

# Reaching New Heights



Dr. José M. Hernández

Astronaut

President and CEO

**Tierra Luna Engineering, LLC**

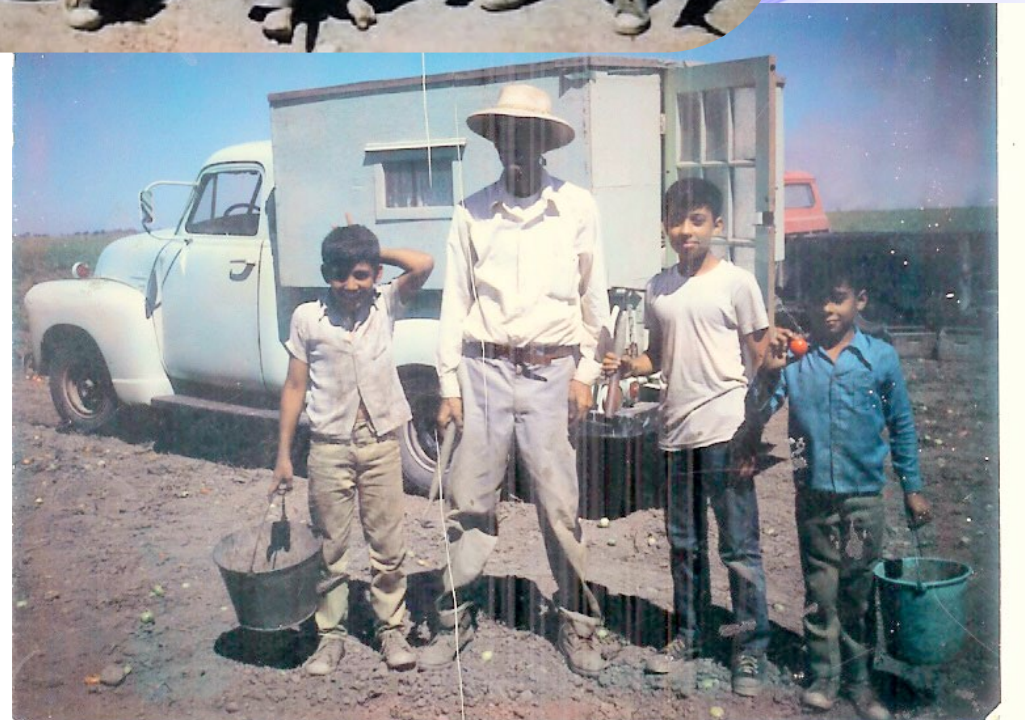
**National Board of Boiler and  
Pressure Vessel Inspectors**

**May 13, 2024**



# My Story

- My childhood
- Start of a dream
- The effect of empowerment
- The long journey
- The importance of perseverance

