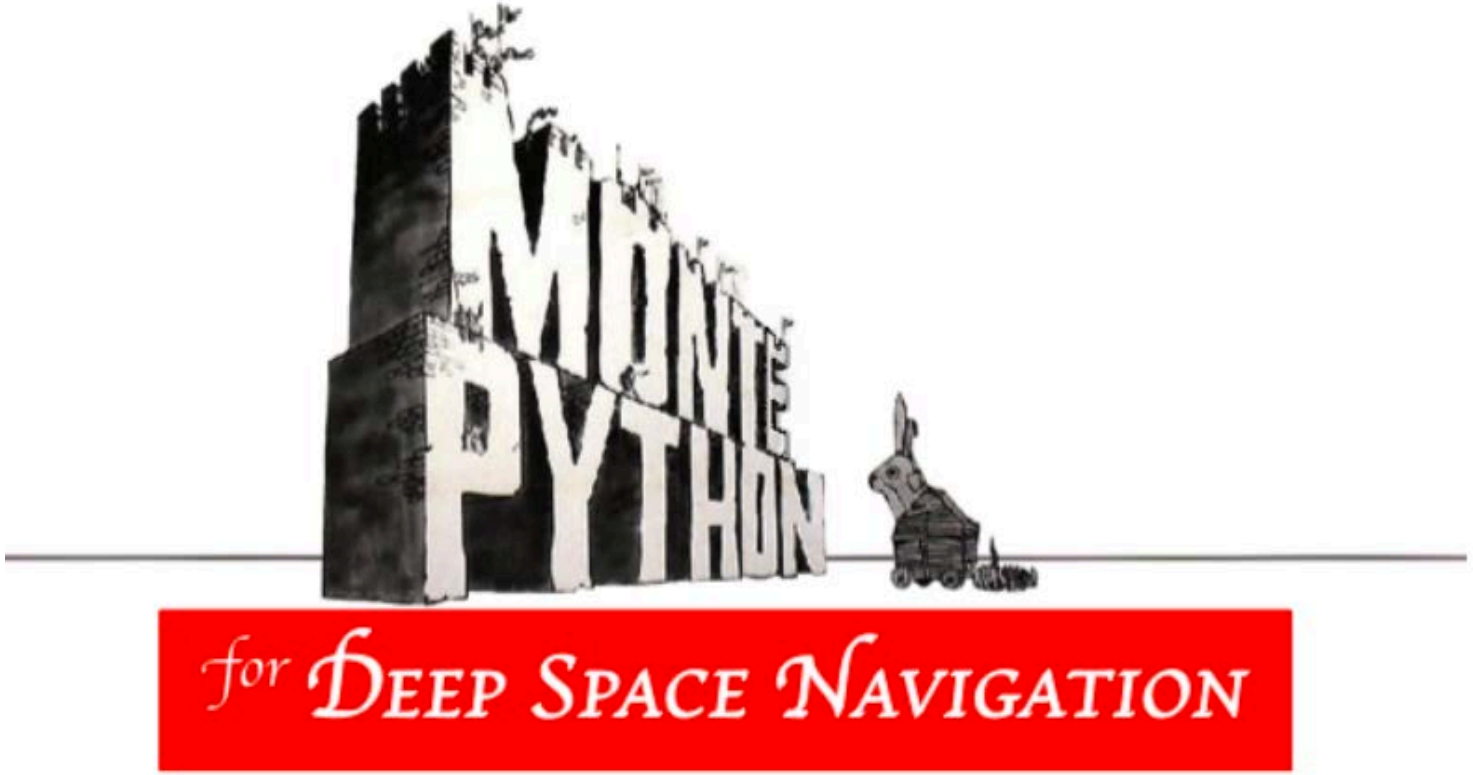

or ASTRODYNAMIC COMPUTING with MONTE

Jonathon Smith
Mission Design & Navigation Section
7/14/2016

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1. You've already seen what MONTE can do.
2. MONTE is a new pillar in the Python computing stack.
3. MONTE is a platform on which the aerospace community can grow.

