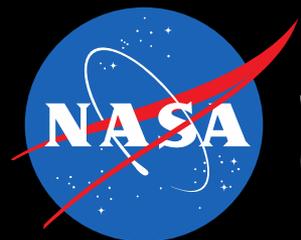


Strandbeests on Venus



Jonathan Sauder, Evan Hilgemann, Jessie Kawata,
Katie Stack, Aaron Parness, Michael Johnson

COFES
Scottsdale, AZ 4/8/17



Jet Propulsion Laboratory
California Institute of Technology



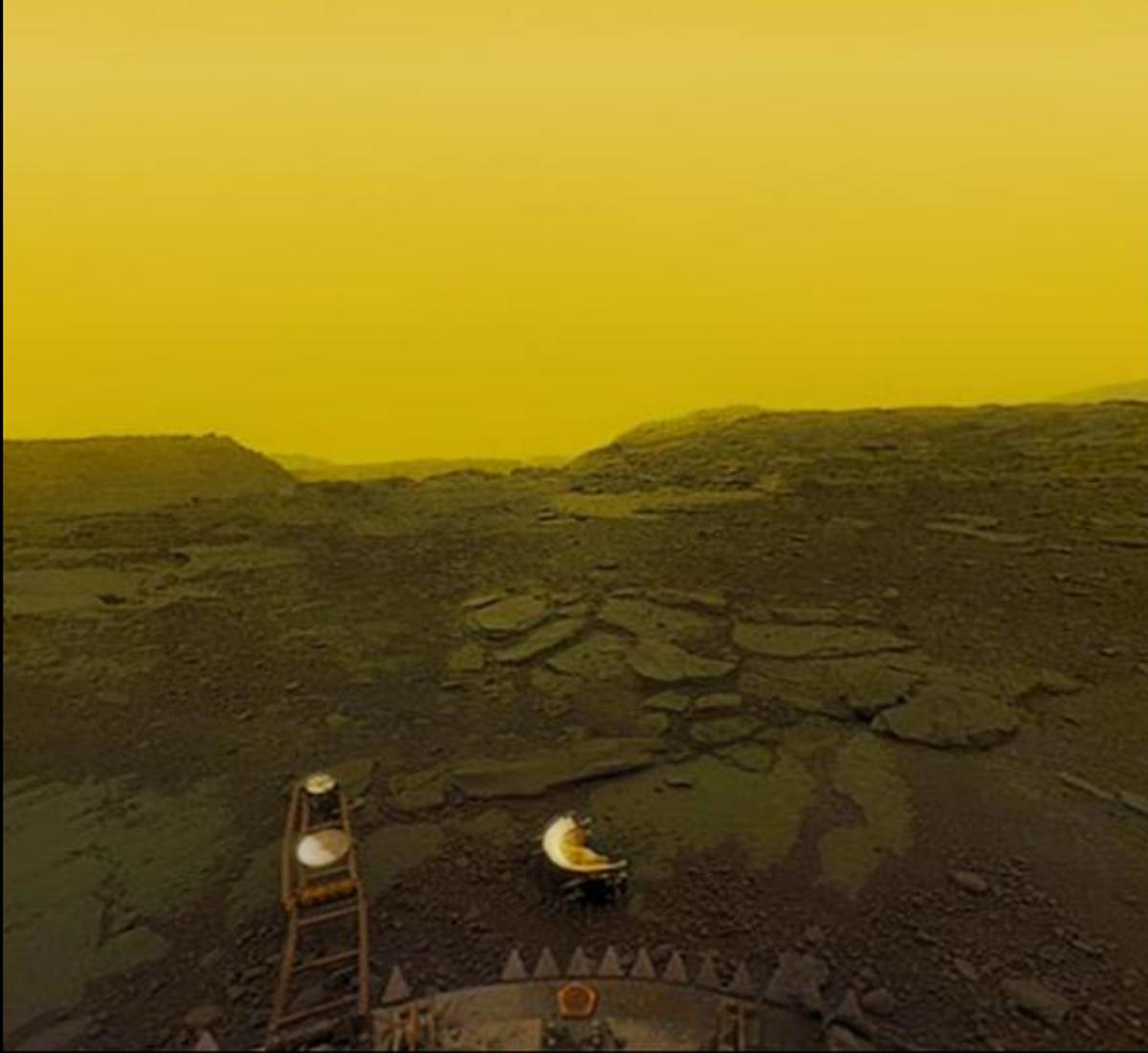
Challenges when Operating on Venus's Surface:

Up to 100 G entry load

Descending through sulfuric acid atmosphere

90x Earths Pressure

Surface temperature of 460°C



*Image: Soviet Space Agency
Additional processing
Don P. Mitchell and
wanderingospace.net*

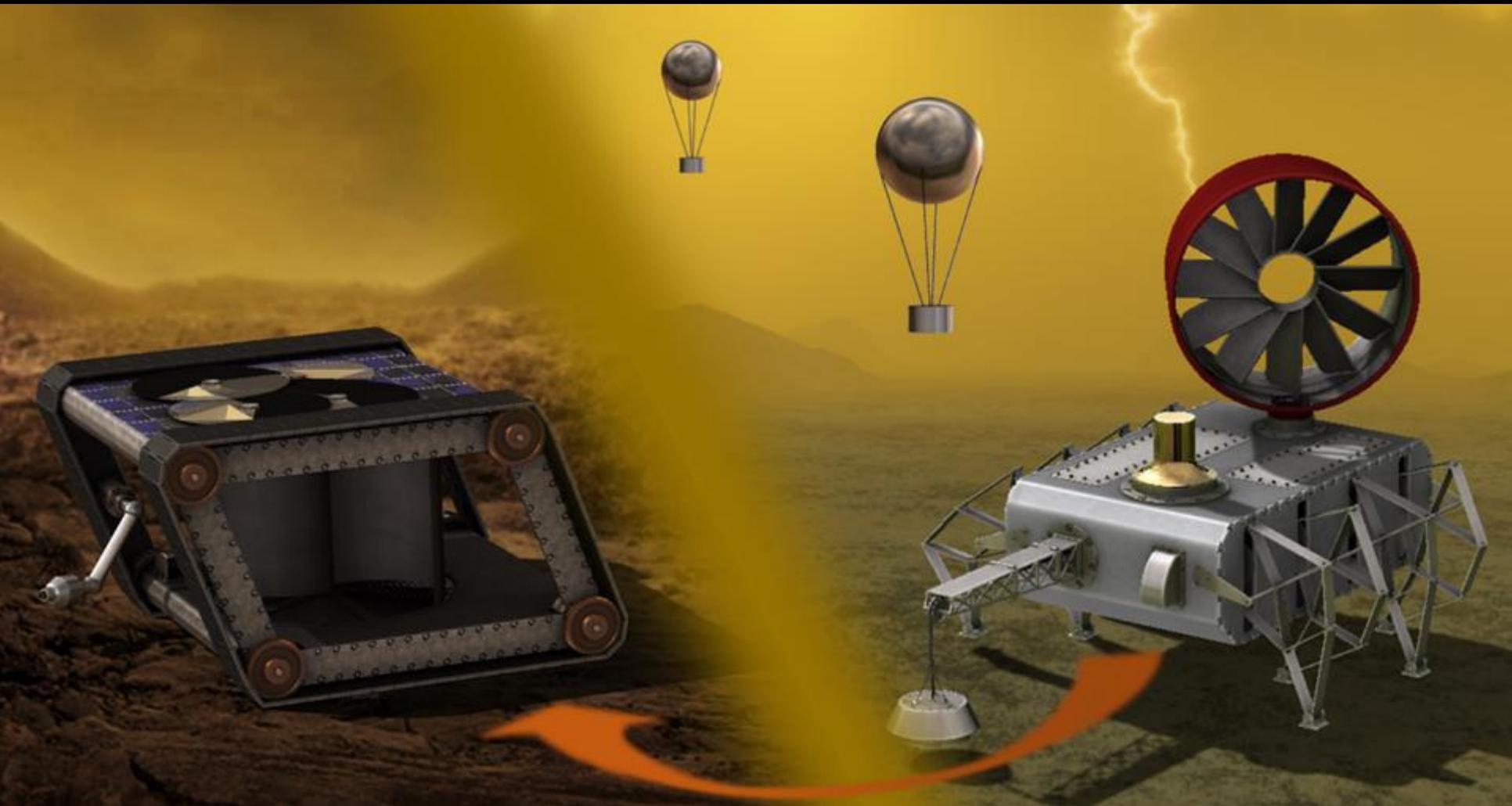