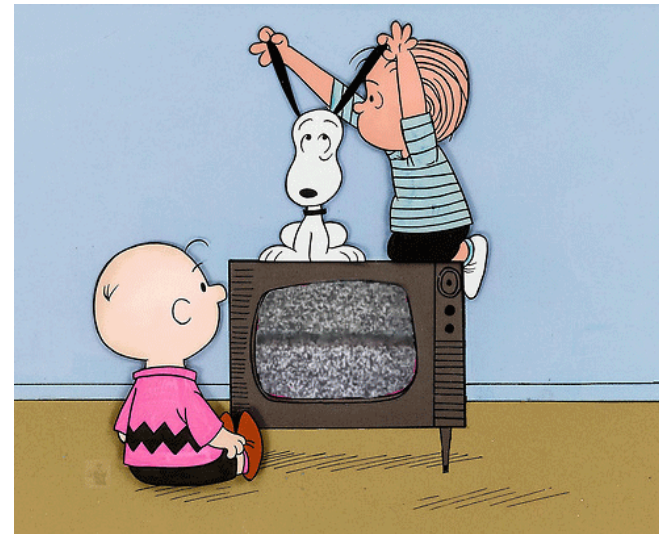


# Ms. Young's First and Second Grade Class



Ms. Young

## Antenna Ops



# My Father's Recipe to Success

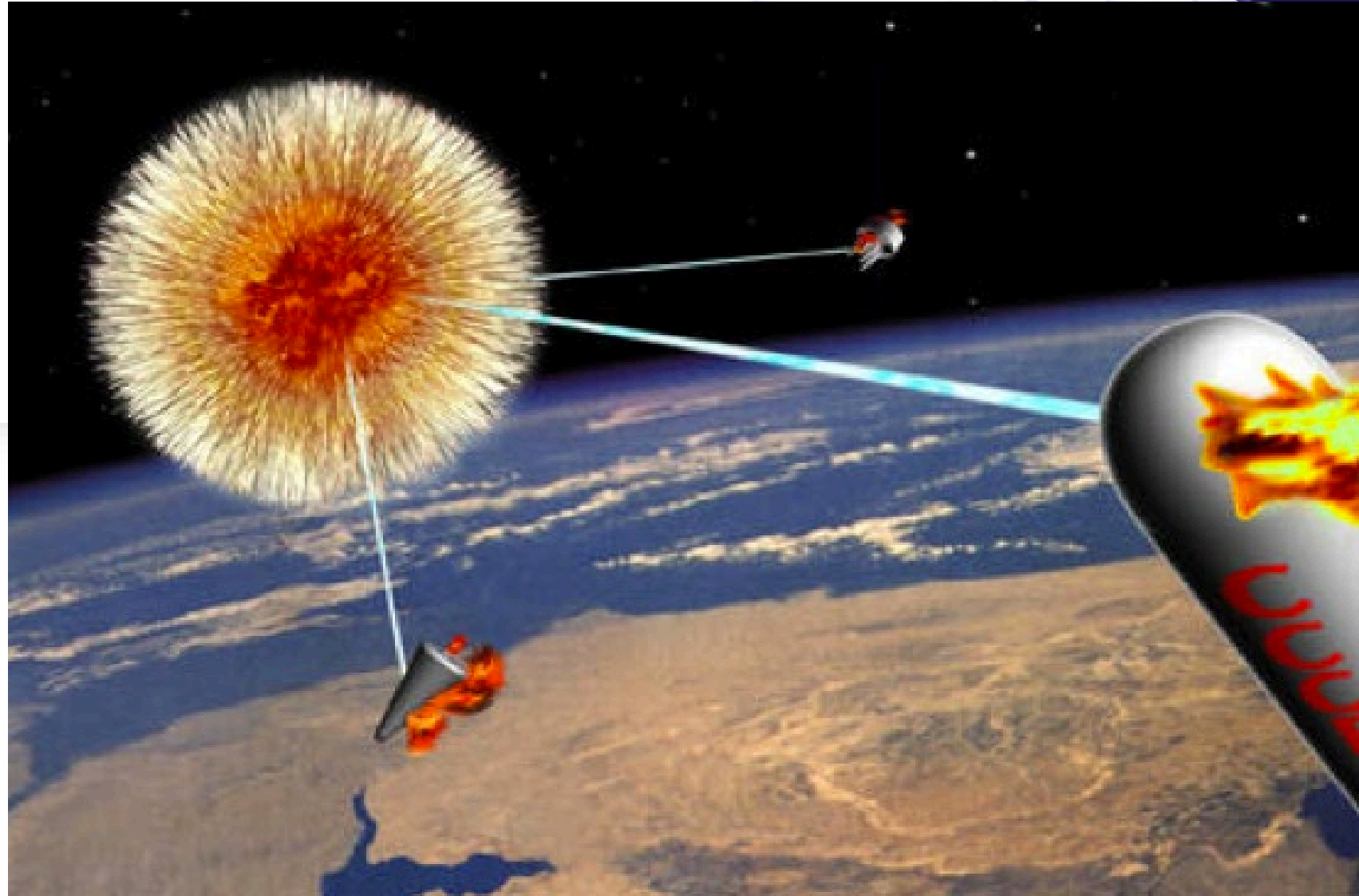
- Define your goal
- Recognize how far you are from it
- Create a roadmap to get there
- Education is key
- Develop a strong work ethic
- Persevere, never give up!



