

US drone-maker aims to protect people there and in Ukraine

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Credit: Brinc Drones

Blake Resnick was a 17-year-old growing up in Las Vegas when a gunman firing from a Strip hotel window killed 60 people at an outdoor concert.

In that October 2017 tragedy, Resnick, an engineering prodigy, recognized an opportunity. He imagined advanced drones buzzing to dangerous locations, giving first responders a way to assess the situation quickly and safely, and allowing them to communicate directly with someone inside.

Five years later, Resnick is in Seattle, and quadcopters built by his startup, Brinc Drones, are flying in some of the world's most dangerous spots.

"The deadliest mass shooting in American history happened in my hometown," Resnick said, "and I saw a place where technology could have saved lives."

Brinc's flagship <u>drone</u>, the Lemur, is currently helping conduct searchand-<u>rescue missions</u> in collapsed apartment blocks hit by missiles in Ukraine.

Fire departments are using them to inspect burning buildings before sending in firefighters.

U.S. police departments are buying them to conduct hostage negotiations and high-risk searches.

After an initial injection of \$27.2 million in <u>venture capital</u>, Brinc grew



within the past year from a one-man company—Resnick—to employing about 100 people between its manufacturing site in Las Vegas and its new headquarters in Seattle.

On the Brinc website, a "Values & Ethics" page outlines the Brinc mission "to bring these technologies into the world responsibly, and to ensure they do good."

The commitments include: "Never build technologies designed to hurt or kill."

The mission in Ukraine, while largely search and rescue, has expanded into a gray area that may challenge that ideal.

The dropout

Inside Brinc's new company headquarters in Fremont, engineers work at computers on upper levels, while in the open-plan research and development space on the ground floor small prototype drones buzz around like loud bees. The production drones are still manufactured in Vegas, but eventually they will be built here, too.

Brinc is hiring in Seattle and expects soon to have 100 people here. Resnick said he chose this city to tap into its aerospace, software and consumer electronics engineering talent. He's hired engineers who previously worked at Amazon Air, SpaceX, Boeing's Phantom Works research unit and at Microsoft's Xbox and HoloLens teams.

"Of everywhere in the United States, this is where I wanted to move Brinc. It's because of the people," Resnick said. "We find we attract the people that are the ones that kind of run towards the fire. They want to build something. They want to build a new company."



Striding through the nascent Fremont facility, Resnick is a strikingly distinctive CEO: 6-foot-3, wearing jeans and sporting a corona of wild curly hair. He speaks with ease and passion about a range of topics, including technology, morality and Ukraine.

His youth is evident in speech peppered with the word "like" and an enthusiasm for teen movies, which he attributes to his missing out on a lot of typical adolescent adventures.

"I mean, my whole high school experience was like a year," Resnick said. He started college when he was 14.

He attended first the University of Nevada, Las Vegas, then switched to Northwestern but never finished his degree. He dropped out when tech billionaire Peter Thiel, subsequently a minor investor in Brinc, offered him a "Thiel Fellowship"—\$100,000 to leave college and build something.

Resnick's dad is a doctor, his mom a special education teacher.

"I don't think my mom has forgiven me for dropping out of school. She hated that," said Resnick, laughing. "At any opportunity she gets, she tells people about my sister going to Stanford before she'll even give a second thought to mentioning Brinc."

Before dropping out, Resnick had already done internships at McLaren, the Formula One race car company, chaperoned in England by his parents; then at Elon Musk's Tesla; and at the Silicon Valley office of the world's leading commercial drone-maker, DJI Technology of China—now his main competitor.

"I was the youngest intern ever at those places," he said. "I was like 15 when I started at McLaren and I was very young at Tesla Motors and



young at DJI as well."

Also in his teens, "the craziest thing was my nuclear reactor project," he said. "That was much more insane."

Resnick built a nuclear fusion reactor in his parent's Las Vegas garage. It wasn't practical, using far more energy than it ever delivered from the deuterium fusion process, but it did successfully produce some light.

"That was just for fun," said Resnick.