Mechanical Computing

An Inspiring Idea

The Semi-Autonomous Strandbeest Roam Beaches

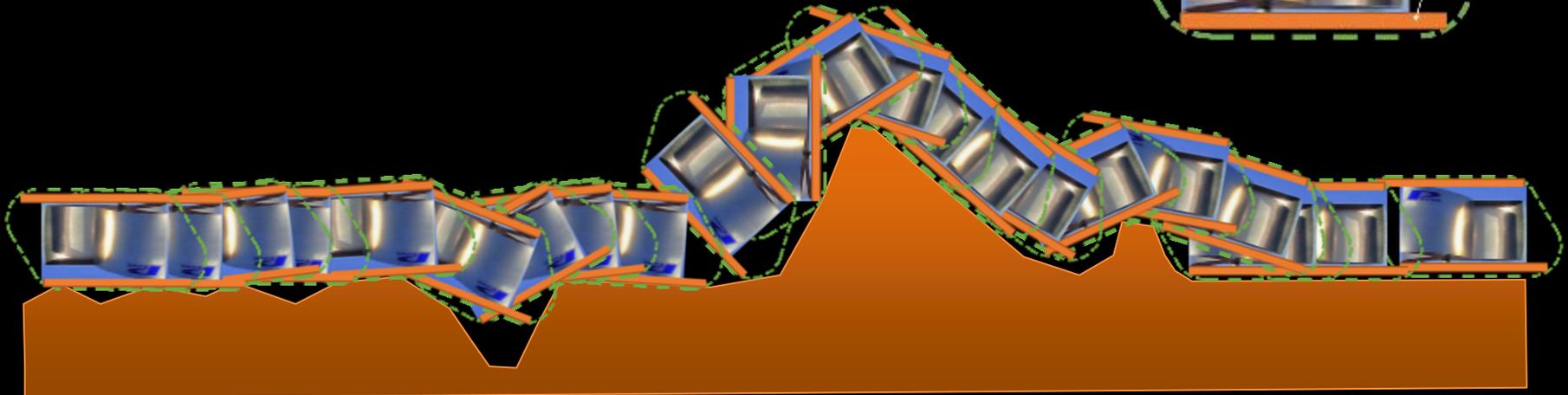
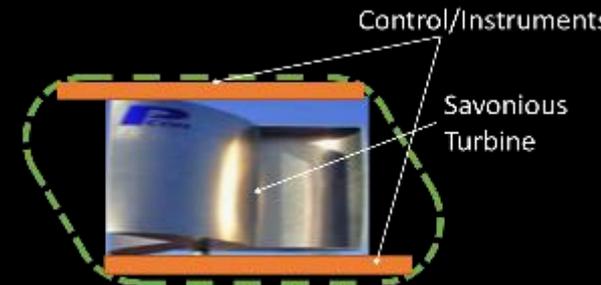
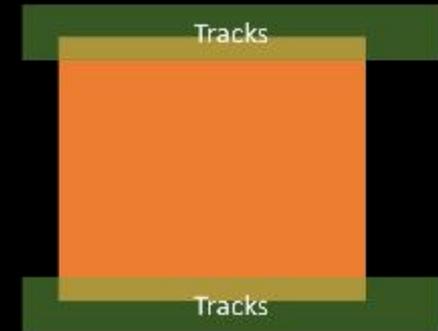