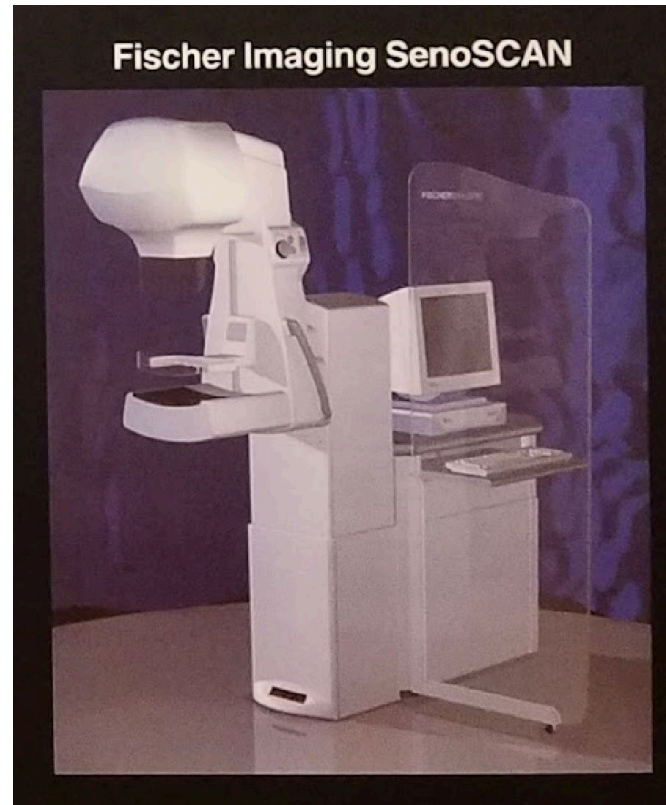
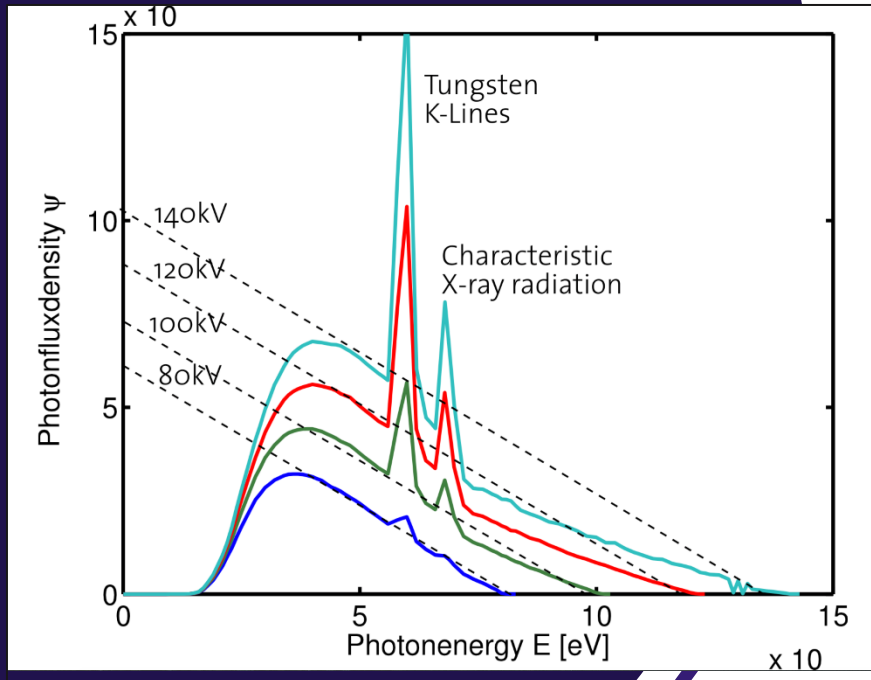
Liftoff of Discovery STS-128 Mission

# The X-ray laser program at Lawrence Livermore National Laboratory

Artist rendition of  
and X-ray laser



# Innovation Creates Opportunities



## Digital Mammography System Aided By Collaboration With Livermore Researchers Receives Fda Approval

Sept. 26, 2001

LIVERMORE, Calif. – A Denver, Colo. company that worked with Lawrence Livermore National Laboratory researchers announced Tuesday that it has received Food & Drug Administration approval for its digital mammography system.

Fischer Imaging Corporation partnered with LLNL from 1993 to 1996 on digital mammography work under a Cooperative Research & Development Agreement with the Lab's Engineering Directorate. While traditional mammography technology uses film to record the X-ray image, Fischer's new SenoScan digital mammography system records the image electronically.

Digital breast imaging opens the door for many changes in the practice of mammography, in the view of Livermore mechanical engineer Clint Logan, who headed the Laboratory's collaboration with Fischer.

