


Name	NORBERT FRISCHAUF	
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Expertise

Spacecraft Systems Engineer, Advanced Concepts, High Energy and Astrophysics, Project Management, Strategic Planning, Networking, Public Outreach and Press Relations – all with a strong Focus on Exploration Activities.

Involved in several projects with scientific-technological and strategic character both at CERN, ESA/ESTEC and the GJU, but also via private industries. Several years of experience as strategic-commercial consultant via Booz Allen Hamilton. Often involved in scientific-technological, civilian-strategic and private-commercial projects with extensive efforts in data acquisition (interviews, web and knowledge research), consolidation and analysis, as well as recommendation definition. Expert for technological forecasting and visioning processes – frequently involved in analysis of business plans, policy papers and definition of strategic plans.

Space Exploration and nuclear Power and Propulsion related:

- a) Co-Project Leader of two experiments at Large Electron Positron Collider at CERN (1994-2000)
- b) Systems Engineer of the LunarSat Spacecraft (1996-2003)
- c) Book captain of the Aurora Long term plan, the master strategy plan of ESA vis-à-vis the robotic and human exploration of Moon, Mars and Near Earth Objects.
- d) Nuclear Expert for various ESA studies connected to the Aurora programme; Co-Author of the white paper “Space Nuclear Power and Propulsion”
- e) Technical co-Chair of the Intern. Conference on the Advances of Nuclear Power Plants (2002-)
- f) Commander of the AustroMars Mission of the Austrian Space Forum (www.oewf.org, 2004-2007) at the Mars Desert Research Station (MDRS) of the Mars Society in Utah, USA
- g) Managing Director of QASAR Technologie(s) in Vienna, Austria – performing experiments with the MOA Plasma Accelerator in the MeV energy range

Education

1989 Ing. in Information Technology and Electronics, TGM, Vienna, Austria
1997 Summer School Degree, International Space University, Houston, USA
1998 Dipl.-Ing. (Master) of Technical Physics, University of Technology, Vienna, Austria
2002 Bachelor in Astronomy, Institute for Astronomy, University of Vienna, Austria
2005 Mini-MBA of Controlling Partner St. Gallen and Booz Allen Hamilton
2007 Strategic Leadership Course, Austrian National Defense Academy, Austrian Armed Forces
2008 EUR ING of European Federation of National Engineering Association (FEANI)

Experience

2003 - present

Co-Founder, Principal, Project Manager, Systems Engineer, LIQUIFER Systems Group (LSG), Vienna

Selected Projects:

- 2006: FIPES Study; Client: ESA/ESTEC; Responsibility: Package Manager of WP700 (Commercial Evaluation)
- 2008: RAMA Study; Client: ESA/ESTEC; Responsibility: Subtask Manager for the Radiation Protection Study (WP100) and Rover Technology Development Programme (WP200)

2009 - present

Senior scientist at the European Commission's Joint Research Centre, Institute for Energy in Petten, NL.

2006 - 2008

CEO of the new founded venture QASAR Technologie(s) in Vienna, Austria.

QASAR is an Austrian high-tech company, which develops and markets a novel plasma acceleration system called MOA, with a multi-suite of applications.

1999 - 2006

Senior Consultant at the World Technical Business Section of Booz Allen Hamilton in Amsterdam, Netherlands, providing support as Future Studies Systems Engineer and Nuclear Propulsion and Power Expert to the Aurora Programme of the European Space Agency (ESA) at the European Space Technology Centre (ESA/ESTEC), Netherlands.

Selected Projects:

- 1999 - 2001:

ATV Avionics Support

Client: ESA/ESTEC; Responsibility: Design Engineer for the ATV Avionics, especially the PCE

ATV Telecommand Authentication and Encryption

Client: ESA/ESTEC; Responsibility: Manager for the whole ATV Telecommand Security chain

- 2001 - 2003:

Aurora Long Term Strategy and Technology Roadmapping

Client: ESA/ESTEC; Responsibility: Book Captain for Long Term Plan and Technology Roadmap, Expert for emerging technologies evaluation

- 2004-2005:

ESA Business Resilience Analysis

Client: ESA; Responsibility: Expert Role for vulnerability analysis in terms of business, security and IPR

Business Support for Galileo

Client: Galileo Joint Undertaking; Responsibility: Manager of the technical part of the commercial evaluation of the biddings for the Galileo PPP; Expert for security aspects, technical roadmap and competition analysis with respect to GPS IIF and III, GLONASS, etc

