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ICRC Blavatnik Interdisciplinary Cyber Research Center

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AI WEEK
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Tel Aviv University

Press Kit

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AI Holds the key to world's Biggest Problem

Artificial intelligence is everywhere. You've probably heard of, or tried ChatGPT, the AI-powered chatbot that will write a job application, compose a poem, do your homework and more. But that's just the tip of a very big iceberg.

Well over half of all the research and development taking place across Israel today is rooted in AI. Our ability to teach machines to learn, and to do things better, faster and more accurately than we can, is the foundation of the Fourth Industrial Revolution (after steam-powered machines, electricity, then IT).

AI is a key part of the solution to the world's biggest problems, Dror Bin, CEO of the Israel Innovation Authority (IIA), told delegates earlier today at Tel Aviv University's (TAU) AI Week, an international conference for industry leaders and academics.

The ongoing challenges of climate change, and the world's growing population cannot be adequately addressed by eating less, heating our homes less, travelling less or cutting emissions, he said.

"The only leverage humanity has to solve this problem is technological breakthroughs. And when we talk about technological breakthroughs, artificial intelligence is definitely one of them," he said.

"All of us are very busy, including me, by the way, in the last few weeks playing with ChatGPT, creating original text, and also with DALL.E creating original paintings. But actually AI is going to change our lives in a much more fundamental way than just creating new text and paintings."

He revealed figures showing that in 2021, a record year for investment in Israel's 7,000-plus startups, 60 percent of all funding went to AI research and development. That amounts to $18 billion out of a total $27 billion, he said (based on figures from Startup Nation Central and IAA research).

"Software as a service, enterprise software and cyber communication are areas where we expect to see AI. But on top of that smart mobility, industrial tech, life sciences, agri-food, energy tech, all of them are already assimilating AI into their development. Today, not tomorrow, not the day after. It's happening today, the revolution, it's already in its process."

AI dominates every area of commerce and industry, from robot farmers to traffic management, from drone deliveries to clean energy, from technology that listens to the hum of a production line to diagnose faults to personalized medicine.

"By disrupting multiple markets, not only the usual markets of cyber and search and commerce, but also areas like food and energy and transportation, and so forth, disrupting multiple markets with AI, Israeli hi-tech will play a leading role in solving humanity's most complex challenges," said Bin, head of an organization that invests $500 million a year in Israeli innovation.

Israel, tiny country that it is, currently ranks fifth globally in an index of leading nations based on their investment, innovation and implementation of artificial intelligence, according to the British news website Tortoise Media, behind USA, China, UK and Canada. It ranks third in commercialization of AI, fifth in terms of talent, and ninth in terms of development. But it lags behind in places where the government should be involved, said Bin, citing its 45th place for government strategy and 29th place for infrastructure.

He said next week the government would be adopting the second part of a plan to address these issues by investing in universities, and in AI research.

Earlier the conference heard opening remarks from Gili Drob-Heistein, Executive Director of the Blavatnik Interdisciplinary Cyber Research Center (ICRC) at TAU.

"AI has transformed the way we live, work and interact with each other," she said. "From speech recognition and image classification, to robotics and autonomous systems, AI has opened up new possibilities and paved the way for a better future."

She then revealed that her words had been written by AI. "This speech was written by ChatGPT in a few seconds, a simple demonstration of the capabilities we have at our fingertips. The evolvement in this field is amazing. And it's changing on a daily basis," she said.

Ahead of the conference Dr. Yaniv Harel, Head of Research at ICRC, told NoCamels of the threats AI can pose in the world of cybersecurity or defense.

"Attackers can use AI to develop more aggressive attacks based on AI. We should be developing defense capabilities to protect against such potential attacks," he said.

Indeed, a commander of Unit 8200's Artificial Intelligence Center, spoke at the conference about how AI tools significantly help the military thwart terrorist attacks.