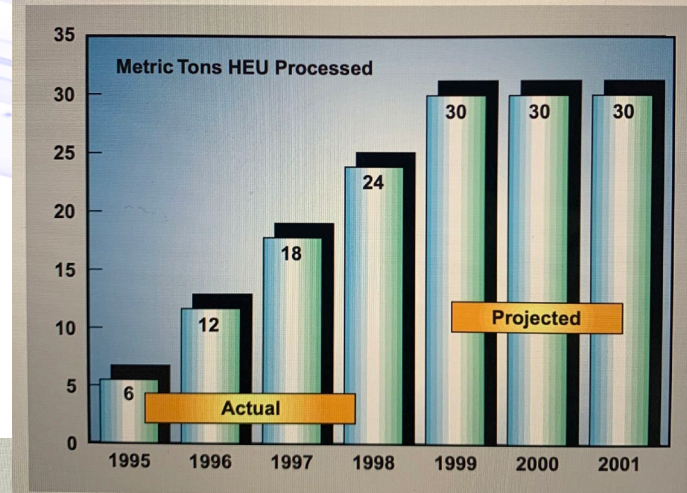
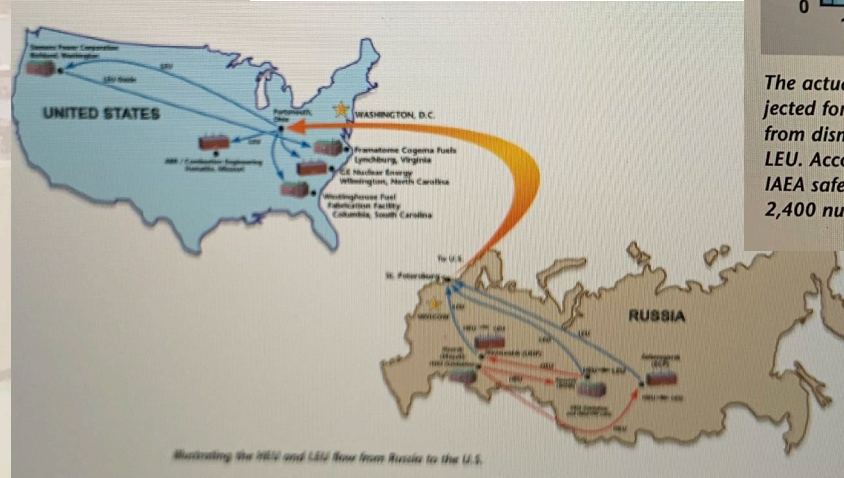
With this technology, images can be acquired at one location and then be rapidly transmitted by computer to another site for interpretation.



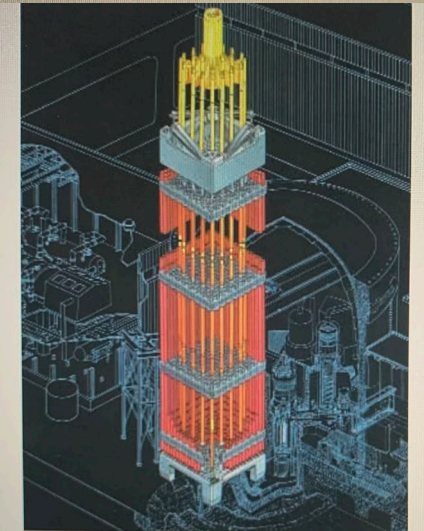
Co-developed the first full-field digital mammography system

# Being strategic with your career

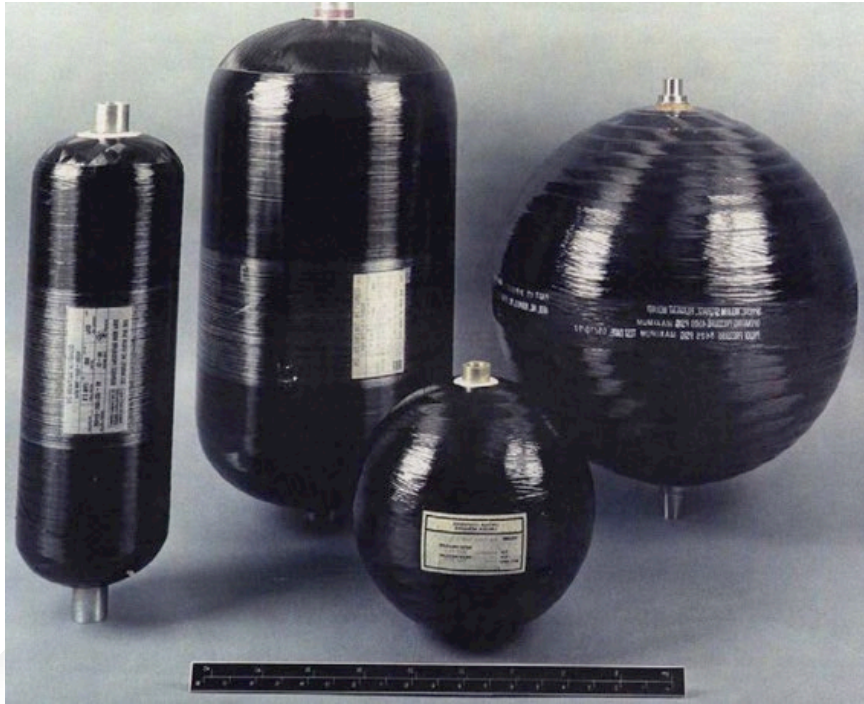
## Megatons to Megawatts Implementing HEU Transparency Measures



The actual quantity of HEU already processed and the amounts projected for processing by 2001. To date, sixty (60) metric tons of HEU from dismantled Russian nuclear weapons have been downblended to LEU. According to the IAEA's definition of a significant quantity (1987 IAEA safeguards glossary), this would be enough to make approximately 2,400 nuclear explosive devices.