1

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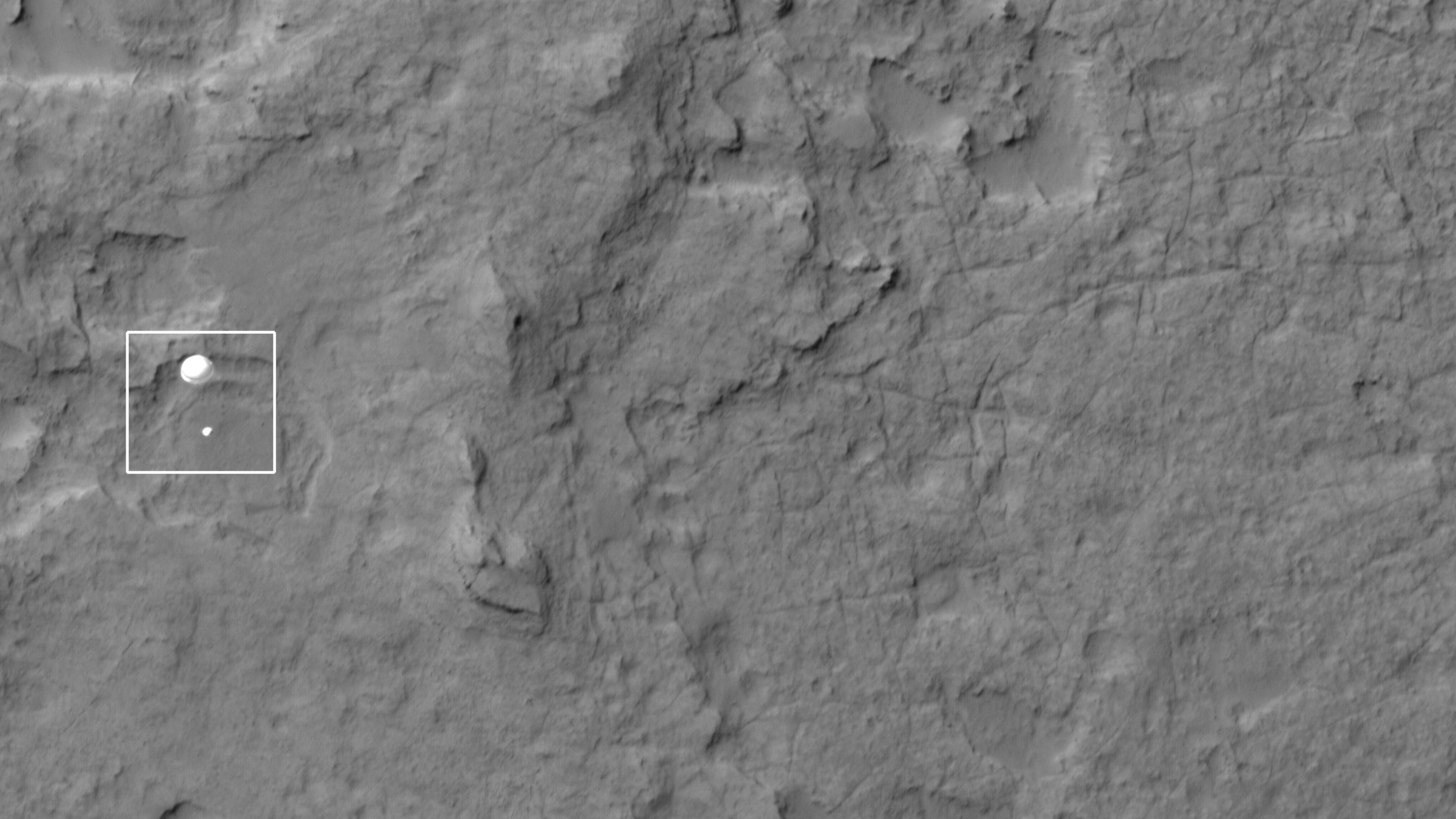
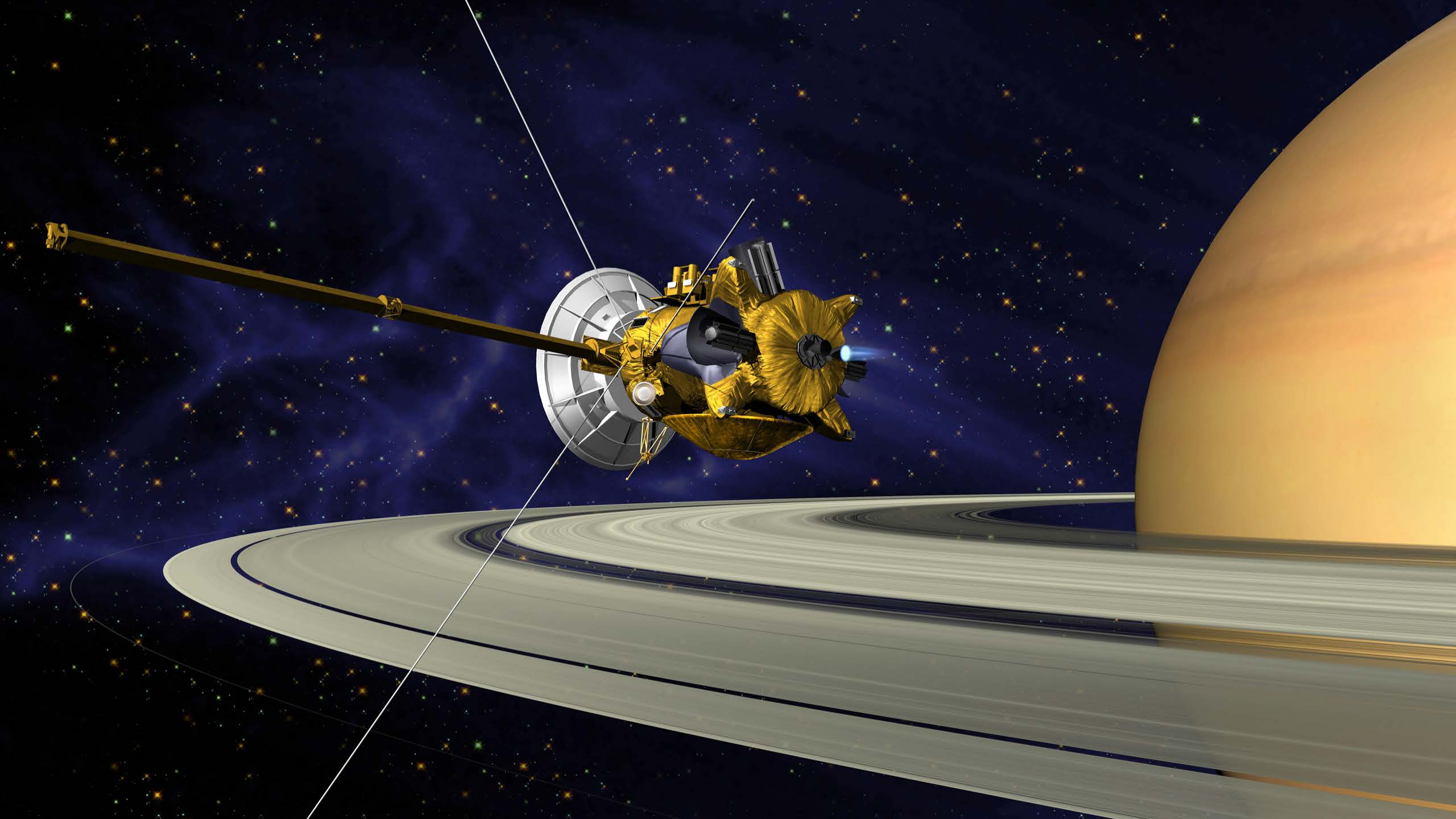


