

HUNT THE HUNTER

A combination of machine learning and game theory is being used to fight elephant poaching in Uganda

Ananya Bhattacharya | October 03, 2016



📷 Rescue mission. (Reuters/Hereward Holland)

Africa's wildlife is in a constant state of danger.

Between 2009 and 2015, Tanzania and Mozambique [lost more than half](#) of their elephants, many of them to poaching for [ivory smuggling](#). The decline has propelled [African vulture populations](#), who feed on elephant carcasses, toward extinction too. And

attempts at [curtailing poaching](#) and ivory smuggling haven't helped the dwindling elephant population. In South Africa, rhinos are a [prized poaching target](#) too, for their horns. The attempts to keep poachers at bay having failed, some conservationists have proposed the expensive alternative of [airlifting rhinos](#) away from poaching sites.

Uganda, which remains [“heavily implicated”](#) in the illegal ivory trade according to the monitoring body CITES, is now testing a more direct way to crack down on the illegal hunters before they even get to the animals. Using Protection Assistant for Wildlife Security (PAWS), a technology combining machine learning and game theory, researchers can predict where poachers may attack and tell rangers where to patrol.

“The basic idea is that you have limited resources, you can't be everywhere all the time,” University of Southern California professor Milind Tambe, who's leading the initiative, told Quartz. “Where and when should you do patrol?”

To make their predictions, researchers studied 12 years worth of data collected by rangers, from 2003 to 2015, provided by the Wildlife Conservation Society. These included reports of past attacks, snare placements, and other illegal activities. The data aren't perfect, says Tambe: Rangers don't patrol the entire park, so it's hard to get a complete picture. But it's enough to let a machine learning algorithm make intelligent guesses about where poachers will strike in future.

When creating patrol routes for rangers, “we want to randomize our patrols because we ourselves don't want to become predictable to the poachers,” Tambe said. That's where game theory comes in. It uses mathematical models to evaluate how rational human

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The US Coastguard, Transportation Security Administration (TSA), the Federal Air Marshals Service, LA Sheriff's Department, and other organizations have been using Tambe's AI-game theory combination technology to randomize their patrols since the early 2000s, he says. The concept was tailored for wildlife preservation in 2014 and deployed for testing in Malaysia in mid-2015. The current large-scale Ugandan tests in Queen Elizabeth National Park are backed by US organizations like the National Science Foundation and the Army Research Office.

Rangers using PAWS in Uganda have found 10 antelope traps and elephant snares in the past month, “a far better score card than they could usually expect,” [Reuters reported](#). As robust as the technology might be in theory, factors like poor mobile internet connections can get in the way of communicating the results from PAWS that are used to direct rangers’ routes. And there’s another threat: Armed poachers are quick to [point their guns](#) at the rangers.

SCHOOLED

Trump University taught only one thing: A \$25 million lesson for Donald Trump

[Amy X. Wang](#) | November 18, 2016



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 You're fired. (Reuters/Jonathan Ernst)

Donald Trump [insists](#) that he “never” settles lawsuits, but here we go again. The US president-elect just agreed to [settle](#) the multiple cases against his former for-profit

university for \$25 million. He will also pay up to \$1 million in penalties to the state of New York.

 **Donald J. Trump**
@realDonaldTrump Follow


Trump University has a 98% approval rating. I could have settled but won't out of principle!

2:48 PM - 29 Feb 2016

6,559 11,720

Taking up the most recent spot on the [long list](#) of Trump’s legal tumults, the [suits against Trump University](#)—in which former students alleged that the school failed to deliver on its promises of a quality real-estate education—aren’t particularly noticeable for their price tag, but rather their timing.

The class-action suits were originally slated to go to court in the period between Election Day and Trump’s inauguration, so in all probability, it was the awkward idea of swearing in a president in the midst of a trial for fraud that pressed Trump’s legal team into agreeing to a settlement in the first place.

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[#Breaking](#): N.Y. attorney general announces \$25 million settlement in Trump University lawsuit

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Statement By A.G. Schneiderman On \$25 Million Settlement Agreement Reached In Trump University Case

NEW YORK – Attorney General Eric T. Schneiderman issued the following statement on the \$25 million settlement agreement reached in Trump University case:

In 2013, my office sued Donald Trump for swindling thousands of innocent Americans out of millions of dollars through a scheme known as Trump University. Donald Trump fought us

525 371

“Donald Trump fought us every step of the way, filing baseless charges and fruitless appeals and refusing to settle for even modest amounts of compensation for the victims of his phony university,” New York state attorney general Eric Schneiderman said.

While \$25 million may not be a big loss for Trump personally, the settlement is yet another blow to the idea of for-profit colleges, which have staggered under the weight of [multiple lawsuits and federal investigations](#) over the past few years. Corinthian Colleges, a chain of 107 campuses across the US, went bankrupt in 2015 after being ordered to pay \$530 million for trapping students into predatory private loans, and the similar group Education Management Corporation was ordered late last year to pay close to \$100 million for enrolling students through illegal means.

Add an education company formerly owned by America’s next president to that list. Called a “fraudulent scheme” that “preyed upon the elderly and uneducated” by some of its [own employees](#), Trump University marketed itself as a jump-starter for lucrative careers. In reality, former students alleged in the lawsuits, the for-profit school [swindled](#) pupils of thousands of dollars while offering “no practical advice.” Over 6,000 students in the US [could have been affected](#), and the high-profile nature of the suits—especially now—is another dent to the credibility of for-profit schools.

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[Daily Brief](#) that, while enthusiastically endorsed by Trump, troubles many academics and education experts. “There’s an inherent conflict,” Winthrop University history professor A.J. Angulo, the author of a [book on fraud within for-profit education](#), told Quartz earlier this year. “The profit motive has ultimately made it very difficult for for-profit institutions to live up to academic and professional standards.”

Fret not for the end of a Trump-branded school. There are still [plenty of other things](#)

with the president-elect's name on them.

Correction (Nov. 19): A previous version of this article misidentified the for-profit college company Education Management Corporation as Apollo Education Group.

Read this next: [We know worryingly little about Donald Trump's plans for American education](#)

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