"One of the instrumental tools that we have built and operate today is a system that knows how to find 'dangerous' people based on input from a list of people who have been incriminated and entered into the system.

"In the past, this several week-long process would have needed hundreds of researchers. Today, the system does it in seconds."

THE JERUSALEM POST

Israel's ex-cyber, space chief: AI won't replace humans anytime soon

Yitzhak Ben-Israel told The Jerusalem Post that artificial intelligence like autonomous cars and ChatGPT won't replace humans and AI is hacking-neutral.

By YONAH JEREMY BOB

ChatGPT and artificial intelligence will not replace humanity anytime soon, Yitzhak Ben-Israel told The Jerusalem Post in an interview on the sidelines of his Tel Aviv University AI conference this week.

Ben-Israel, who founded the Israel National Cyber Directorate, led the Israel Space Agency for 17 years and served as a major-general in key IDF positions, said, "What could be and what is practical" and likely are two different things.

Using autonomous cars as an example, he said it "has been proven for 10 years already that autonomous cars drive better than people. So why aren't they filling up the streets? It is not a problem with the price.

"It will not happen yet because there are problems," he suggested. "No one wants a car accident that would kill someone. But autonomous cars still lead to fewer accidents and kill fewer people. It is the regulator who is afraid, and we humans are afraid to use technology because we cannot see what it will do."

Humans won't sign off on advanced AI if it's too smart

He continued, "This is a strange concept. Until we can see where it will lead, we will not sign off. Why not? It is just human psychology. To get a sign-off for a regular car or a washing machine, you take a test that fulfills certain criteria and then you are approved. But if it [AI combined with a machine] is intelligent and it learns from its own experiences, which changes its conduct from the starting point – then we do not allow this."

Ben-Israel noted that people are constantly having children who are far more unpredictable than AI, without knowing what negative actions their kids might take, and with no need to get any kind of license.

Next, he said, "The concerns about ChatGPT machines are that if they get more intelligent and become more like people, there is a greater suspicion that they will act badly.

"Will they be intelligent like us? In general, it will take many more years for two reasons. Our human brains are basically quantum computers living in a quantum, changing world that is not binary. It is not just black or white. Sometimes we partially want something and partially do not.

"That is not a yes/no dynamic. ChatGPT is still binary and therefore still more limited. But this will be overcome in five to 10 years when we get quantum computers," he stated.

Explaining further, Ben-Israel said, "My brain's 'processor' is smarter than ChatGPT. It needs a few liters of water, a little bit of food and then it [the human brain and body] just works."

In contrast, he stated, "Computers and the cloud that use ChatGPT have huge needs, especially in using up energy, and they also get so hot that there needs to be a special setup to put them under water sometimes to cool them off. This is a problem of technology which we have not even started to deal with."

Even the most complex AI can be unplugged

Moreover, Ben-Israel said even the most complex AI can be relatively easily unplugged.

"If you take it out [unplug it from its power source], then there will be no ChatGPT anywhere in the world. The 'brain' that does this – I can unplug it and ChatGPT can't live without it – the giant computer is not like humans – ChatGPT. If it does something that is not good, you can unplug it," he said.

Next, he stated, "Maybe there might be two plugs. So then you unplug it twice. Unless the energy and its capacities can be put into a box," which individuals can easily own and move around with, "people will ignore it."

"When will it be practical to see robots walking around in the streets like people? It will take dozens of years. But it can happen because there is no reason for it not to happen unless people don't let it happen," he declared.

Moving on to using AI for hacking, he said the technology is neutral.

AI is neutral for hacking

"You can use AI technology to improve our world – in health, transportation or in whichever area you want. You can also use it to help bad actors. You can give ideas to bad actors about how someone performs their [cyber] defense in order to find a way around it. It all depends on the user," he said.

