

With Ford venture, a talent war for engineers heats up

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By Daniel Moore / Pittsburgh Post-Gazette

Six months ago, Uber's research center in Pittsburgh seemed to be on cruise control.

Media from around the world converged here to get one of the [first public peeks](#) at autonomous driving technology, which had been developed over the previous year with the help of three dozen researchers Uber hired away from Carnegie Mellon University's robotics research program.

Now, the San Francisco-based ride-hailing company is confronting the departures of top engineering talent leaving its own Advanced Technologies Center to join other ventures or start their own. That was the case for Argo AI, an artificial intelligence firm formed late last year by a team that includes Uber's former finance director and two former engineers.

The shuffling of top-tier engineers is likely only the beginning. This month, Argo AI garnered a [\\$1 billion investment](#) from Ford Motor Co., which saw potential to hire scores of engineers in Pittsburgh to achieve its goal of putting a fully autonomous vehicle in production by 2021.

As money pours into efforts to make driverless cars a reality, a war is brewing among tech companies to employ the emerging class of people who have skills in artificial intelligence, machine learning and computer vision to advance autonomous systems.

Ford's gigantic bet on building a team to compete with Uber has leaders of Pittsburgh tech firms feeling validated — but also wondering if there will be enough talent to go around.

“The competition for people doing this type of work is very fierce,” said Steve DiAntonio, president and CEO of Carnegie Robotics LLC, which spun out from Carnegie Mellon's Robotics Institute in 2010.

“Having now another well-financed organization that wants to hire 200 people by the end of the year — that is a bit of a threat, there's no doubt about it,” he added. “There's enough critical mass in this region where you are getting people to jump from one start-up to another.”

A win for Pittsburgh

On a national scale, tech workers have always been mobile, gathering offers and choosing the best job and city for them, said Brian Kennedy, senior vice president for operations and government affairs for the Pittsburgh Technology Council.

But it's new for Pittsburgh to be the venue.

"The fact that this talent is so scarce is exactly why Pittsburgh is winning," Mr. Kennedy said. He said companies like Ford and Uber recognized the alignment of Carnegie Mellon's long history of robotics research with their feverish pursuit of an autonomous vehicle.

"CMU is so dominant in the development of this specific type of talent that few regions could hope to challenge us on this battlefield," he said.

Martial Hebert, director of CMU's Robotics Institute, called Ford's venture "another indication of the robotics field becoming more and more mature."

"We are no longer a weird, specialty field," Mr. Hebert said, pointing out that the academic program, founded in 1979, has grown to enroll roughly 340 graduate students and 100 undergraduates. "We're really producing a workforce at the scale that is comparable to any other industry."

The median pay for computer and information research scientists, a category that includes roboticists, was \$110,620 a year in 2015, according to the U.S. Department of Labor. The government projects those jobs to grow by 11 percent in the next 10 years, higher than the 7 percent job growth rate across all occupations.

Though CMU's program is one of the largest robotics research organizations in the world, Mr. Hebert expects it to have to grow to meet demand. "It will be difficult, but we have the know-how, and that know-how was built over many years," he said.

A movement among ventures

With Argo having posted [10 job advertisements](#) and a Pittsburgh-based internship, it is unclear how large the pool of talent is for Pittsburgh's constellation of start-ups, which use autonomous technologies to develop, build and market a variety of products.

In early 2015, Uber's research facility opened with 40 CMU researchers, leading to allegations of [talent poaching](#) and fears that CMU's research efforts would be hobbled. (CMU insisted it was [just fine](#) and that the university expects to lose academic researchers to companies.)

At Carnegie Robotics, founded by CMU researchers who wanted to take products to market, about a half dozen employees were hired away by Uber, Mr. DiAntonio said. He took the helm of Carnegie Robotics when former president and CEO John Bares left to lead Uber's research center.

Yet some of the people who flocked to Uber have since decided to do something else.

According to multiple people familiar with Uber's contracts, the terms of employment generally don't come with non-compete clauses that would restrict engineers from packing up and taking their talents elsewhere. Uber declined to comment for this story.

Mr. DiAntonio said he has adjusted his recruiting pitch to help grow his company of 70 employees, about 40 of whom are engineers. He touts the fact that Carnegie Robotics uses autonomous technology to push a variety of products into the market each year, like a mine-detection device for the military or an autonomous cleaner for commercial buildings.

"I can't offer salaries and the very high up-side stock options," he said. However, "To the extent you like working on different problems with different technical challenges, this is going to appeal to you."

That vision helped bring back David LaRose, who was lured away in 2015, leaving his chief technology officer post at Carnegie Robotics to become an engineering lead with Uber. Mr. LaRose, who started back at Carnegie Robotics just two weeks ago, said he had no personal problem with Uber but left for reasons of personal fulfillment.

"If I put the rest of my life in self-driving technology, my achievement might be that cars arrive five minutes earlier," Mr. LaRose said. "I think my personal impact right now can be bigger in an application area that hasn't caught fire yet."

Identified Technologies, which develops autonomous drones for energy companies to survey their large sites, also landed a former Uber engineer recently with a similar approach.

"There aren't a whole lot of companies in autonomous drones," said Barry Rabkin, the chief marketing officer for the Larimer-based company. "We've been able to benefit" from large investments like Ford and Uber, "because they're attracting the talent and we're able to pull it over."

An Argo AI resume

For three of Argo AI's four leaders, the progression is the same: Years of robotics research affiliated with Carnegie Mellon; went to Uber in early 2015; left Uber near the end of 2016.

Peter Rander, an Argo AI co-founder and chief operating officer, was "part of the formative team that launched Uber's self-driving car efforts," specializing in computer vision, perception, path planning and

control, according to the company's website.

Brett Browning, vice president of robotics, led an Uber team developing maps and localization for self-driving vehicles. Daniel Beaven, Uber's former finance director, is chief financial officer.

Argo members would not comment on why they left Uber, but Bryan Salesky, Argo co-founder and CEO, said Ford is "very aligned with us on how we see the technology progressing and how the technology needs to be developed.

"We have a very deep respect for Ford," said Mr. Salesky, who, previously with Google's driverless vehicle arm, is the only Argo team leader who has no affiliation with Uber.

"Argo AI is set to move very fast," Mr. Salesky added. "We want to move with urgency."

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