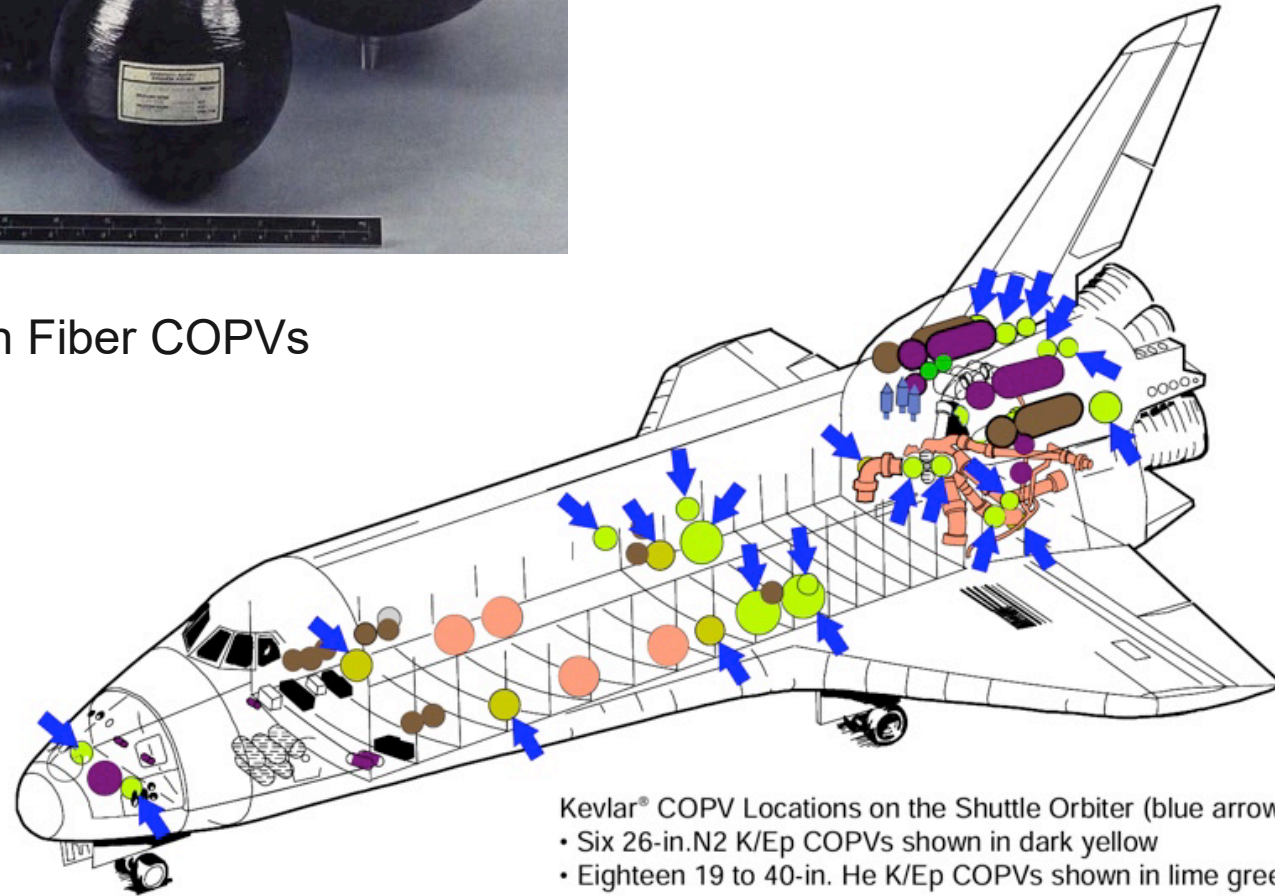
Artists concept of a fuel rod assembly being installed in a nuclear power reactor.



