Spot for select customers, Atlas on gymnastic high

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Atlas, you're killing us. Head stands and somersaults weren't enough to drop our jaws; now you raised the bar with your ballet twists and in-air leg splits. Can't believe you are a machine but that much we need to accept.

As the company owners put it, "Atlas is a research platform designed to

push the limits of whole-body mobility." It now can show the world in a video that it has reached human-level agility. Atlas has 28 hydraulic joints.

The video "More Parkour Atlas" was released on Tuesday by Boston Dynamics. "Atlas uses its whole body—legs, arms, torso—to perform a sequence of dynamic maneuvers that form a gymnastic routine," the video notes said.

Also, "Atlas uses 3D printed parts to give it the strength-to-weight ratio necessary for leaps and somersaults."

How did Atlas' handlers pull these moves off? These are new techniques. They have a practical payoff of streamlining the development process. "First, an optimization algorithm transforms high-level descriptions of each maneuver into dynamically-feasible reference motions. Then Atlas tracks the motions using a model predictive controller that smoothly blends from one maneuver to the next."

The main draw for Jon Porter in *The Verge* wasn't even the moves but "seeing Atlas tie all these moves together into one pretty cohesive routine." That is where that "model predictive controller" comes in; it is used to blend from one maneuver to the next.

The team appeared happy with the fact that their approach with the hamming Atlas went faster. They said that "we developed the routine significantly faster than previous Atlas routines, with a performance success rate of about 80 percent."

Tuesday marked another star performance from the dog-like quadruped, Spot. This is the robot that Boston Dynamics promotes as easily customizable for a number of different applications. The company's video notes pointed out that "You can customize Spot by adding

specialized sensors, software and other payloads."

The Verge's Russell Brandom went further in explaining how a customer could suit up Spot to fit their specific needs. "The Spot can also carry up to four hardware modules on its back, giving companies a way to swap in whatever skills the robot needs for this particular job. If it's checking for gas leaks, you can build in a methane detector. If you need connectivity over longer distances, you can attach a mesh radio module."

Customers can see how Spot performs as a construction site monitor, or gas oil and power inspector, for example.

Any takers? The company reported that early testers are looking at it. The company said it is even shipping currently to select early adopters and is in production. Actually, Russell Brandom, *The Verge*, let its readers in on what Spot potentially looks and behaves like in a customer scenario.

"During our tests, we were instructed to stay two meters away from the Spot to keep from being pinched by its joints. We also gave it a wide berth when it was climbing stairs to make sure no one would be hurt if it lost its balance and fell. Both measures seemed to be more about Boston Dynamics being careful rather than the Spot being hazardous, but it's a reminder that the robot simply wasn't designed to interact with humans. For now, Boston Dynamics is focusing on uses in closed and controlled spaces."

Andrew Liszewski in *Gizmodo*: "Boston Dynamics has finally made its Spot robotic dog available for sale, but don't expect to find a great Black Friday deal on this bot at Best Buy come Thanksgiving." The company has made them available to those businesses that can promise an interesting application for the technology.

Details: Spot has a programmable AI, cameras that enable 360-degree obstacle avoidance, swappable battery, carries up to 30 pounds and self-rights after falls.