Richard D. Fleeter, PhD
Curriculum Vitae

EDUCATIONAL BACKGROUND
1981 Brown University, Providence, RI PhD Engineering specialization in Thermodynamics and Fluid Mechanics
1978 Stanford University, Stanford, CA, MSc Aerospace Engineering specialization in guidance and control
1976 Brown University, Providence RI AB Engineering / Economics

1. WORK EXPERIENCE

- La Sapienza, Rome, Italy (2008 - Present) visiting professor Aerospace design. Teaching responsibilities include Immersive program for Masters candidates including supervision of 6-month long thesis program in spacecraft design.

- Brown University, Providence, RI (2001 - Present) Adjunct Associate Professor of Engineering (aerospace systems design, innovation and design), responsible for senior capstone design course for mechanical engineers, created and teach two freshman seminars for engineers and non-engineers on design and innovation. Since 2006 head the Brown Engineering Alumni Medal nominating committee. Since 2009 creator and head of annual Space Horizons conference at Brown university with partial sponsorship by Brown and NASA Space Grant. Head the Equisat nanosatellite student development team since its inception in 2011 with its first NASA-sponsored launch in 2018. Equisat is one activity of Brown Space Engineering a Brown-sponsored association of 85 students for which i am the responsible faculty.

- Extraterrestrial Essentials, Charlestown, Rhode Island (2008 - Present) proprietor: provides aerospace consulting and instructional services to clients including Italian Space Agency (2008 through 2012), Japanese Space Agency (JAXA) in consulting. Courses provided at space agencies including NASA (at numerous NASA centers), JAXA, Canadian Space Agency, European Space Agency, Israeli Space Agency, Malaysian Space Agency, US Air Force at Space Command and Air Force Research Lab

- AeroAstro, Ashburn, Virginia (1988 - 2008) Founder, CEO and board member, staff of 85 employees and approximately 15 consultants in three US offices: microspacecraft and spacecraft components design, build and operation. Numerous small satellites and small satellite components built and flown. Related products in space communications and components. Inventor and developer of the SPOT emergency geolocation system. Customers included NASA, USAF, Los Alamos National Labs, MIT, Boston University, Malaysian Space Agency, Ball Aerospace, DARPA, and work with cooperating partners in Japan (AeroAstro Japan), Sweden (Swedish Space Agency), Israel (Weizmann Institute), UK (Surrey Space Technologies LTD)

- Defense Systems Inc. McLean, VA(1986-1988) Director of Space Technology: headed satellite division of company, responsible for development and launch of approximately 15 small spacecraft

- TRW (now Martin Marietta), Redondo Beach, CA (1982-1986) Project Manager, responsible for numerous R&D projects in rocket propulsion, combustion and fluid mechanics. Award for participation in successful rescue of TDRS-1 spacecraft after a rocket booster failure

- Jet Propulsion Laboratory of Caltech, Pasadena, CA (1981-1982) Senior Scientist, R&D projects in rocket and jet engine combustion, propulsion delegate to X-team advanced projects group

2. Publications

- Aerospace Encyclopedia, entry “Microspace” McMillan & Sons (2014, 2012)
- (book) Space Program Management, with Marcello Spagnulo Springer, 2012
- (book) Space Mission Engineering, chapter “Microspace” Microcosm Press, Jim Wertz Editor 2011
- (article) Small Satellites (Spacemag, publication of Italian Space Agency), 2009
- (book) Travels of a Thermodynamicist: Edge City Press 2007
- (book) The Logic of Microspace, Kluwer & Microcosm Press, 2000
- (book) Space Mission Analysis and Design, chapter “Microsatellites” USAF publication, 1999
- (book) Reducing Space Mission Cost, chapter on small satellites, Kluwer 1996
- (book) Micro Space Craft, Microcosm Press, 1996

3. Teaching, Presentations, Research, Consultancy

Courses Taught:
- “Space Systems Design” (2001 - present, Brown University)
Senior capstone engineering design course on aerospace systems
- “Crossing the Space Chasm with Engineering Design” (2007 - present, Brown University)
- “Crossing the Consumer Chasm with Engineering Design” (2008 - present, Brown University)
twin freshman seminars treating the obstacles to innovation and its acceptance, a holistic approach to innovation incorporating engineering in partnership with other disciplines.
- Space Mission Design (2008 - present, la Sapienza, Rome)
  design element of Masters program in space engineering leading a group of about 10 to 12 students from the conception of mission to a joint thesis on the mission’s design and implementation
- Space Mission Design (2008 - present, la Sapienza, Rome)
  a parallel course imbedded in the senior undergraduate aerospace engineering capstone course, leading student design groups through an intense two week design effort
- Space Program Management (2011, Italian Space Agency)
  half year course for staff on management of large and small space programs
- The Logic of Microspace (2009 - 2010 Italian Space Agency)
  a year long course within the Italian Space Agency to introduce microspace mission techniques to the engineering and management staff. Part of the course intent was to motivate entrepreneurism in space in Italy, and one result was the successful startup company Space-Point based in Rome, which provides database services to aerospace designers.
- The Logic of Microspace (1995 - present, various host institutions)
  a three day full immersion professional course on the philosophy, technology and methods of miniature spacecraft systems engineering. Variations of this course have been taught in several NASA centers, USAir Force in Colorado Springs and Los Angeles Air Force Bases, plus the Air Force Research Lab, Italian, Malaysian, Canadian, European, Israeli, Japanese space agencies, Company sites in the US, Canada, Italy.
- The Logic of Microspace (2000 - 2010)
  one-day course on microsatellite technology for university students and faculty, held at MIT and University of Michigan.