## Composite Overwrap Pressure Vessels

- Accelerated Life Cycle Testing at White Sands
- Burst and Leak Before Burst testing

Carbon Fiber COPVs



- Kevlar® COPV Locations on the Shuttle Orbiter (blue arrows)
- Six 26-in.N2 K/Ep COPVs shown in dark yellow
  - Eighteen 19 to 40-in. He K/Ep COPVs shown in lime green



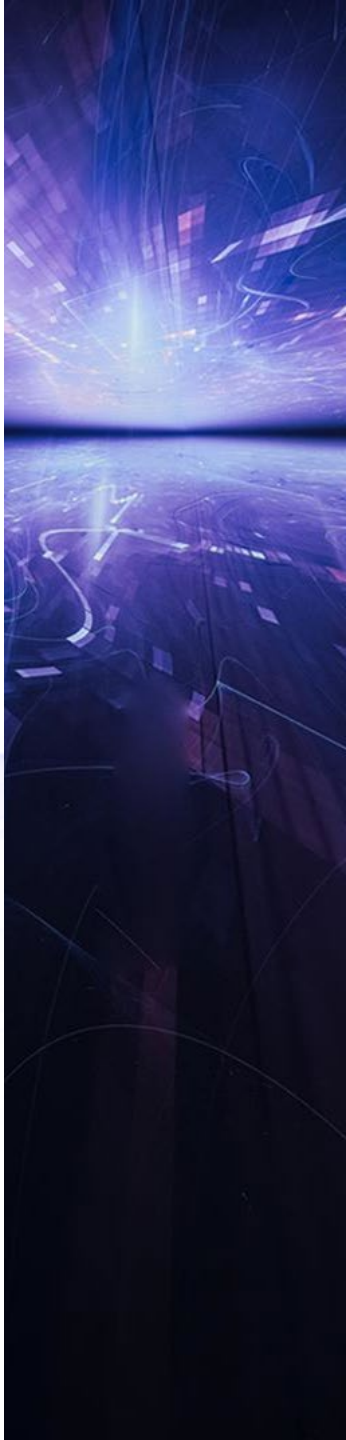
# Getting Selected to the 19<sup>th</sup> Class of NASA Astronauts: Be Careful what You Wish For!



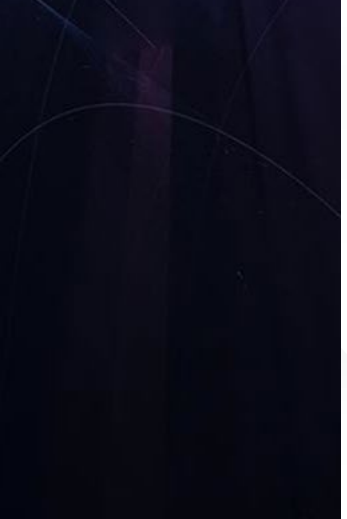
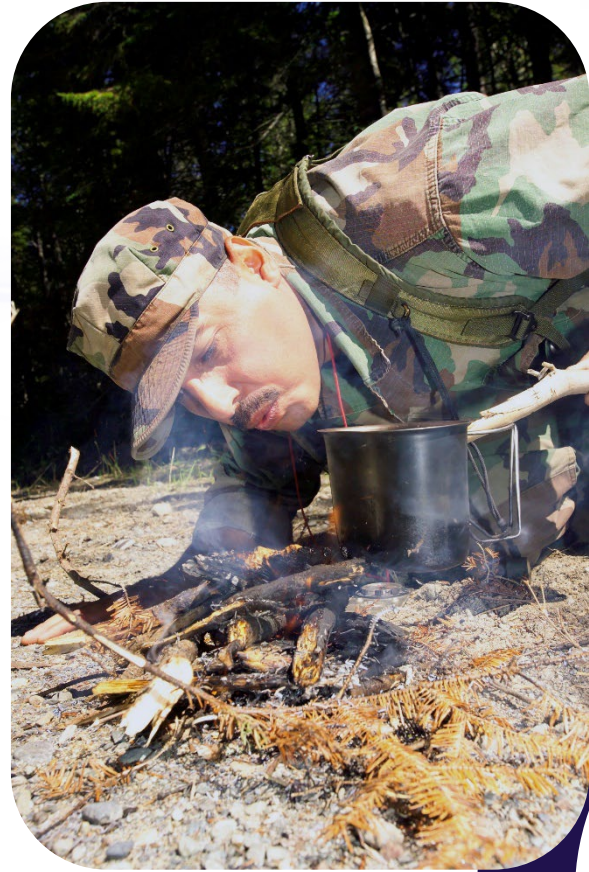
# Pilot Training



