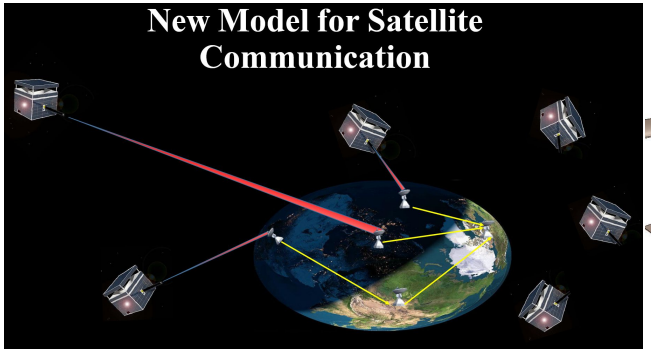

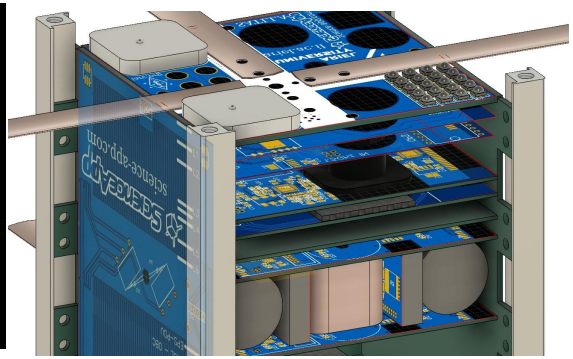

Introduction to New Space

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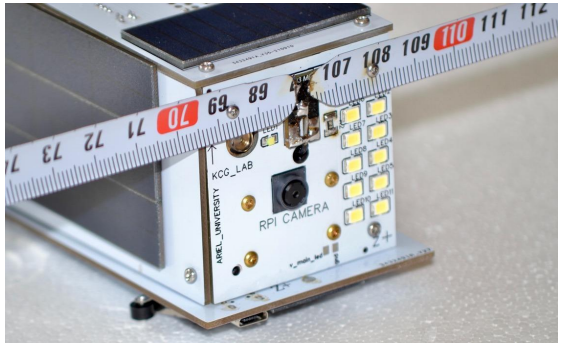
Intro to NewSpace

ARIEL UNIVERSITY

- Course Goal: get to know the new-space engineering field: theory + practice.
- Course Structure: PBL (Project Based Learning): working in class, 3 assignments + 1 course project (small groups).
- Course Plane: we are going to design, construct, and build a pico-satellite + perform several experiments
- Course lab: we got you covered: all hardware is waiting for you.
- https://github.com/kcglab/satllazero
- Class Material: YouTube, WWW, Any LLM
- • Get to know: CS, IEEE? Python, java, Matlab?



Let's Start with Physics 101

- Let’s Start: We work in meters, seconds, k”g, GPS (Lat, Lon, Alt):
- Earth: 6371 k”m radius, 1g, Atmosphere:
  - https://en.wikipedia.org/wiki/Barometer
  - https://en.wikipedia.org/wiki/Escape_velocity
  - https://en.wikipedia.org/wiki/Low_Earth_orbit
  - Let’s look at NASA, ISS:
  - Mars project: old, new, ingenuity,

New Space is multidiscipline by nature

Let's look at SpaceX (Starlink):

- https://www.youtube.com/watch?v=sX1Y2JMK6g8
- https://www.youtube.com/watch?v=AfWFGJMTSqw
- https://www.youtube.com/watch?v=m05abdGSOxY&t=300s
- Space is hard:
- https://www.youtube.com/watch?v=7JznGulxaEk
- https://www.bugsnag.com/blog/bug-day-ariane-5-disaster
- https://www.youtube.com/watch?v=5tJPXYA0Nec
- https://www.youtube.com/watch?v=_YYGHhHmNtQ

Ex0 – Simulating “Bereshit”s landing

Let’s start (PBL: Project Based Learning):

- Landing simulation: allowing “soft landing”, with a non-empty tank.
- Start by going over the available technical material
- Explain the error causing the crash – from a technical point of view.
- Simulate a proper landing.
- Write a technical report covering your simulation: Ex0