The Art of Networking in Engineering

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Overview

- Influence

- Networking
  - Near-Space Balloon Team
  - ISS EarthKAM
  - 2013 UC San Diego Team Internship Program

- Teamwork

- Diversity

- Lessons from experience/mistakes
Aerospace Engineering?
IT SOUNDS FUN!
LET’S DO IT
Freshman Year

I will just “GO TO CLASS,”
And everything will be fine
Like HIGH SCHOOL

YES! GOT ACCEPTED
Freshman Year

I will just "GO TO CLASS,"
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YES! GOT ACCEPTED
Sophomore Year

Team Projects
Sophomore Year

What am I interested in?
What are the opportunities on campus?
Where can I go to get more information?
Seeking Opportunities

Getting involved in Orgs:

ENVISION 2012
Near-Space Balloon Team

A first step out of the comfort zone

11th Launch, S10 (2012)

Tim Wheeler
Gamer Kesheshe
Julie Narasaki
Team Background - Launch

Why Near Space Ballooning?
- 1% atmospheric pressure
- Temperatures below -60° C
- High ultraviolet radiation

Blood Samples from Mesa Academy Flight (2013)
Team Background - Outreach

SWE Launch (2013)

Triton Day (2012)

Mesa Academy Flight (2013)

G-Force Live (2012)
Projects

Science Fair?

What can I do?
Projects

Science Festival (2012)
Pre-Launch

• Wind Prediction
• Weather Check
• Materials
• Proposal
• Approval
Launch
Post-Launch

Discuss Results

11th Launch, S10 (2012)
Outreach/Networking

My idea is....

Space Day (2013)
Outreach/Networking
ISS EarthKAM

“On Mission”
ISS EarthKAM Background
Orbits Team

Teamwork
Communication

Orbits Propagation

Payloads

Software

Moos

Chiefs
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FIREWALL TEAM

Adam Hall
What is nacelle?
Design Criteria

• Weight Reduction
• Fire Resistance
• Systems Access
• Durability
• Ease of Installation / Removal
• Access (Inspection, etc.)
Brainstorming

CAD

Down selection

Analysis

**Top three main focuses:**
1. Drainage
2. Fire barrier Integrity
3. Compression Load Capability

Final Product combines key features from two down-selected concepts
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DESIGNING

CATIA

REQUIREMENTS

VOC

TESTS
Stress Analysis
Margin of Safety: HIGH
for 3 different metals

The proposed design is safe under critical loading with potential for significant weight decrease.
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**SOLUTION/RESULT**

**Buckling!**

**FEA in high temp**
Stress Analysis 2
Margin of Safety: HIGH
for 2 different metals
Benefits:

- More space
- Easy access to the engine systems
- Potential of increasing fire and leakage protection
- Improved drain paths
- Fewer components in the lower bifurcation area.
Outreach/Networking
Guidance to the next level of Professionalism
LESSON 1

GET OUT OF THE COMFORT ZONE!
SPEND TIME!
LESSON 2

COMMUNICATE WELL!
LESSON 3

KNOW YOUR CURRENT LIMIT
LESSON 4

HELP OTHERS AND ASK FOR HELP
PAY ATTENTION IN CLASSES
MANAGE YOUR TIME WELL!
BE ORGANIZED!
LESSON 7

JUST DO IT!
HAVE CONFIDENCE!

YOUR VOICE COUNTS!
LESSON 9

DO NOT GIVE UP!

AS LONG AS YOU CONTINUE TO GO FORWARD, YOU WILL EVENTUALLY ACHIEVE YOUR GOALS.
Questions?