On Brinc's next new product, he personally designed the gimbal, a stabilizing device that allows smooth camera footage as the drone moves.

As Brinc grows, Resnick is adamant he's "never going to let go of the engineering side of things."

A tactical tool during mass shootings?

After the 2017 Las Vegas mass shooting that killed 60 people attending a concert outside the Mandalay Bay hotel, Resnick approached the city's police to suggest that drone technology could help them mitigate future tragedies.

Eventually the police were persuaded by the then-17-year-old. As he developed his first drone, they allowed him to ride along on a few dozen SWAT calls to better understand their needs in real operations.

Will Huddler, a SWAT commander on the scene at the Mandalay Bay during the shooting, became an early advocate of the Lemur and is now Brinc's vice president of public safety operations.

Superficially, Brinc's drones look little different to the now ubiquitous



quadcopters flown by hobbyists and professional photographers. But they have much deeper technology, allowing them to go where basic drones cannot go.

The Lemur can fly through confined spaces, controlled by an operator, even separated by thick concrete. It can smash through toughened glass windows. It can bounce off walls.

If it crashes and lands on its back, two of the rotors can reverse thrust to flip it right-side up. Its night vision system can see in zero light and transmit a clear infrared image.

And it's a flying cellphone, allowing the operator to have a conversation with anyone the drone locates.

Instead of using GPS for guidance like most drones, the Lemur uses LIDAR technology—Laser Imaging, Detection and Ranging—which spreads laser light to create a 3D digital map.

The precision of LIDAR allows it to pass through tight indoor spaces.

Could the Brinc drone have saved any lives if it had been available in the tragedy that unfolded last month at the elementary school in Uvalde, Texas?

Clearly, each mass shooting presents different and horrific circumstances. But asked that question, Resnick said it "could have been used to assess and possibly breach a glass entry point for situation awareness, to distract the assailant, and/or communicate with victims."

The technology is so new, he added, that crisis response teams have only begun to explore ways in which interior drones can be used.



Resnick said the technology has the potential to make dramatically safer and less lethal the sort of police raid that killed 26-year-old Breonna Taylor in 2020, when she was fatally shot by police who forced their way into her Louisville, Kentucky, home in search of a drug crime suspect.

Brinc's drone could have smashed through a window and gone inside, allowing the police team to see the situation and talk directly with Taylor and her boyfriend rather than breaking in with guns drawn.

"Breonna Taylor would still be alive if our technology was used in that department instead of police officers going right in through the front door," he said.

And the technology is already in use.

After the Surfside condo building in Miami collapsed last June, killing 98 people, the half of the 14-story building still standing was dangerously unstable and threatened the safety of more than 100 first responders combing through the rubble.

The Miami Dade Fire Rescue Department made 304 drone flights for strategic operations during the rescue, using drones built by multiple manufacturers, including Brinc and rival DJI.

Resnick's Lemur drone snaked through the mess in the condo's underground parking garage, helped by a signal extender carried inside by a bomb squad robot.

"That was an unbelievably hard mission, because we had to get a signal through literally tens of feet of collapsed concrete and rebar that was packed solid," said Resnick.

The drone's camera allowed structural engineers to view the building's



support columns and determine how to safely perform a controlled explosion to bring down the remaining structure.

The Seattle police have just purchased a related Brinc product developed out of Resnick's SWAT raid research.

Called the Brinc Ball, it's not a drone but a device that can be used to safely communicate with a suspect or a hostage-taker holed up somewhere too dangerous to approach.

Essentially a hard-to-damage cellphone the size and shape of a large grapefruit, this two-way communication system can be rolled down a hallway, tossed through a window or dropped via a robot. Officers can then talk to the person inside, who cannot hang up.

Chinese competition

Resnick got his first check to build Brinc from Silicon Valley angel investor Sam Altman. Venture capital firm Index Ventures provided the next \$25 million.

Investors also include former Boeing executive Pat Shanahan, who was deputy defense secretary under President Donald Trump.