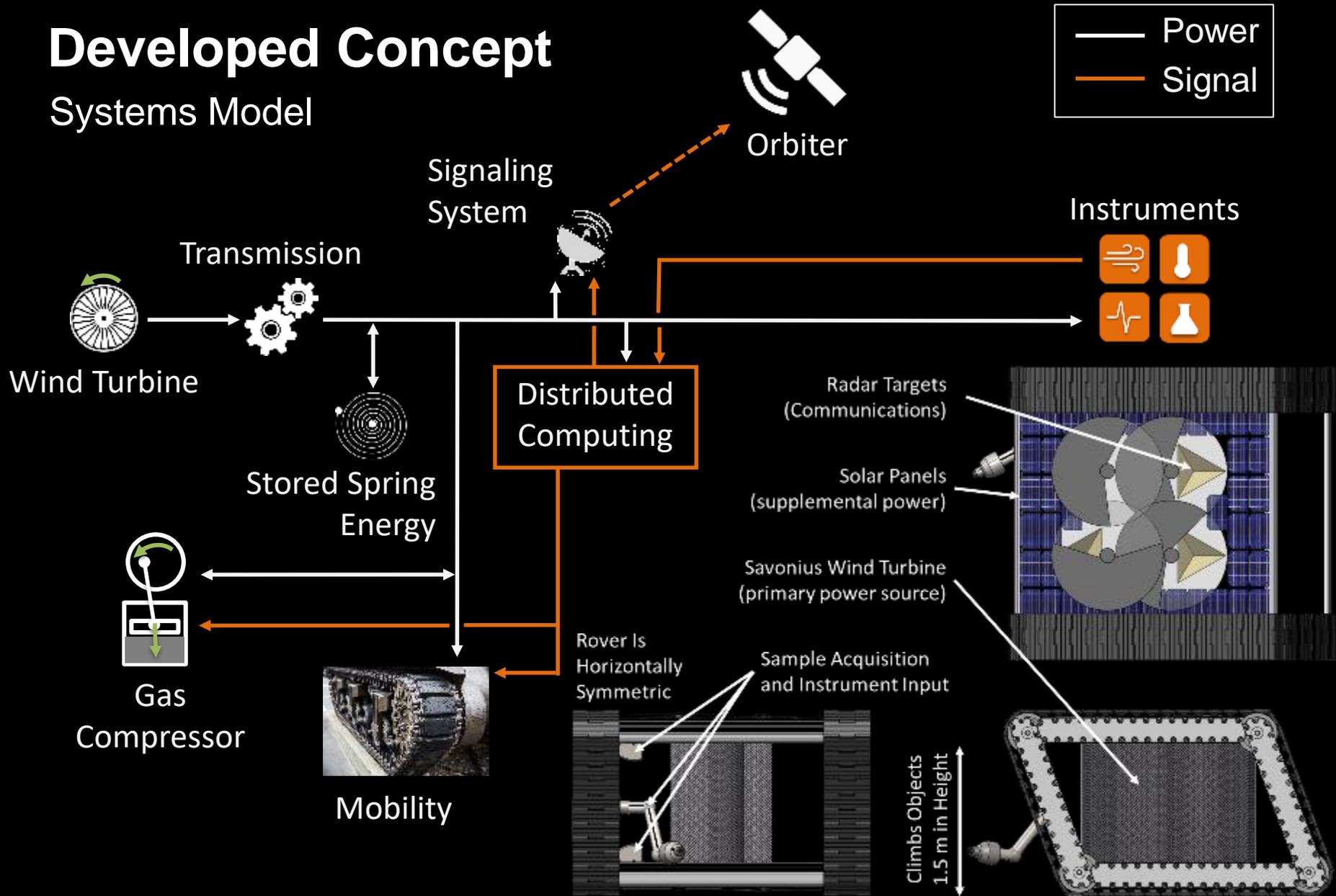
Locomotion System Design

Ability to Climb Large Objects and Operate Independently of Orientation



Developed Concept

Systems Model



Robotic Architecture

Traditional Centralized Model

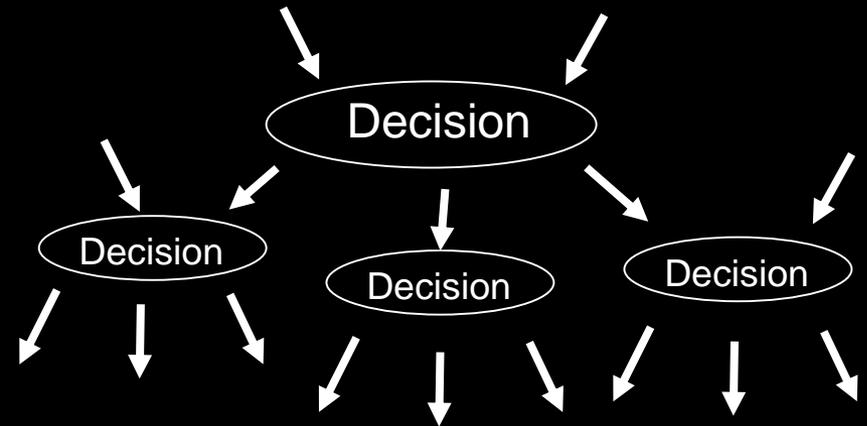
Impractical to Recreate
Mechanical Equivalent of
Circuits



Distributed Model

Many simple rules = complex behavior

Many basic distributed mechanisms
= complex behavior

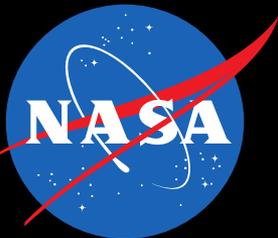


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