"Potentially, it would replace us on many platforms. Humanity will be even more dependent on computers. We are already dependent. [Even] cars have a computing processor. We depend on different levels of processing. We are more vulnerable. If someone gets into the middle of the system and disrupts the connection, we will be harmed more today. As AI develops, the need for cybersecurity will become bigger."

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>
> Yitzhak Ben-Israel

Ben-Israel said that 2015 was the beginning of a paradigm shift in starting to use AI along with cybersecurity.

Back then, he said, "If you wanted to defend a network to make sure there was no virus or malware attacking you, you needed to identify them. How do you know whether there are bits and codes of malware or not in a link or a file?

"At the start, the only way was to look at the bits and codes to see the inner content [on a separate secured system] and to see whether there was malware or not. But then you harm the privacy of your citizens and you do not want to do this either."

More positives and negatives of AI

Today, on the positive side of AI, he said, "You can use a computer that learns how the bits and codes act online. Then you do not need to decode. You look at how the bits, codes and viruses act differently from others and you start to filter out anything which is acting normally.

"This helps a lot. It eliminates the phenomenon of harming privacy. You only need to do a very limited review about if the files are acting like a virus," without actually having to break them down as in the past, said Ben-Israel.

However, on the negative side, "AI machine learning can be used to learn how we figure out what is normal and what is not. So they can trick us based on what we are looking for and change their method of cyberattack."

He concluded, "The conference is very important. There were many attendees. There is a big protest in Jerusalem. We were worried about attendance, but many people still came. Some of the speakers even publicly identified with the protesters."

THE JERUSALEM POST

Has Generative AI peaked? Expert talks the future of AI breakthroughs

AI applications have gained massive popularity in the public eye thanks to applications like ChatGPT and DALL-E — but what's next for generative AI and Artificial Intelligence technology as a whole?

By ZACHY HENNESSEY

Amid a recent explosion of rapid and thrilling advances in consumer-facing artificial intelligence applications, the AI community made up of industry experts, academics and folks who are just plain interested in the tech are looking forward to AI Week. The international event begins Monday, hosted by The Blavatnik Interdisciplinary Cyber Research Center and The Yuval Ne'eman Workshop for Science, Technology & Security, in cooperation with TAD Center for Artificial Intelligence and Data Science at Tel Aviv University.

There, the AI community will gather to discuss the technology's development, potential future application and inherent ethical quandaries, steering the ship of artificial intelligence into the new year by answering the industry's current burning questions, such as where the next breakthroughs will be, how the working class will be impacted by these tools and what kind of fine-tuning is required for current applications.

To answer these questions and set the stage for AI Week, The Jerusalem Post spoke with Nadav Cohen, one of the event's many keynote speakers. Cohen is a professor of computer science, a deep learning researcher and the chief scientist at Imubit, which implements deep learning for optimizing manufacturing processes, enabling real time control of large manufacturing facilities and making them run optimally, which is good for both profit and sustainability.

It seems as though, in 2023, every Tom, Dick and Harry has their eyes on AI and its development thanks to the meteoric popularity and widespread usage of generative AI platforms like ChatGPT and DALL-E. From the perspective of an industry insider, what's the current state of AI advancement – is it as fast-paced as it seems from the outside?

"It's interesting: the current AI landscape is one of the rare instances where both the public's and experts' perception of where the field is are more or less aligned. There were these huge breakthroughs recently, mostly around language and generative models, which have led to a point where the public knows a lot [about what's happening] and there's a vast amount of attention in the field directed towards those applications."

Are there any core innovations that have driven those breakthroughs?

"I wouldn't say that there are a lot of fundamentally new ideas behind these breakthroughs. It's more a matter of how far you can go with massive computation and massive datasets. Those are the main ingredients here: a relatively small number of players can actually train these models and the performance that they lead to is something that's far beyond what many expected, including myself."

Has AI application peaked, or are there yet more huge advancements to come? What might those look like?