- Thermodynamics (1985-1986, UCLA)
  Senior mechanical engineering course in classical thermodynamics
- Applied Thermodynamics (1984, Cal State Long Beach)

Presentations:
- The Logic of Microspace (2014 University of Sofia, Bulgaria))

a series of 6 lectures made into professional videos publicly distributed by the University of Sofia, Bulgaria

. Space Infrastructure (2013-2014: United Nations Office of Space and Brown University)
presentation on the missing link of space infrastructure in realizing low cost and greater accessibility to space activities

- The Logic of Microspace (1995 - Present)
  public talks per invitation on how miniaturization of space systems makes space more accessibile to more people, and on new space applications resulting from that change in demography, I would have to estimate having made about 100 such presentations worldwide

Research and Consultancy
- at AeroAstro:
- pioneered use of lithium ion batteries for space application
- also first demonstration of other terrestrial technologies - batteries, connectors, imagers, processors, static RAM, Field Programmable Gate Arrays
- invented spread spectrum protocol to carry short messages on Globalstar spacecraft voice channels without interference resulting in currently operational SPOT global messaging and search/rescue service serving over 250,000 clients and generating $30M in annual revenue. SPOT research resulted in numerous patent awards
- Proposed “SPORT" GTO to LEO orbit transfer for insertion of small satellites in LEO at very low cost and energy requirement. GTO to LEO orbit transfer resulted in a US patent.
- Consultancy to Pratt& Whitney regarding purchase of various space launch engines from suppliers in Russia

- Since 2008
- Equisat - the most power intensive cubesat ever developed now under construction at Brown University for launch in 2017 by NASA
- Proposed concept of LEO/GEO communications link to eliminate discrete ground stations for small satellites. Research subsequently performed under consultancy to Italian Space Agency and now topic of Masters thesis research at La Sapienza.
- Founded Space-Point which developed and now makes available to space systems designers the only openly available database of space components and component suppliers worldwide.
- 2012 study for JAXA - Japanese Space Agency - analyzing the emerging US low cost launch vehicle industry
- Consultancy to Brodmann Piano Company, Vienna, Austria using the techniques of my Brown courses on chasm crossing applied to a grand piano product line based on innovative modern manufacturing techniques

Professional Travel and Community Service

- I commute 4 times per year between teaching positions at Brown University in the US and La Sapienza in Italy. I have sponsored Italian students at Brown and one Brown student who was resident as a researcher at La Sapienza

- 2014 Travel:
  - Stuttgart, Germany, presented technical paper on Space-Point database services
  - Sofia, Bulgaria, presented lecture series on the logic of microspace, space infrastructure and “100 years in microspace” all of which are now professionally produced videos hosted on the site “Space Challenges”, the foreign lecture program at the university

- Moscow, Russia, lecture series on logic of microspace and space infrastructure. Now working on forming a bridge between Skolkovo Tech and Brown.
- 2013 numerous trips to Vienna consulting to Brodmann Piano

Other travel in interval 2005 to 2015:

- Seminars and short courses in Canada, Israel, Malaysia, Turkey, Austria, Italy, UK (university of Southhampton, University of Surrey)
- Collaboration on design and development of the MOST spacecraft developed by University of Toronto, Canada
- Collaboration with scientists in Argentina on the launch of the HETE X-ray satellite developed by AeroAstro for MIT
- Collaboration with scientists in and around Tokyo regarding hosting their x-ray detector aboard the HETE spacecraft
- Hosted in the US a team of Malaysian engineers cooperating on development of the SPORT space transportation system
- University of Strathclyde, Scotland which cooperated with Brown to hold dual realizations of the Space Horizons conference simultaneously in Strathclyde and Providence. A similar collaborative conference was subsequently held with the Politecnico di Milano

- Guest lecturer at International Space University summer session in Graz, Austria (July, 2011).
- Invited Lecture at the United Nations Office of Space,Vienna, Austria, 2010 and 2013

- In 1987 I created ISSO, the international small satellite organization, a non-profit organization in service of the small satellite community. ISSO published a bi-monthly newsletter which I authored, and held the annual Space Horizons conference which I have subsequently revived at Brown.

Awards Affiliations and Appointments

- 1998 recipient of the Brown Engineering Alumni Medal - at the time I was its youngest recipient
- 1997 to 1999 Member, USAF Science Advisory Board
- 2003 - 2004 Member, Space Committee of National Academy of Engineering
- Chair Brown Engineering Alumni Medal nomination committee (reports to Dean of Engineering)
- Member, Brown University Engineering Advisory Board (reports to the provost)
- Awarded, Cleveland Heights High School Hall of Fame (one or two graduates per year inducted for professional lifetime achievement)