An Introduction to CUSP

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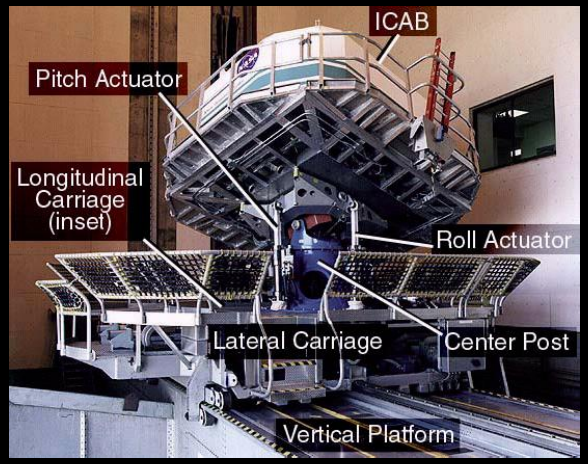
Typical Flight Simulators



Why do we care?

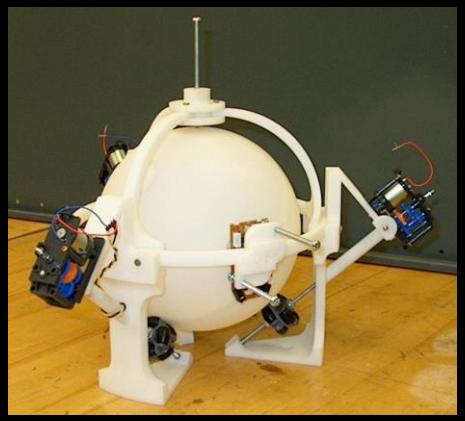
Captain Sullenberger – US1549

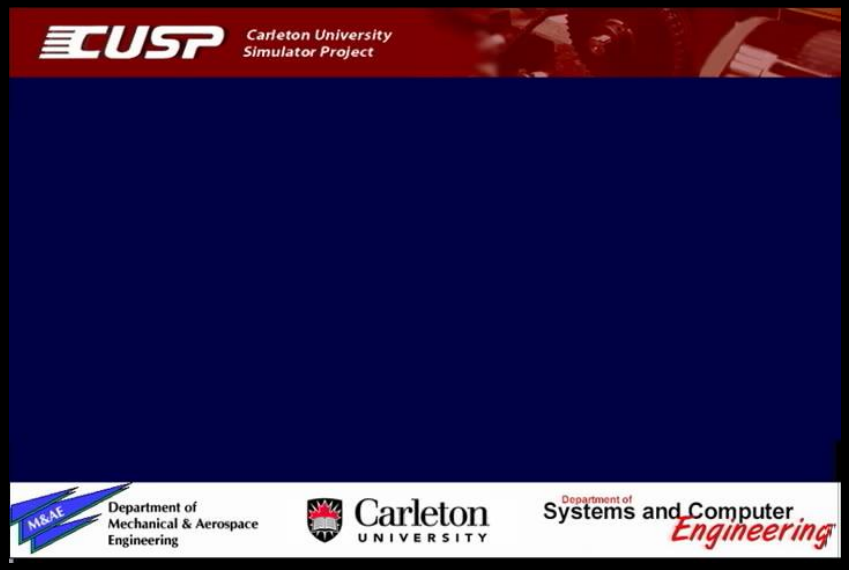
- Jan 15, 2009, made an emergency water landing.
- He stated: Training prompted him to choose ditch near boats to maximize the rescue.
- All 155 occupants safely evacuated
- He had trained for the exact manoeuvre in a training simulator.

