

Morteza (Mory) Gharib

Director, Graduate Aerospace Laboratories (GALCIT),

Hans W. Liepmann Professor of Aeronautics and Bio-Inspired Engineering

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EDUCATION

1976	Mechanical Engineering	B.S.	Tehran University (Tehran, Iran)
1978	Mechanical and Aerospace Engineering	M.S.	Syracuse University (Syracuse, NY)
1983	Aeronautics (Fluid Mechanics)	Ph.D.	California Institute of Technology (Pasadena, CA)

PROFESSIONAL EXPERIENCE

2015-Present Director, Graduate Aerospace Laboratory; California Institute of Technology

2010-2016 Vice Provost for Research; California Institute of Technology

2014-2016 Director, Linde Institute of Economics and Management Sciences; California Institute of Technology

2002-Present Hans W. Liepmann Professor of Aeronautics and Technology Bio-Inspired Engineering; California Institute of Technology

1993-2001 Professor of Aeronautics, Graduate Aeronautical Labs; California Institute of Technology

1992-1993 Professor of Fluid Mechanics, Department of Applied Mechanics and Engineering Sciences; University of California, San Diego

1988-1992 Associate Professor of Mechanical Engineering; University of California, San Diego Department of Applied Mechanics and Engineering Sciences

1985-1988 Assistant Professor of Mechanical Engineering; University of California, San Diego Department of Applied Mechanics and Engineering Sciences

1983-1985 Senior Scientist; Jet Propulsion Laboratory and California Institute of Technology

1978-1983 Graduate Student/Research Assistant; California Institute of Technology

HONORS, AWARDS, AND PROFESSIONAL RECOGNITION

Member, American Academy of Arts and Sciences (AAA&S)

Member, National Academy of Engineering (NAE)

Charter Fellow of the National Academy of Inventors (NAI)

Fellow, American Association for the Advancement of Science (AAAS)

Fellow, American Physical Society (APS)

Fellow, The International Academy of Medical and Biological Engineering (IAMBE)

Fellow, American Society of Mechanical Engineering (ASME)

Fellow, American Institute for Medical and Biological Engineering (AIMBE)

Fellow, The Institute of Physics (IP)

Fluid Dynamics Prize American Physical Society, 2016

G. I. Taylor Medal, Society of Engineering Sciences, 2016

R&D Magazine's R&D "100 Award" for the design of a 3D imaging system, 2008

Laufer Lecture Keynote speaker, University of Southern California, 2016

Hans. W Liepmann Lecture Award, Caltech, 2014

K.D Wood Colloquium Award, University of Colorado, 2009
19th Robert B Wallace Lecture Award, MIT 2008
Distinguished Israel Pollak Lectureship Award, Technion, 2005
Watson Lecture, Caltech, 1997 & 2002
Sackler Visiting Scholar Award, University of Tel Aviv, 2001
NASA New Technology Recognition for Transport, Nano-pumping, and Fluidic Logic, 2007
NASA New Technology Recognition for Capillary Lithography of Nanofiber Arrays, 2007
NASA New Technology Recognition for Nano-Wicks: for Passive Fluid Transport, 2007
NASA New Technology Recognition for Miniaturized Sensor for Measuring Particle Size, 2000
NASA New Technology Recognition for Miniaturized Wall Shear Stress Sensor, 2000
NASA New Technology Recognition for Development of a New Automated Particle Tracing Technique for Velocity Measurement, 1986
Executive Committee Member, American Physical Society, 1992--1995
Journal of Flow Visualization, 10th Anniversary Best Contribution Award, 2007
Award for Excellence, Visualized Image (Artistic Section), Visualization Society of Japan, 1995
Award for Excellence, Visualized Image (Technical Section), Visualization Society of Japan, 1995
Flow Visualization Award, American Physical Society, 1983, 1987, 1989, 1993, 1994, 2000, 2004

PROFESSIONAL SOCIETIES

- National Academy of Engineering, Member (NAE)
- American Academy of Arts and Sciences (AAA&S)
- National Academy of Inventors, Charter Fellow (NAI)
- American Association for the Advancement of Science (AAAS), Fellow
- American Physical Society (APS), Fellow
- Sigma Xi The Scientific Research Society, Member
- American Institute of Aeronautics and Astronautics, Senior Member
- American Institute for Medical and Biological Engineering (AIMBE), Fellow
- The Institute of Physics (IP), Fellow
- American Society of Mechanical Engineering (ASME), Fellow
- Biomedical Engineering Society, Member
- American Physiological Society, Member

VISITING APPOINTMENT

2000-2001 Sackler Visiting Scholar University of Tel Aviv

EDITORIAL BOARDS

- Elsevier's Academic Executive Advisory Board
- Editor, Experimental Techniques Book Series, Springer-Verlag
- Editorial Board, Experiments in Fluids
- Associate Editor, Journal of Fluid Engineering, ASME (1992—1995)
- Editor, Experiments in Fluids (1995-2003)

PUBLICATIONS

217 publications in refereed journals (please see the publication list)

PATENTS

109 Issued US patents (please see the patent list)

RESEARCH INTERESTS

Professor Gharib's current research interests in conventional fluid dynamics and aeronautics include Vortex dynamics, active and passive flow control, nano/micro fluid dynamics, bio-inspired wind and hydro energy harvesting, as well as advanced flow-imaging diagnostics.

His bio-mechanics and medical engineering research activities can be categorized in two areas:

1. fluid dynamics of physiological machines such as the human cardiovascular system and aquatic-breathing/propulsion
2. development of medical devices such as heart valves, cardiovascular health monitoring and drug delivery systems

ARTS AND SCIENCES

Dr. Gharib's creative impulse is most certainly inspired by the history of science, design and nature as evidenced by his body of work and his keen interest in the work of Leonardo da Vinci. Indeed, on the Gharib Research Group's website is the quote from Bronowski's *The Ascent of Man*: "Man is unique not because he does science, and he is unique not because he does art, but because science and art equally are expressions of his marvelous plasticity of mind." Mory Gharib's work has been molded by Leonardo da Vinci's heart valve fluid dynamics. His work on this topic has been published in research journals, referenced in four books about Da Vinci, and is featured in the PBS Series "Leonardo's Dream Machines"(2003). A replica of the heart valve designed by Leonardo da Vinci was created by Professor Gharib and his team, and became part of the exhibit, *Leonardo Da Vinci: Experience, Experiment, and Design, at the Victoria and Albert Museum in London* (14 September 2006 - 7 January 2007).

Compelled by one of history's feats in engineering, the Gharib research group lifted a heavy obelisk with a kite trying to prove that the Egyptians may have used kites or sails to erect their obelisks and build their monuments. This use of wind power was the subject of the History Channel documentary "Flying Pyramids: Soaring Stones" (2004). Professor Gharib has also collected awards for his visualized images of two-dimensional flows using soap films.