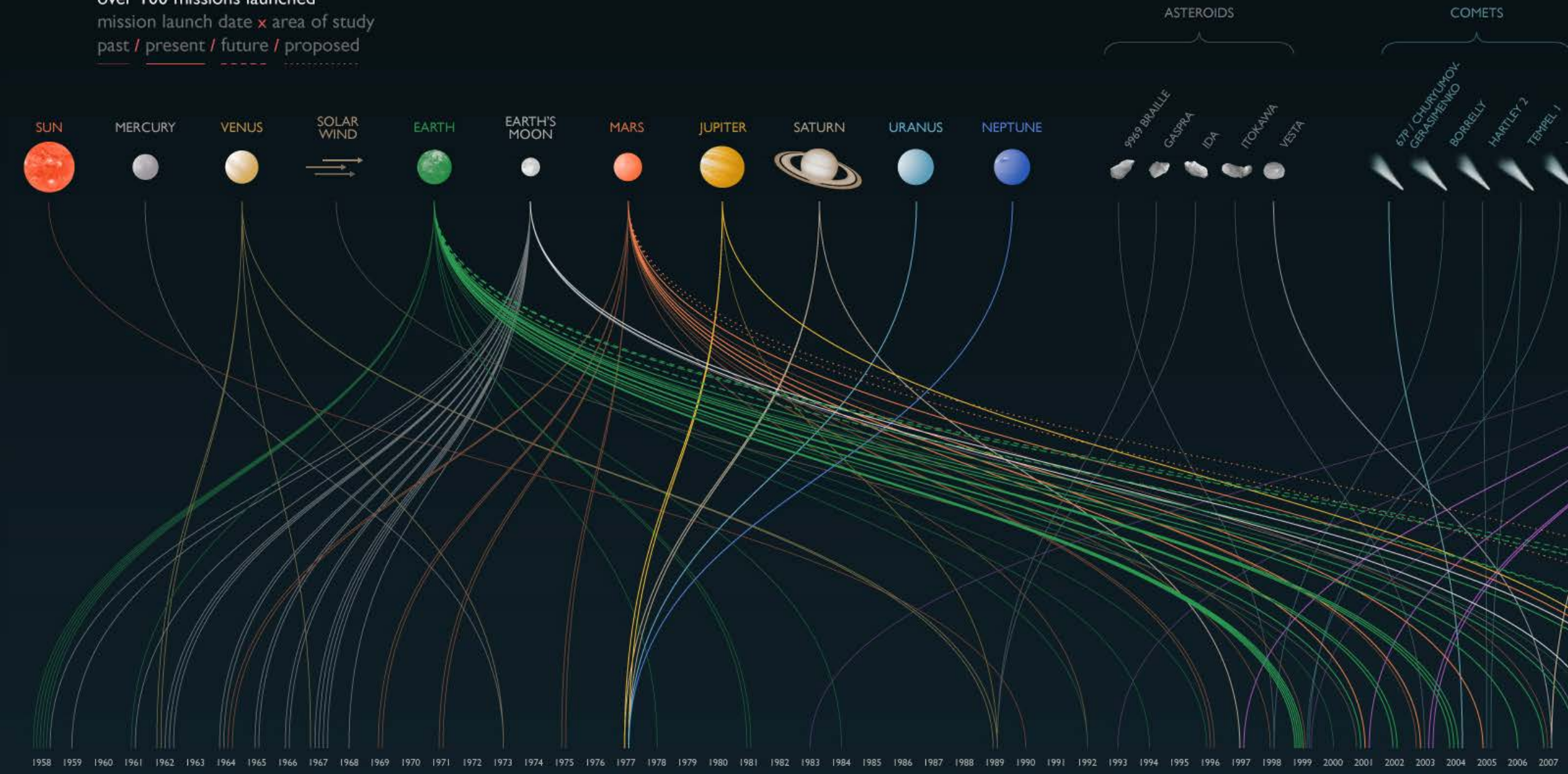


JPL MISSION HISTORY

over 100 missions launched

mission launch date x area of study

past / present / future / proposed



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scikit-learn *for machine learning*
scikit-bio *for bioinformatics*
pandas *for data analysis*
statsmodels *for statistical analysis*
astropy *for astronomy*
scikit-image *for image processing*
…
MONTE *for astrodynamics*

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astrodynamics is the study of how man-made objects move through space.

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MISSION ANALYSIS
OPERATIONS &
NAVIGATION
TOOLKIT
ENVIRONMENT

MONTE allows you to *define astrodynamic problems* in Python.

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trajectory design and optimization is planning where you want to go

orbit determination is figuring out where you actually are

flight path control is getting back on track if you wander off course

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Do you use astrodynamic calculations or modeling in your current workflow?

Would you like to?

Do you interface with anyone who does?

MONTE may be for you.

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Let MONTE handle your astrodynamic infrastructure.

Focus on the problem at hand.

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Q: Does MONTE have a sensor coverage module?

A: No, but it would be a great platform to use in building your own coverage module.

Q: But why would I do that if *ProgramXYZ* already has one?!

A: Well, MONTE has you 80% of the way there already. By programming up the remaining 20%, you will have full control of your code and you will also be able to grow it in new and exciting ways using Python!

Q: Well that does sound goo…

A: Wait, I'm not done yet! You will be able to share your code with other MONTE users across the aerospace community and benefit from their research and development. Plus you will be speaking the language of JPL, a world leader in astrodynamics...

Q: Ok, ok, you had me at Python. Sign me up!

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MONTE is *not* available for free and open download.

It **is** available for research and commercial licensing.

Visit montepy.jpl.nasa.gov for more information.

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Spread the word and lets bring Python to the aerospace community!

Questions?

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