (UK), MTU (Germany) and ITP (Spain) to establish the right engine configuration for the Eurofighter

- **Jul 1987 - Oct 1989**

Under his responsibility, Fiat Aviazione begins the mechanical design of the Liquid Oxygen Turbopump of the Vulcain engine for the Ariane 5 Space Vector and through the successful

development of this turbopump the Italian Space Agency take the European leadership in this field.

- **Oct 1989 - Dec 1995**

He takes the leadership of the mechanical design for all the Fiat Avio products (at this time, Fiat Aviazione has changed his name in FiatAvio). In this period, are launched, designed and certified products like the GE90 in collaboration with General Electric and the heavy duty industrial turbine 701F, in the 'trilateral collaboration consortium, together with the US Westinghouse and the Japanese Mitsubishi

- **Oct 1989 - Dec 1995**

During the period of Design Responsibility, under the Total Quality Program launched by Fiat Avio to optimize the Information technologies devoted to the Development Process, he takes the responsibility for the project I3P (Product/Process Design Integration) with the aim of structuring the product virtual model and his process definition, implementing in Fiat Avio planning tools (Project 2), virtual model cad/cam new systems (Unigraphics) and PLM software. During this time he develops around 190 applications for Engineering and completes the porting of the full application avio suite on Unix Operating System.

- **Jul 1992 - Dec 1995**

He develops on Euclid environment the Numerical Control for factory automation (2AX, 2,5 and 5 AX), with certification of the S/W for production at Dec 94

- **Sep 1992 - Sep 1993**

He becomes the Program Manager of the project PROCEDE in the European Esprit environment by the European Community

- **Dec 1993**

Still under the technological area of the data processing improvement for product and process development, he introduces in Avio the fem s/w Patran and P-Thermal as pre-and post-processing system of the structural calculations.

- **Jan 1996 - Mar 1997**

During the Fiat Avio Engineering reorganisation, he takes the responsibility of the Engine Design Office, in which are brought together all the resources of mechanical design and calculation (about 200 persons of which 60 % graduates).

- **Apr 1997 - Apr 1998**

After the merging of DTG (Fiat Turbogas Direction) in FiatAvio, he takes also the responsibility of the Nuclear Engineering of this Society, with the full responsibility of the Via Cuneo establishment and nuclear storage in Saluggia

- **Apr 1998 - Dec 2000**

After the merging of Alfa Avio and BPD in Fiat Avio and the consequent reorganisation of Engineering activities and departments, he leads the new body Turbomachinery Design Center, in which are concentrated all the design and analytical calculation, (about 350 people, 50% of them graduates), spread in Turin, Colleferro, Pomigliano and Brindisi)

- **Jan 2001 - Mar 2002**

The Avio Engineering becomes responsible also for the process activities, trying to endorse the full responsibility for all the development process. In this new matrix organisation is created the 'Infrastructure' transversal function, in which are concentrated different types of skills (ICT tools, Knowledge, Airworthiness and Competences Management). He leads this organisation, coordinating all this 'infrastructures' in all the Fiat Avio sites.

- **May 2002 - Oct 2004**  
The Infrastructure Dept start to manage also the technological programs and becomes to involve FiatAvio in some research areas. During this period Fiat Avio exits out of Fiat Group, becoming Avio spa.
- **Nov 2004 - Oct 2008**  
He becomes the Research Responsible in Avio, managing the research programmes and the Know How Engineers structure. Under a strong top down strategy, under his responsibility, Avio multiply by ten in 4 years the research volume, involving In a strong way Universities and Research Centers (12 international and 25 national departments) to support the Avio research, reaching an economical leverage of about 4 (The ratio between the Research Total Volume and the Avio net exposition)
- **Jul 2008**  
He want to found the Great Laboratory, located into the Cittadella Politecnica, near to the Politecnico di Torino, under a partnership agreement with the University, running around Green Engine Technology, with about 30 people leaded by Avio people and coordinated by 7 Researchers.
- **Jul 2008**  
He launches the big program JTI (Joint Technology Initiative) in the European framework 7, for the future Green Engine, in cooperation with the major European Aerospace Industry (RR, MTU, Snecma, ITP, VOLVO for the engines and Airbus, Finmeccanica, Thales ecc for the airframe)
- **Jul 2008**  
He launches the regional program GREAT 2020 in Piedmont, to develop the technologies and the laboratories necessary for the European research, creating a joint venture between 8 departments of the Polytechnic and 25 Small and Medium Enterprises in the Region.
- **Oct 2008**  
He leaves Avio to become an independent Engineering and Industrial Consultant. (EEFFE personal consultancy organisation)
- **Oct 2008**  
He's involved in a 4 months consultancy in Avio to launch the new responsible in institutional relationship management.
- **May 2009**  
He's involved in a Industrial consultancy in GE Oil&Gas Nuovo Pignone on
  - Toscana and Puglia new financing frameworks
  - Universities relationship development
  - Product and process technology transfer
  - Turbomachinery design
- **June 2009**  
He's involved in a consultancy for the Internationalization Dept of the Chamber of Commerce of Turin to develop a SME Framework in the aerospace field.
- **June 2010**  
He enters in the Top Advisory Board for Oil & Gas as expert in turbomachinery development
- **September 2010**  
He's nominated External Expert for the development gates Design Reviews for all the turbomachinery models for GE Oil & Gas.