"My personal feeling is that we are far from hitting a wall, which means that simply by continuing in the same trajectory, more breakthroughs will come, and I expect at least some of these breakthroughs to involve multiple modalities – not just text, not just visual, but something that appeals to almost all of our senses... something that combines everything."

Why is it that "fun" AI apps – like publicly available generative AI, for example – seem to be advancing so much more rapidly than industrial or more "back-end" AI?

"Most of the attention is going in those directions, because these are mostly consumer facing applications where there is a lot of data and the cost of a mistake is limited. I'm not saying there are no risks, but it's not like a model that gives you a wrong answer immediately causes a disaster. So we are willing to tolerate mistakes. Those two requirements – an abundance of data and a graceful approach towards errors – are what enables rapid advancement.

"When these conditions are not fulfilled, which means either you don't have a lot of data or the cost of a mistake is something that's unbearable, I believe that we're not so close to reaching the same [development pace]. These other applications, which I believe are no less important, are not as apparent to the consumer: things like health, or insurance, or security, or manufacturing. They impact the consumer's life greatly, but it's more indirect."

What is it going to take in order to see advancements in AI applications that are consumer-critical but carry much higher risk in regards to mistakes?

"At least initially, it will require more dedicated focus on specific problems. We're going to need to be much more specialized initially before we can deploy these technologies in critical domains. Maybe at a later stage, we'll be able to create safe AI in general, but initially, I don't think that is how it will evolve.

"We might need a little bit of a deeper understanding of the pitfalls and the problems [presented by the technology]. Building in layers of protection around [these applications] are going to be critical in software: like hard logic, hard rules that will confine the degrees of freedom that the AI has so won't be able to do anything, and we'll need to invest a lot more in explainability."

What does better AI explainability look like?

"As an example: when you have an operator sitting in a plant, and a model makes a certain decision, then something that they could be highly interested in is 'What if?' analyses: 'Okay, so your model made X decision? What if this condition was a little bit different? What would the model do then?' Explain what this model does, because that's not necessarily well defined, but allows for analysis tailored to the specific user."

Are there any generative AI applications that you think will gain more traction in the coming months?

"Something that maybe the public is not as aware of is what is essentially 'ChatGPT for code': AI which can generate software code. It's a tool which is hugely helpful to developers. Now obviously, if you just take this code as-is and deploy it on a spaceship, that might not be the safest thing to do. But for other applications, that might be fine. You can get a starting point and then just review it. There are a lot of things similar to that [appearing in the field], and I only think it's going to accelerate."

THE JERUSALEM POST

What AI advancement will lead to the next huge breakthrough?

AI expert Uri Eliabayev explains why unsupervised learning is a critical facet of Artificial Intelligence that must be developed in order to further advancement in the wake of ChatGPT.

By ZACHY HENNESSEY

2023 is likely to be another banger year for AI development, following the raging popularity of Generative AI that has been heralded by platforms such as DALL-E and ChatGPT. As the technology is gradually incorporated into seemingly every technological application possible, the AI zeitgeist is far from reaching its peak; but what advancements are necessary to push the technology further down the road to the future?

Uri Eliabayev is an AI consultant and the founder of Machine & Deep Learning Israel, a community for professionals in the AI industry in Israel. Following a panel that he moderated at AI Week on Tuesday, Eliabayev sat with The Jerusalem Post to offer his insights on the current state of Artificial Intelligence during the current flash point moment that the industry is enjoying.

How much has the tone and character of the AI sector changed over the last year?

"With the interest in ChatGPT, there's been a little bit of a shift in the last several months. Now you can see that a lot of people who don't deal with AI in their daily jobs are starting to ask questions. You can see more companies that are not especially tech-oriented wanting to join in. We can also see several development achievements that weren't possible a year ago that just level up everything."

The recent booms in AI development have been enabled by advancements in Natural Language Processing (NLP), which is an aspect of AI that had taken years to crack. What's the next facet of AI development that could lead to the next breakthrough?