Evaluation and Adaptation of Technology R&D Management for a major European Aerospace Firm

Client: A major European Aerospace Company; Responsibility: Technology expert for emerging technologies, technical roadmap, cost and competition analysis

ESA Technology Management Support

Client: ESA/ESTEC; Responsibility: Technology expert for emerging technologies, technical roadmap, design of technology portfolio management

Business Plan Evaluation and Re-design of an Italian Earth Observation Start-up

Client: Italian EO Start-up; Responsibility: Technology expert for EO technologies, revision of the technical roadmap, cost analysis, Manager of the technical evaluation

- 2006:

Business Plan Re-design of a German led Small Satellite Consortium

Client: ESA; Responsibility: Technology expert for emerging technologies, technical roadmap, cost and competition analysis

Business Plan Evaluation and Re-design of an Arabian Satellite Telecommunication Start-up

Client: UAE based start-up; Responsibility: Lead System Engineer of the space, ground and user segment (overall budget of the whole undertaking: more than USD 500m)

1998 – 1999:

Young Graduate Trainee (YGT) in the Manned Spaceflight and Microgravity Directorate (D/MSM) of the

European Space Agency (ESA) at ESTEC, Netherlands. Member of the project team of the Automated Transfer Vehicle. Role: Design Engineer for the ATV Avionics, especially the PCE

1994 – 1998:

Collaborator at CA-IT (Creditanstalt-Informationstechnologie, nowadays iT-Austria) in Vienna, Austria, serving as project leader and member of different project teams.

1990 – 1993:

Electronics Design Engineer at Schrack Aerospace (nowadays Austrian Aerospace) in Vienna, Austria.

1994 – 2000:

Co-project leader for the maintenance and upgrade of the Streamer Tube Particle Detector (FCA), and collaborator in the simulation, maintenance and performance tests of a new silicon detector (VFT), both used at the DELPHI experiment at CERN (<http://www.cern.ch/>).

1996 – 2003:

Member of the LunarSat Team, participating in Mission design and in the electronic design of the S/C, especially as responsible Power System Engineer.
Appointed as LunarSat System Engineer (Deputy Project Manager) in 2001.

1997 – present:

Member of the Executive Board of the Austrian Space Forum (www.oewf.org), serving as project leader for numerous outreach and science related projects.

1999 – present:

Member of the Executive Board of the Space Generation Forum at UNISPACE III Conference and Member of the Board of Mentors of the follow-up organisation Space Generation Advisory Council (SGAC) in support of the United Nations Programme on Space Applications (<http://www.spacegeneration.org/>)

Relevant Projects Overview

With CERN, ESA, ASA, Austrian Space Forum, ARCS, Mars Society, Lunar Explorers Society, etc.

1. Long Term Planning of the Aurora Programme, ESA/ESTEC. Book Captain of the Long Term Plan
2. Technology Development Planning for the Aurora Programme, ESA/ESTEC. Book Captain of the Power, In-Situ Resource Utilisation and Advanced Propulsion Section
3. ESA's S51 European Mars System Architecture Study and S54 Future Power Systems for Space Exploration Study, ESA/ESTEC. Systems Engineer and Expert for Advanced (nuclear) Power Generation System and Mission Design.
4. 2004 International Congress on Advances in Nuclear Power Plants (ICAPP 2004), held at the William Penn Hotel in Pittsburgh, Pennsylvania, USA. Chairman of session 10.01 (Space Nuclear Power and Propulsion Systems)
5. ÖWF/ESA/ASA/BMVIT Conference "Sicherheitspolitische Aspekte der Raumfahrt – Space and Security" held at the Industriellenvereinigung in Vienna, Austria. Project leader and moderator of the whole event.
6. Lunar Base Design Workshop, ESA/ESTEC, Noordwijk, Netherlands. Tutor and Technology Expert

As well as numerous other projects related to science/technology/public outreach

Papers + Publications + Lectures

Several scientific and technical papers presented at conferences in Austria, France, Germany, Netherlands, Spain and United States. Author of science and technology oriented articles in several magazines, most remarkably the column on the ESA activities in the Star Observer magazine, the biggest popular oriented magazine on astronomy and space in the German speaking world. Invited for lectures in United States and Europe, a detailed list is available upon request.

Memberships

Austrian Space Forum, LunarSat, European Alumni Association of the International Space University, International Lunar Explorers Working Group (ILEWG), Österreichischer Ingenieur- und Architekten-Verein (ÖIAV), Space Generation Advisory Council (SGAC) in support of the United Nations Programme on Space Applications