CUSP

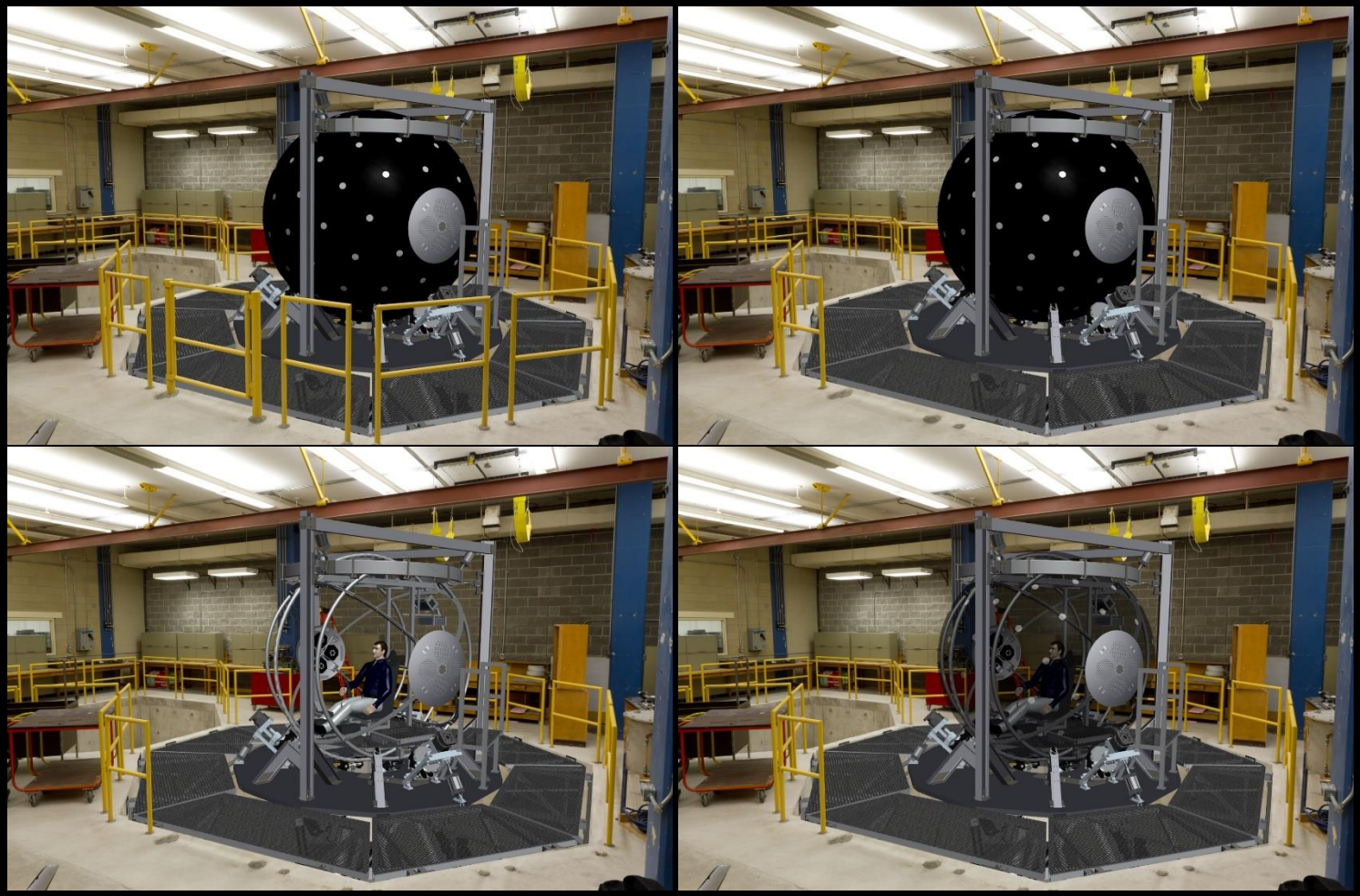
- New vision of flight simulators
- Edge-of-envelope flight training
- You will be the 21st year for the project