"The next phase is to make unsupervised learning or self-supervised learning more efficient because nowadays, most of the achievements we've seen have [depended on] human data labeling and data annotation. You can see [advancements there] in ChatGPT, which uses humans to give some tweaks, but the majority of the work was done without tagging. So the next phase is to improve those techniques in order to do much more work because then you won't be limited about the amount of data annotation that you have."

Another crucial sticking point for AI's development is explainability, which is an AI's ability to "show its work," so to speak. Many experts concerned by the ethical ramifications of AI have argued that explainability is a key stepping stone toward ethical AI, as it will allow developers to ensure that no unintended biases or plagiarism takes place behind the scenes.

Is proper explainability critical to AI's future?

"Explainability is very crucial, because if we don't do it in the right way, people will not engage with AI. This is something that I see requiring a lot of regulations. Regulators have been struggling because they don't always understand the technology, but this is something that will eventually be solved by giving more tools to data scientists and researchers to enforce a policy of explainability."

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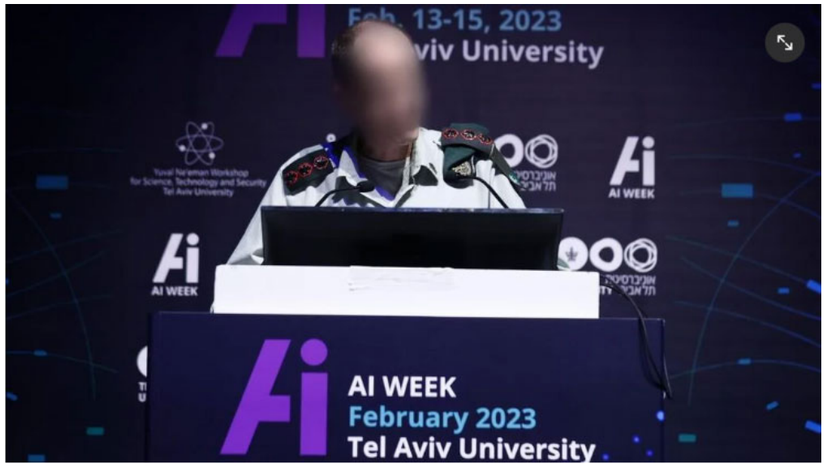
ידיעות אחרונות

Israeli officer reveals how AI is being utilized in fight against terror

Speaking at Tel Aviv University AI week, Colonel Yoav shares how IDF's Intelligence Corps is able identify hostile activity by Hamas and Islamic Jihad in Gaza, and how those capabilities will continue keeping Israel safe in the future

Yuval Mann



Artificial intelligence or AI has recently become the most sought after commodity of the modern world, as more and more spheres of industry are becoming reliant on the innovative technology. Israel and its security forces are not an exception.

During an event on Monday, which was part of Tel Aviv University's AI week, a senior IDF official revealed how the latest technology is helping the Israeli security forces in their fight against terror.

Commander of AI center at IDF Intelligence Corps' elite Unit 8200, known as Colonel Yoav, said AI capabilities were used during the 2021 war in Gaza, dubbed Operation Guardian of the Walls, to detect Hamas' so-called rocket units.

"AI and data capabilities we utilize, significantly enhance our ability to foil terrorist attacks," the colonel said. "One of the most substantial tools we built allows us to locate dangerous individuals from a pool of people fed to the system, a process that used to take hundreds of hours now takes mere seconds.

"During Guardian of the Walls, the system was able to identify leaders of Hamas rocket units from a large pool of known militants and eliminate them."

He added that during the operation, Israeli intelligence was able to identify 200 targets for elimination using the technology built by Unit 8200.

The AI center, which the colonel commands, also provides cyber education for high-school students to offer them the tools required to take part in IDF cyber operations as soon as they are drafted.

Tel Aviv University's AI week is attended by cyber and AI experts from all over the world.

