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College & Department: College of Engineering, Electrical engineering

Research interests/project:

Cape satellite project

Scroll down to learn more about the CAPE project here.

Who We Are

Majors include:

- ❑ Mechanical Engineering
- ❑ Electrical Engineering
- ❑ Computer Science
- ❑ Mathematics
- ❑ Physics
- ❑ We accept all majors

What are CubeSats?

CubeSats are miniature satellites primarily used for research in Low Earth Orbit (160 – 2000 km). They are classified by size (1 Unit = 10 cm x 10 cm x 10 cm). Industry also develops CubeSats to have a less expensive way into space.

MISSION STATEMENT

The goal of this program is to give students at the University of Louisiana at Lafayette the opportunity to research, design, develop, and maintain a low earth orbiting satellite.

UNIVERSITY of LOUISIANA LAFAYETTE

GET INVOLVED

- ❑ **Visit the lab!** Madison Hall 146
- ❑ **Email:** CAPE@louisiana.edu
- ❑ **Follow us on Instagram!**
- ❑ **Check out our Youtube channel!** @ulcape

@ULCAPE

C.A.P.E. Cajun Advanced Picosatellite Experiment

WHAT WE DO?

CAPE is a non profit, student led organization which develops and builds picosatellites, along with a host of other aerospace and mission related systems, such as weather balloons and sensor buoys.

Picosatellite-very small satellite

How Does C.A.P.E. Function?

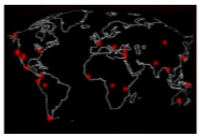
- C.A.P.E. is primarily student run
- C.A.P.E. members are volunteers
- C.A.P.E. has community support from sponsors; which include NASA, BlackHawk DataCom, Pelican Engineering, Pugh Family Foundation, and others

HISTORY

- C.A.P.E. 1 - Launched in 2007 from the Baikonur Cosmodrome in Kazakhstan
- C.A.P.E. 2 - Launched in 2013 from Wallops Flight Facility in Wallops, VA
- C.A.P.E. 3 - Launched in 2021 on Virgin Orbiter through NASA's ELaNa program.
- C.A.P.E 4 - In development, tentative launch between 2025 and 2027.
- Launched 6 Weather Balloon Projects from 2004-2015 with 2 in development today.

Experimental Smartphone Ground Station Grid

This is the first attempt at a ground station network of its kind also known as ESG Grid. The ESG Grid is an Android smartphone and PC controlled ground station network controlled by a distributed computing system that allows many stations worldwide to coordinate efforts of communication with satellites.



ARMOR2

Astronaut-wearable Radiation Meter for Operation in potential Radiation is an experiment designed by Dr. Andy Hollerman. This is a cheap way to do radiation detection and testing technology on the satellite. Applicable in the following:

- Astronaut space suits
- Hazardous environments
- Nuclear security

C.A.P.E 4 Subsystems

Star Tracker

A camera will provide a cheap and simple solution to taking an image in space. Image distortion correction occurs so the images will be clear. Then, it uses stars to extrapolate the celestial coordinates of the satellite.

Attitude Control System

The attitude system will be our way of pointing the satellite in any direction. This system will allow us to aim the Star Tracker and point the radio for better communications opportunities. It will consist of three magnetorquers which are electromagnets that align with earth's magnetic field. It will also have reaction wheels which are used to create torque in the third dimension.