- **September 2011**  
He becomes Principal Engineering Consultant of the Top Strategic Review Board for the Engineering Reorganization in GE Oil & Gas.
- **April 2012**  
He becomes General Secretary of the GE Corporate Turbomachinery Research Headquarter

### **'Ad personam' roles**

- 1990 - 1995 *Fiat Avio Representative to the Steering Committee of the Group "Cad Dev" (Working Group launched by the European Esprit project for the development of the Cad Cam technology).*
- 1991 - 1993 *Head of the Program 'PROCEDE' within the European Esprit 3 Project, for a new Cad Cam generation s/w development.*
- 1993 - 1995 *IAB member (International Advisory Board which lead the worldwide Cad Cam s/w global industrial certification).*
- 1996 - 1999 *Chairman of the Group AECMA DESIGN STD for the launching of the design standards at European level.*
- 1998 - 2000 *Chairman of the Group EIMG (Engine Manufacturing Industrial Group), an organization that leads the European research on the aeroengine in Europe.*
- 2000 - 2006 *Member of AECMA OC (Operation Commission) to review the aerospace projects within the European frameworks.*
- 2006 - 2008 *Member of ASD R&T Commission (Research and Technology) for the rationalization of European investment in civil Aeronautics, Space and Defense.*
- 2002 - 2008 *Member of the Italian/Russian Intergovernmental Group for the technical cooperation*

### **Publications**

- 1981 AIDAA Atti del Convegno: Articolo su "Sistemi di potenza ausiliaria per velivoli militari"
- 1985 "La meccanica dei rotori supercritici" Pubbl. MACHINE DESIGN
- 1987 "Il CAD CAM nell'industria aerospaziale" Pubbl. MACHINE DESIGN
- 1988 "La progettazione attraverso la modellazione solida" Pubbl. MATRA DTV Review
- 1991 "Il progetto meccanico con l'ausilio del calcolatore" Pubbl. PROGETTARE
- 1992 "Il progetto meccanico multidisciplinare" Pubbl. PROGETTARE
- 1993 "La simulazione virtuale nel progetto dei motori aeronautici" Pubbl. PROGETTARE
- 1995 "3D Virtual simulation" Pubbl. CAD CAM
- 1995 "Mathematics of the virtual reality" ASME Paper
- 1996 "Nuove figure nell'Industria di oggi" Pubbl. INDUSTRIA & MANAGEMENT
- 1997 "Leadership attraverso la conoscenza" Pubbl. INDUSTRIA & MANAGEMENT
- 2000 "La competitività nel mercato aerospaziale moderno" AIDAA Pubbl. atti
- 2000 "Le nuove architetture per il motore verde" Pubbl. INDUSTRIA & MANAGEMENT
- 2000 "Tecnologie a misura di business" Pubbl. NETWORKNEWS
- 2000 "Knowledge Management: a new asset" Pubbl. INDUSTRIA & MANAGEMENT
- 2002 "La gestione della conoscenza nell'industria moderna" Pubbl. KM
- 2003 "La gestione della conoscenza come leva competitiva" AIDAA Pubbl. Atti
- 2004 "Il calcolo multidisciplinare" Pubbl. A&C ANALISI E CALCOLO
- 2004 "Il progetto probabilistico" Pubbl. A&C ANALISI & CALCOLO

## Curriculum Vitae

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2005 "Towards the multidisciplinary optimisation" Pubbl MECH ENGINEERING  
2006 " New technologies inside the green engine" Pubbl AEROSPACE TESTING

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### **Subscriptions to organizations**

ENGA Associazione "Gente dell'Aria"  
ALBO INGEGNERI TORINO  
Federmanager Torino (RSA Dirigenti Aziendale)

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### **Internal and External Teaching**

1982 Fiat Group internal training on: "I sistemi ausiliari di potenza"  
1984 ISVOR – Manager training course: "La progettazione virtuale"  
1985 Fiat internal training : "Relazioni interne vincenti"  
1989 ISVOR – Manager training: "Introdurre il CAD-CAM in azienda"  
1991 Gruppo Fiat training: "Il motore in Avio"  
1994 Confindustria – Conferenze cycle: "Essere ingegnere oggi"  
1998 Cranfield University – 4 monographies "Turbine Mechanical Design"  
1998 Gruppo Fiat internal training: "I sistemi che aumentano la produttività nell'ingegneria"  
1999 ISVOR - Neoassunti Avio: "La propulsione Aerospaziale"  
2001 Confindustria – Conferencies cycle: "Il Knowledge Management"  
2003 Politecnico - Corso di Laurea in Ingegneria Aerospaziale "Introduzione ai sistemi propulsivi aerospaziali"

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### **Computer skills**

MS	Access
MS	Excel
MS	Power Point
MS	Word
MSC	Nastran
MSC	Patran
MDTV	Cad-Cam Euclid
UNIGRAPHICS	CAD-CAM System

*During my experience I feel I have acquired a good skill level in the management of large areas of mechanical design, with deep international relationships, with a good background combining the mechanical design experience and the enhancement of the related computerized tools and also in the leadership of product development programs in an international environment. My current strong idea is that only the synergy between the industrial and public research actors, such as universities and research centers, Small, Medium and Large Enterprises could be the leverage tor win the modern competition.*

*Consequently, I feel as a professional and ethical duty, to be available for who in this system is interested to use my experience, gained in more than 30 years working in the advanced technology world, acting as facilitator of the contacts, relationships and collaborations and, last but not least, in the mechanical innovation. .*

I'm authorizing the use of my personal information in accordance with L.675/96