ISRAELDEFENSE

A mission that once took a year to complete now takes only one month thanks to AI, says Israeli Defense Ministry R&D head

Danny Gold discussed the collaboration between the Israeli defense establishment and the private sector during the Tel Aviv University AI week

Brig. Gen. (Res.) Danny Gold, head of Israel's Defense Research &Development Directorate (DDR&D, known in Hebrew as MAFAT), spoke at the AI Week held at Tel Aviv University about the cooperation between the Israeli defense establishment with the private and commercial center in various subjects, such as drones, ML & AI, robotics, and more.

According to Gold, the cooperation is done with startup as well as with enterprises and the Israel Innovation Authority, in the realm of AI and quantum computing.

Gold further explained, due to the challenges of developing an AI system in scale, there are DDR&D has developed a mutual infrastructure, which can be used by startups, academia etc. "We basically enable access to all of the data. Using AI algorithms, a mission that once took a full year now shrinks to one month. This allows for very fast results, in real-time."

THE JERUSALEM POST

Israeli future lasers can shoot down Iranian drones, like in Ukraine - top defense official

Israel's MAFAT also wants to engineer viruses or germs to detect explosives in the field as part of the process of neutralizing them.

By YONAH JEREMY BOB

Senior Defense Ministry official Brig.-Gen. (res.) Danny Gold on Tuesday said Israel's air defense lasers, when fully deployed in the future, could shoot down the drones Iran has been sending against Ukraine.

Speaking at the Artificial Intelligence (AI) conference at Tel Aviv University, the Director of MAFAT [Directorate of Defense Research & Development] said his ministry is working on developing "the next generation of using lasers."

He talked about multiple successful tests destroying rockets "with a very sophisticated laser weapons system... We have done the same for mortars, rockets and UAVs (Unmanned Aerial Vehicles), like the Iranian UAVs they are sending to Ukraine. The same concept of UAV, we can shoot them down."

In February 2022, then prime minister Naftali Bennett proclaimed that Israel's ability to use lasers had jumped forward and could be operational much sooner than people had expected.

Last month, Aviv Kohavi told The Jerusalem Post in an outgoing interview as IDF chief, "The laser defense system is truly great news. It will be both land- and air-based. I do want to be cautious regarding timeframes. In another two years, we expect to deploy systems along the Gaza Strip border to test this tool's effectiveness."

"It has worked very well in field tests. If this experiment works, and we continue to integrate and enhance the laser defense system over two years, we will move as fast as possible to deploy it across the entire North. I cannot commit to a specific number of years. I don't want to be optimistic and I also don't want to be pessimistic," he said.

Kohavi added, "I know that there has been great progress over the last three years and we invested a lot of money in this. We defined the laser defense system as having multiple benefits that we would need to invest a lot in. I am happy that it has progressed so much."

Israel's MAFAT must avoid "the valley of death"

In other comments at the conference, Gold warned that in order for his ministry and others to keep up with technological advancements, they needed to avoid "the valley of death." This was a name he and others sometimes give for the gap between wanting to make a large new idea happen which will take a long time, bringing together the immense financing needed and somehow keeping the ship afloat during the many

years of uncertainty along the way.

In order to overcome this dilemma, he said, "We changed inside our organization, to process faster. If [ministry affiliated] researchers want to work with a start-up, it can happen in [only] two months. In the past, it was one year. I hope we can shrink it to two weeks."

Likewise, he said that, "the one-year process for setting up" a new AI platform, "we are shrinking to one month."

Besides using startups to speed up and alter the funding and bureaucracy dynamics, he said that the ministry is partnering with foreign investors from Canada, Japan and Singapore with common interests as well as "raising money with some pension funds in Israel to invest in our organization."

All of this goes along with still partnering with Israeli defense giants like Rafael, Elbit and Israel Aerospace Industries.

Further, he said, the ministry is using AI algorithms with new kinds of sensors and complex physics applications to break through immense amounts of raw data.