A Brief History

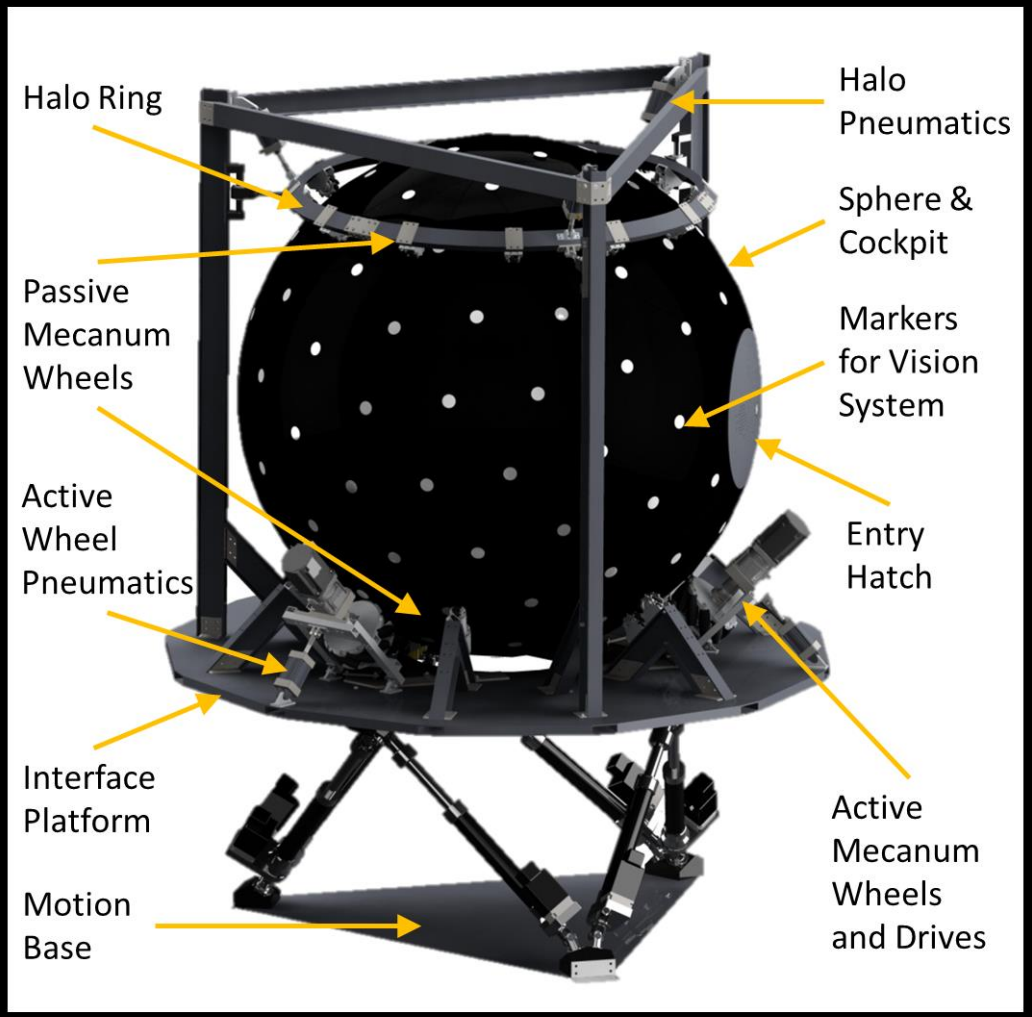


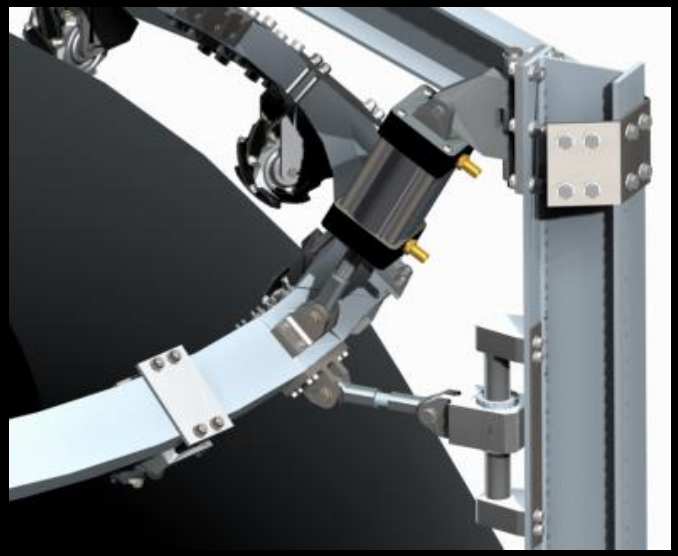


CUSP – Atlas

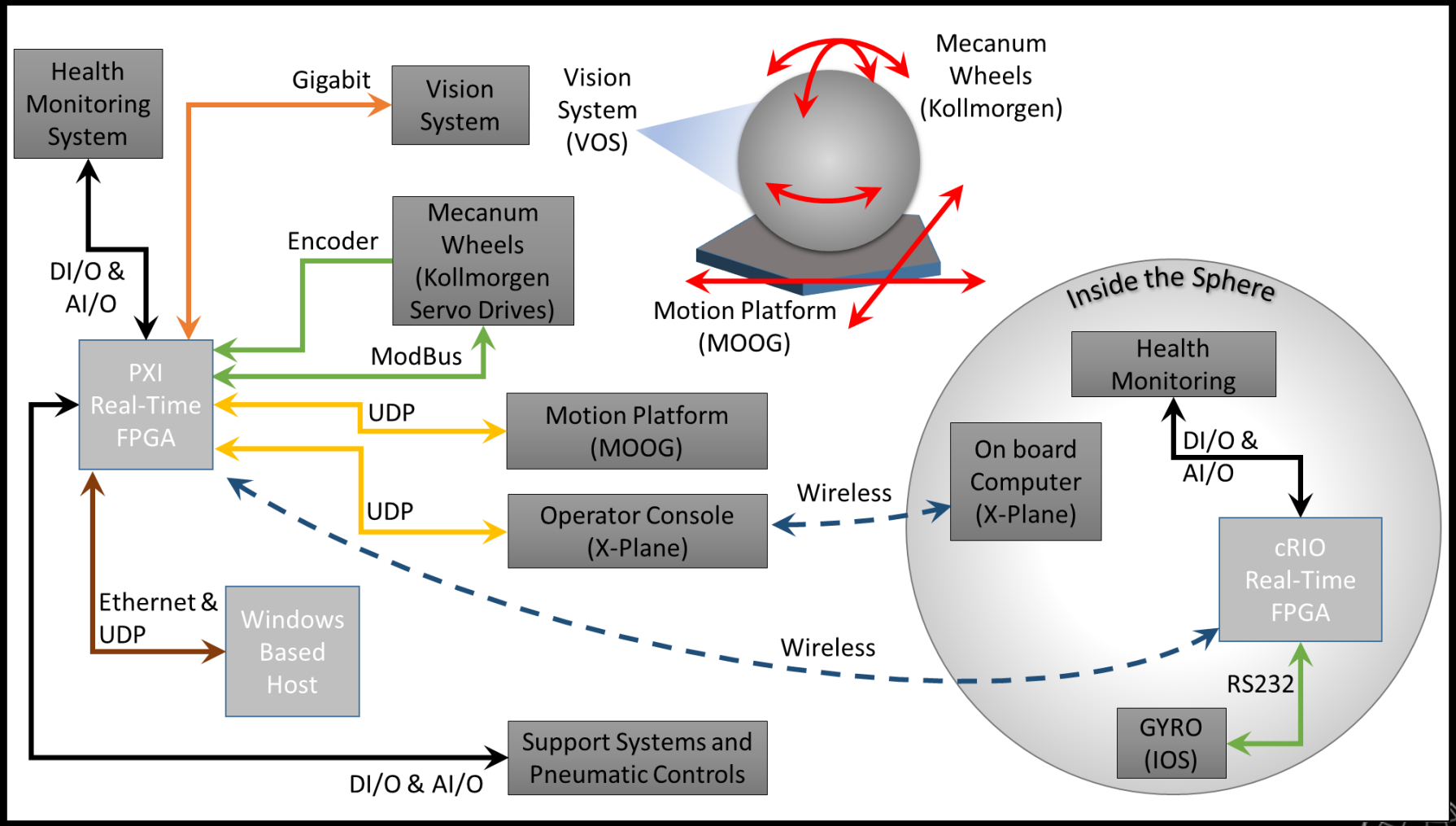


Mechanical Systems





The Systems


Health Monitoring System
Gigabit
Vision System
Vision System (VOS)
Mecanum Wheels (Kollmorgen)
Encoder
Mecanum Wheels (Kollmorgen Servo Drives)
DI/O & AI/O
Motion Platform (MOOG)
ModBus
PXI Real-Time FPGA
UDP
Motion Platform (MOOG)
Inside the Sphere
Health Monitoring
DI/O & AI/O
On board Computer (X-Plane)
Wireless
UDP
Operator Console (X-Plane)
cRIO Real-Time FPGA
Ethernet & UDP
Windows Based Host
Wireless
RS232
GYRO (IOS)
Support Systems and Pneumatic Controls
DI/O & AI/O

Tasks

- Structural Reinforcements
- Component Improvements
- Vibration and Stress Testing
- Pneumatic Systems
- Dynamic Modelling
- Cockpit Design & Interface
- Safety Systems
- Human Machine Interface
- Electrical Interfaces & Sensors
- Vision Systems
- Operational modes
- Virtual Reality Integration

FULL SIMULATOR TESTING

Questions?

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