Astronomers have discovered 62 new moons orbiting the ringed planet Saturn.

The satellite haul brings the planet's total number of moons to over 100 and also means the gas giant takes back the crown as the solar system's "moon king" from Jupiter.

Prior to this discovery, Saturn had 83 moons recognized by the International Astronomical Union, so the new batch brings the total number to an incredible 145. The discovery marks another milestone for Saturn, with the planet becoming the first world in the cosmos known to be orbited by more than 100 moons.  
  
The new moons were discovered by a team led by Edward Ashton, a postdoctoral fellow at the Academia Sinica Institute of Astronomy and Astrophysics, who used a technique called "shift and stack" to find these smaller and fainter moons around Saturn.

The technique uses a set of images shifting at the same speed at which a moon moves through the sky to enhance the signal from that moon. Moons that are too faint to be seen in single images can reveal themselves in the resultant "stacked image."

Astronomers have used this method to search for moons around the ice giants Neptune and Uranus, but this is the first time it has been applied to the solar system's second-largest planet, Saturn.

The data used by the team was collected between 2019 and 2021 in three-hour spans by the Canada-France-Hawaii Telescope (CFHT) on top of Maunakea in Hawaii. It allowed the astronomers to detect moons around Saturn as small as 1.6 miles (2.5 kilometers) in diameter. That's about two-thirds the length of Hollywood's Walk of Fame.

Though some of the moons had been spotted as early as 2019, it takes more than sighting an object close to a planet to confirm it is a moon and not an asteroid making a brief close passage to that planet. To change these objects from "suspected moons" to "confirmed moons" of Saturn, the astronomers had to track them for several years to ensure each is actually orbiting the gas giant.

Performing a painstaking process of matching objects detected on different nights over the course of 24 months, the team tracked 63 objects that they ended up confirming as moons. One of these satellites was revealed back in 2021, with the remaining 62 moons gradually announced over the past few weeks.

"Tracking these moons makes me recall playing the kid's game Dot-to-Dot, because we have to connect the various appearances of these moons in our data with a viable orbit," Ashton said in a statement. "But with about 100 different games on the same page, and you don't know which dot belongs to which puzzle."