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A musical duet from the edge of our solar system

Since being launched in 1977, NASA's Voyager 1 and 2 probes have been on an epic journey to the very edge of our solar system. Now, Domenico Vicinanza has harnessed the power of grid computing to create an uptempo piece of classical music from the data collected by the probes.
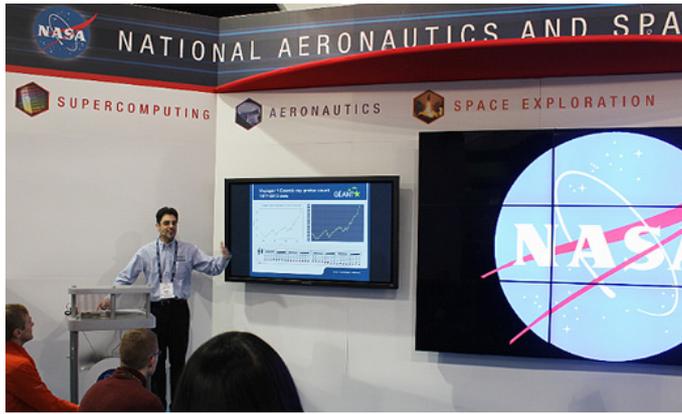
*Domenico Vicinanza presenting at SC 13 in Denver,
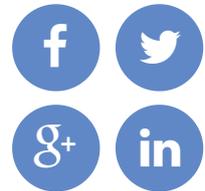Colorado. Image courtesy GÉANT.*

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and 2 probes have been on an epic journey to the
very edge of our solar system. Now, Domenico
Vicinanza has harnessed the power of grid
computing to create an uptempo piece of classical
music from the data collected by the probes.

Vicinanza is network services product manager at
GÉANT, the pan-European research and education
network, which has over 50 million users at 10,000
institutions across the continent. As a trained
musician, Vicinanza also takes the role of arts and
humanities manager at GÉANT. He has previously
created music using data from the Voyager 1 probe,
CERN's Large Hadron Collider, brain scans, and
even volcanoes!

To compose the Voyager duet, Vicinanza first
selected 320,000 measurements from each probe,
at one hour intervals. Then, following some
'conversion' of the data, he was able to use the
European Grid Infrastructure (EGI) to create the
duet live at the NASA booth at SC13 in Denver,

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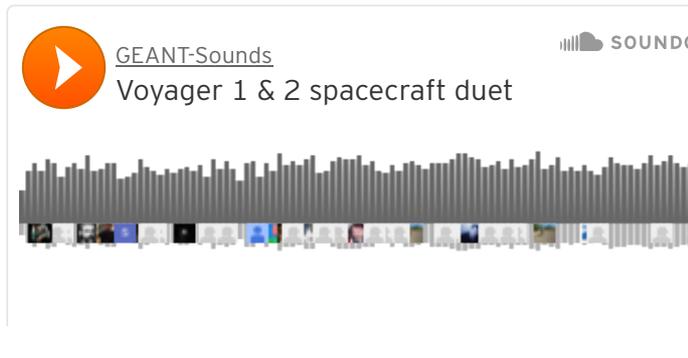| arts. sonification |
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Colarado, US, with GÉANT's superfast network being used to transfer data to/from NASA.

"I used

Take a listen for yourself! Music courtesy GÉANT/Domenico Vicinanza.

different groups of instruments and different sound textures to represent the two spacecrafts, synchronising the measurements taken at the same time," explains Vicinanza. "I wanted to compose a musical piece celebrating the Voyager 1 and 2 together, so used the same measurements (proton counts from the cosmic ray detector over the last 37 years) from both spacecrafts, at the exactly same point of time, but at several billions of kilometers of distance one from the other."

Of course, such 'data sonification' isn't just about producing interesting music, or even communicating or educating people about science. It can also have important uses in a wide variety of research fields: "Analysing the melody is exactly the same as looking at data in a spreadsheet, but using the ear," says Vicinanza." The information content is exactly the same: represented by regularities, patterns, changes, trends and peaks. In fact, data sonification makes it possible to get information

about long-range regularities and correlations that
are hard to spot just by inspection."

- Andrew Purcell

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