



**The Institute of Electrical and Electronics Engineers
(IEEE)**



**Galveston Bay Section Monthly Meeting
Joint with Joint Societies Chapter**

March 16th, 2017 (Thursday) Luncheon Meeting

TOPIC: “Review of NASA Robots and Author’s ANNIE”

SPEAKER: Paul Frenger MD

PRESENTATION: Dr. Frenger discusses what NASA has been doing with humanoid robots for the last 20 years. This includes Robonaut 1 (partner: Lockheed Martin) and 2 (partner: General Motors) on the International Space Station (ISS), the two Centaur 4-wheeled versions, Atlas (DARPA Robotics Challenge) and Valkyrie (partner: Boston Dynamics). Shifting gears, he talks about recent projects with his ANNIE robot (“Android with Neural Network, Intellect and Emotions”), APE (“Anthropomorphic Planetary Explorer”), GRANNIE (“General Robotic Agent with Neural Network, Intellect and Emotions”), ANNIE Doppelgänger, GRANNIE RoSS (“Robot Surgical Support”) and the Dementia Coprocessor Exoskeleton. He previews the next-gen ANNIE (version 2.0) which would use Linux and ROS (Robot Operating System) software on non-Intel processors. Issues of autonomy and self-awareness will be discussed.

SPEAKER: Dr. Paul Frenger is a Senior Member of IEEE, Life Member of ACM and a practicing physician in Texas, working with computers since 1976. He has published 200-plus articles in the bioengineering / computer literature, was editor for ACM SIGForth Newsletter (five years), associate editor for ACM Sigplan Notices (thirteen years), and has three computer patents. His activities include: artificial intelligence, robotics, prosthetics, bioengineering, space science, industrial design and green technologies.

Dr. Frenger was Course Director of the USAF / Navy / Army Physician Assistant Program from 1975-1978; assisted US Air Force Research Labs scientists to develop testing systems for non-lethal weapons (2004-2005); chaired the Houston Chapter of the IEEE Computational Intelligence Society (2007-2016) and served as Co-Chair of the Workshop on Automation and Robotics at JSC(2008-2016) [Currently renamed as Dual Conference].

Reservations for lunch or to attend this meeting should be made by email to:

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Dr. Frenger is a former US Air Force Lt. Colonel, a member of the Rocky Mountain Bioengineering Symposium (RMBS, the Canadian Medical and Biological Engineering Society (CMBES) , ACM, IEEE, ISA and MENSA. He has received commendation medals and awards from Air Force, ACM, IEEE, and the RMBS President's Award.

Gilruth Recreation Center NASA-JSC, Discovery Room (downstairs)

Free parking. No security processing required. Easy drive in off Space Center Blvd. See website below for map.

Interested non-IEEE engineers, technicians, scientists, IEEE Members and guests alike are welcome!

11:30 AM - Light Lunch with reservation (\$10.00 donation)

12:00 PM – 1:00 PM - Program and Q&A

Please RSVP Before Noon on Friday, March 13th, 2017

Number of lunches is limited. Please reserve early

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