



# NVIDIA GPU Plays Instrumental Role in Discovery of New Pulsar

## Details of Discovery Revealed as Einstein@Home Project Releases New CUDA GPU-Optimized Version Delivering 20X Boost in Performance

SANTA CLARA, CA -- A [computing enthusiast](#) in the U.K., equipped with an NVIDIA® CUDA®-enabled GPU, has been involved in the discovery of a new pulsar, as part of the worldwide "volunteer distributed-computing" project known as [Einstein@Home](#).

The pulsar, originally discovered in July 2010, is identified as PSR J1952+2630. It measures about 15 kilometers in diameter and is located more than 30,000 light years from Earth, where it orbits a companion star that weighs about the same as the Sun. It is hoped that this discovery will enable scientists to learn more about the process of stellar evolution and how matter behaves at very high densities.

The Einstein@Home project uses spare computing power donated by hundreds of thousands of PC users all over the world to search data from gravitational wave detectors and radio telescopes. The newly released version of its software leverages NVIDIA CUDA-enabled GPUs to get a 20X boost in performance -- as a result, just 10% of the GPUs that connect to the project daily could deliver the equivalent processing power of all the contributing CPUs.

More than two million machines have been signed up to participate in Einstein@Home since its launch in 2005, and some 100,000 systems contact the servers each week. If the computational power generated by the project were counted as a single system, it would be ranked among the 20 fastest supercomputers in the world.

The creation of project director, Prof. Bruce Allen, who is also director of the Max Planck Institute of Gravitational Physics, in Hannover, Germany, Einstein@Home is considered by many to be one of the most important, and most efficient, scientific experiments in the world.

"The growing importance of GPUs in Einstein@Home has radio astronomers enormously excited. They are enabling us to analyze, in one month, data that would have taken conventional processors a year to work through," said Allen. "It's a dramatic change and eventually I could imagine that GPUs will contribute around 90% of the project's computational science with CPUs contributing the remainder."

A paper titled: "Arecibo PALFA Survey and Einstein@Home: Binary Pulsar Discovery By Volunteer Computing" was released last night and can be found [here](#). For more general information on the Einstein@Home project, please go [here](#) and for more information regarding general purpose computing on NVIDIA GPUs, please go [here](#).

### About NVIDIA

NVIDIA (NASDAQ: NVDA) awakened the world to the power of computer graphics when it invented the GPU in 1999. Since then, it has consistently set new standards in visual computing with breathtaking, interactive graphics available on devices ranging from tablets and portable media players to notebooks and workstations. NVIDIA's expertise in programmable GPUs has led to breakthroughs in parallel processing which make supercomputing inexpensive and widely accessible. The Company holds more than 1,700 patents worldwide, including ones covering designs and insights that are essential to modern computing. For more information, see [www.nvidia.com](http://www.nvidia.com).

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Hector Marinez  
Corporate Communications  
+1-408-486-3443  
[hmarinez@nvidia.com](mailto:hmarinez@nvidia.com)  
Andrew Humber  
NVIDIA  
+1-408-486-8138  
[ahumber@nvidia.com](mailto:ahumber@nvidia.com)