# Water and Cold Weather Survival Training



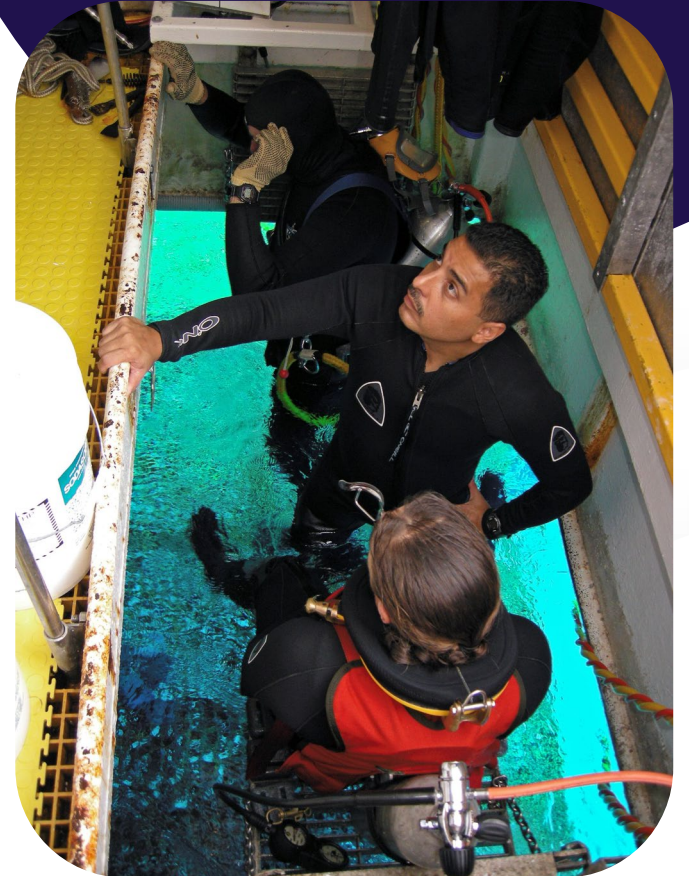
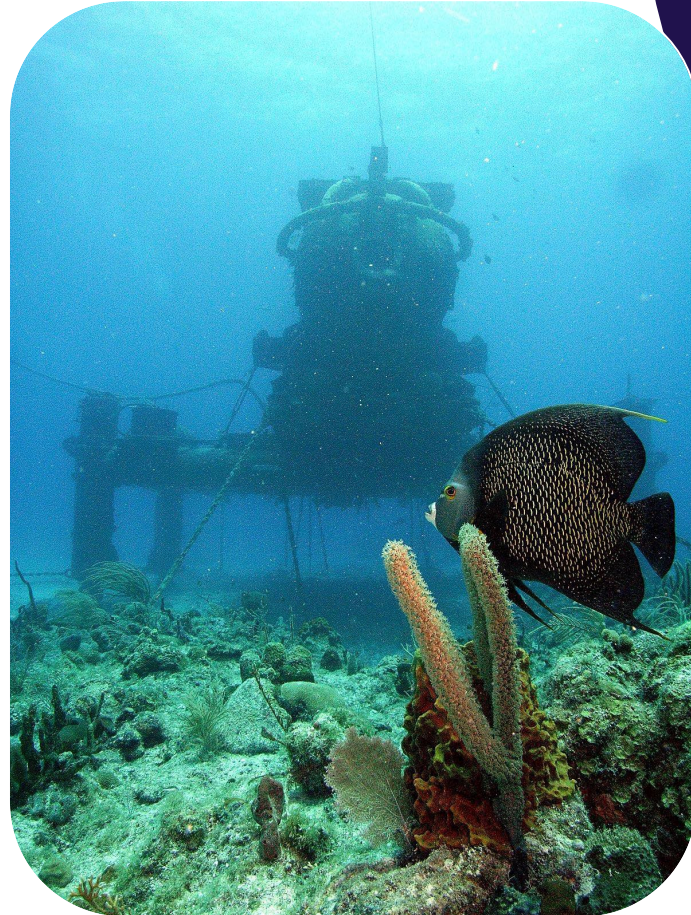
# Wilderness Survival Training