Resnick said a substantial but as yet undisclosed second round of additional funding has been secured.

The company's prospects have been boosted by congressional concerns that DJI's drones could pose cybersecurity and supply chain risks because of their Chinese origin.

The U.S. government has restricted some federal agencies from using drones built in China on the grounds that sensitive video data could be



stolen. Wider limitations on DJI drones are being discussed in Congress.

The Ukrainians don't want the Chinese drones because of a parallel drone-tracking technology called AeroScope that DJI developed to help law enforcement in the U.S. and elsewhere detect its drones flying in restricted airspace, such as near airports or sports stadiums.

AeroScope is sold only to those with a legitimate reason to track drones, including government and law enforcement agencies. But Russian forces could use AeroScope to pinpoint the GPS coordinates of Ukrainian DJI drone operators.

Brinc's LIDAR technology transmits an image of what the drone sees around it, but not its geographic location.

Adam Lisberg, DJI's spokesman in North America, says the company doesn't want its drones used in combat and so has suspended business in both Ukraine and Russia.

"Our competitors are frankly trying to stir up anti-China sentiment against us with no substance behind it," said Lisberg. "And also some elected officials who are very afraid of China."

For Resnick, the U.S.-China tension is certainly an opportunity.

He said his goal is to scale up dramatically to be the size of DJI, which employs thousands of people.

"There's a need for American drone companies," Resnick said. "We want to be a drone-maker for the free world."

The gray area between good and bad



Resnick's intense focus now is helping Ukraine withstand the Russian invasion.

Brinc donated 10 Lemurs to Ukrainian emergency services, and Resnick traveled to Poland in March with his team to give the Ukrainians the necessary two-day training in piloting the drones.

In addition, NATO governments ordered 50 of his Lemur drones, at about \$10,000 apiece, and donated them to Ukraine.

And the Dutch Ministry of Defense just purchased 30 more. A Brinc team recently returned from a military base in the Netherlands where it conducted the training for the Ukrainians.

In Ukraine's war zone, the ideals expressed in Brinc's ethics and values statement bump up against the real world.

Brinc's commitment to not make drones that hurt people, but to "make the world a better place and save lives," is clearly meant as a reassurance to those who fear a dark future of omnipresent robotic equipment.

Drones can be used by governments for surveillance of legal protests. The U.S. military uses killer drones like the General Atomics Reaper to attack overseas targets from thousands of miles away.

Brinc doesn't want to go there. The company ethics statement declares: "Be mindful of the implications of our work—we won't build a dystopia."

Resnick says many powerful technologies, from nuclear energy to artificial intelligence and even the internet, have the capability to do harm as well as the potential to do tremendous good for the world.



"We want to do what we can to ensure that we're building these technologies in a way that results in a future we want to live in," he said. "It's critical for companies like us to have a clear moral compass."

Yet while most of the Lemurs used by Ukrainians are engaged in search and rescue work in heavily bombed cities, the Ukrainian military has also used them to surveil Russian forces and target them with artillery.

And Resnick says Brinc has an order for about 10 drones in the pipeline from the Ukraine Ministry of Defense. The situation on the ground permitting, his team expects to travel to Ukraine to train those forces some time in the next three months.

Michael Cisek, a military analyst with consulting firm Aerodynamic Advisory, said it's difficult for Russian forces to either jam or pinpoint the Lemur signals.

"You can do more without being detected," he said.

For Resnick, who wears a watch strap in the yellow-and-blue national colors of Ukraine, the brutality of the Russian invasion justifies the stretching of Brinc's ethics commitment.

"I think this is the most black-and-white conflict that I've seen in my life. This is a free, independent democracy that is being invaded by Russia to take land," he said. "I'm a massive supporter of Ukraine broadly. I think they're fighting for their homes, and I respect it deeply. I felt compelled to donate our technology."

"I hope it is used in the search-and-rescue mission, and we have every indication that that is its primary purpose," Resnick added. "But if we can also alert Ukrainians about the locations of Russian forces, I think that's something we're OK with."



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