# Training as an Astronaut



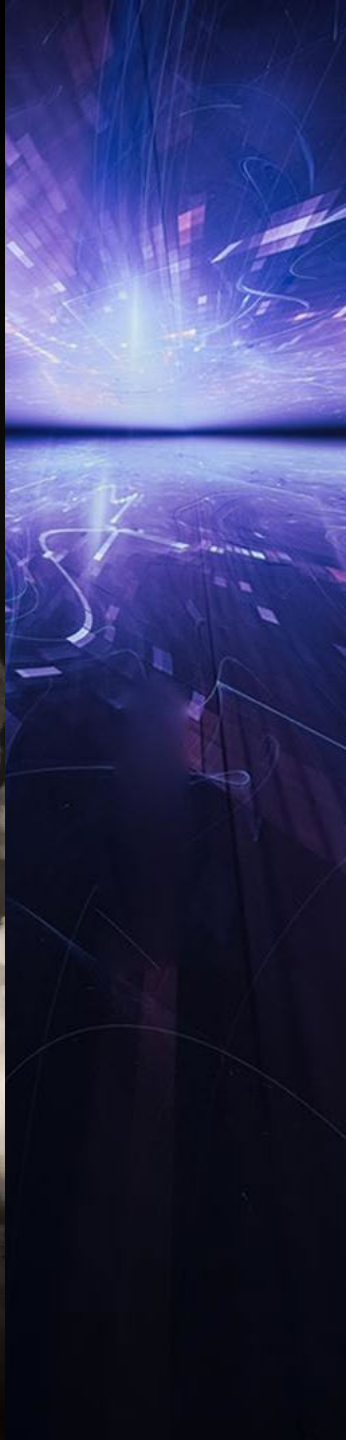
**NASA Extreme  
Environment Mission  
Operations (NEEMO)**



# Getting ready to go to space



Lift Off!



**Just remember that whatever it is you are doing, don't be afraid to enjoy the journey!**



**With my son on a Zero G Flight**



**Zero G Training on the KC-135 Vomit Comet**

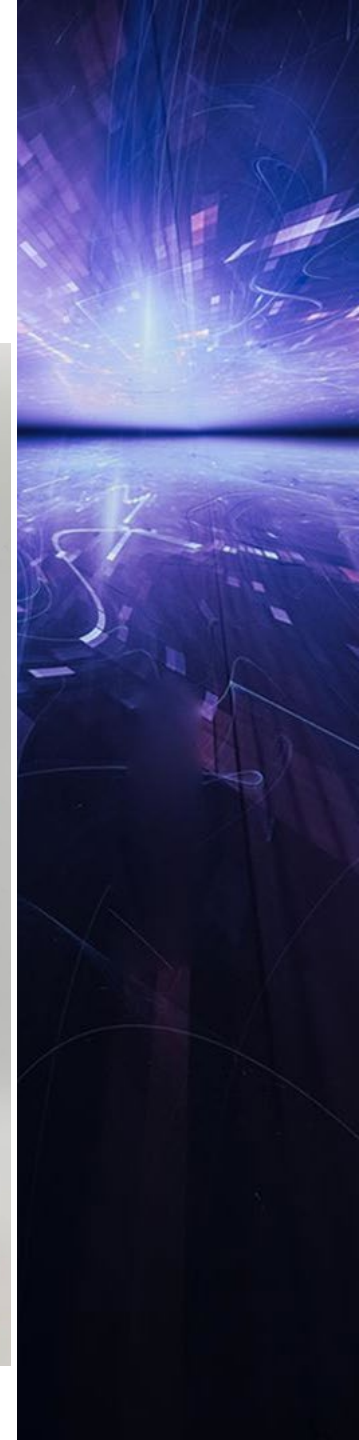


# Coming Full Circle

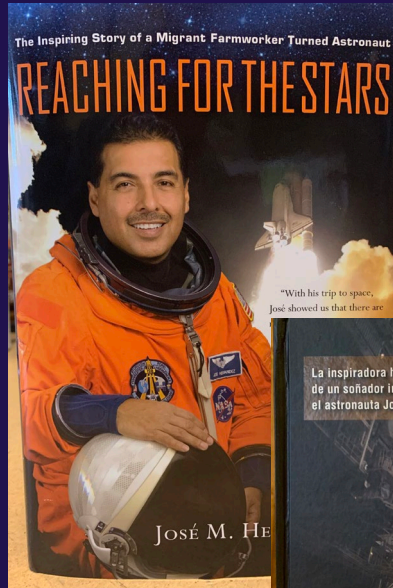


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**Alejandra Márquez Abella directs  
Biopic of Mexican American  
Astronaut, Michael Peña plays  
lead role**

# A Million Miles Away – Movie Trailer

<https://youtu.be/J-HcUuiLzR8?si=nV7RI5V0QFPm-Dsv>



# **3** Element Strategy to Reaching Your Goal

**Know the minimum requirements**

**Compare yourself to people you want to be like**

**Differentiate yourself from the competition**



# Reaching for the Stars Foundation

Website: Visit our store for books



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**THANK YOU**