Next, he said that his ministry has designed an app "which is very fast and we change the operator [situation so] the operator doesn't need to be an expert in the field."

Moreover, he said, "We want to take the DNA revolution... and synthetic biology – we want to engineer things like viruses or germs to detect explosives in the field and then radiate some light and we can get the light withdrawn," in the process of destroying the explosives.

THE JERUSALEM POST

IDF Unit 8200 commander reveals cyber use to target Hamas commander

This commander elaborated on methods used to target Hamas commanders digitally.

By YONAH JEREMY BOB

IDF Unit 8200 Data Science and AI Commander Col. Yoav on Monday revealed that his unit used its cyber tools during the May 2021 Gaza War to successfully target at least two Hamas commanders.

According to Yoav, who was speaking at the AI Conference at Tel Aviv University, the IDF was able to target at least one of the Hamas squad missile commanders and one of the Hamas anti-tank missile units using data science and AI (artificial intelligence) capabilities.

In all, he said new digital methods "helped produce 200 new target assets" during the 10-day operation.

"Remember breaking the human barrier – there were times when this took us almost a year," he said.

"How do we do it? We take original subgroups, calculate their close circle [of personal connections], calculate relevant features, rank results and determine thresholds, use intelligence officers' feedback to improve the algorithm," and then use classified digital platforms to locate the targets.

The beginning of digital warfare

He said that the May 2021 Gaza War was "referred to as the first digital war. Indeed, there were some major advancements. Our platforms go crazy with a lot of edge cases during wartime. This takes its toll with operational continuity of the systems. But we managed to maintain high standards. We managed to update our systems 150 times in 10 days."

According to Yoav, the IDF was able to target at least one of the Hamas squad missile commanders and one of the Hamas anti-tank missile units using data science and AI (artificial intelligence) capabilities.

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Future Israeli laser defense system will protect against Iranian drones

Defense Ministry has conducted multiple tests to destroy rockets using "a very sophisticated laser weapons system, says senior official

Speaking at the AI Week 2023 conference at Tel Aviv University on Tuesday, a senior defense ministry official said that a future Israeli laser defense system will be capable of shooting down Iranian drones being used against Ukraine.

Brig.-Gen. Danny Gold (Res.), head of the MAFAT, Israel Defense Ministry'sresearch and development directorate, described the latest developments in "the next generation of using lasers."

Gold is considered the "father" of the Iron Dome defense shield because of his pioneering efforts to create a "start-up" atmosphere at MAFAT, as well as his endorsement and promotion of the system.

The Ministry of Defense has conducted multiple tests to destroy rockets using "a very sophisticated laser weapons system," according to Gold.

While the Iron Dome system has proven to be very successful, it comes with a high price tag – the cost of each missile is worth nearly $50,000 – compared to the low cost of the rockets being intercepted.

MAFAT previously demonstrated an Iron Beam system, developed with defense firms Rafael Advanced Defense Systems and Elbit Systems, with a relatively lower cost per successful interception, as each interception only costs approximately $3.50 worth of energy to power the laser.

However, recognizing the growing threat from drones in modern conflict, Gold said Israel's new system has also been successfully tested "for mortars, rockets and UAVs (Unmanned Aerial Vehicles), like the Iranian UAVs they are sending to Ukraine."

Before stepping down in January, Israel Defense Forces Chief Aviv Kochavi told The Jerusalem Post the new laser defense system "worked very well in field tests" and that the IDF will move to test the system in the Gaza strip "in another two years."

"The laser defense system is truly great news. It will be both land- and air-based. I do want to be cautious regarding timeframes. In another two years, we expect to deploy systems along the Gaza Strip border to test this tool's effectiveness," Kochavi said.

In December, Rafael signed an agreement with Lockheed Martin to jointly develop and test a High Energy Laser Weapon System in the United States and Israel. That work will be part of the Iron Beam project.

In his comments at the conference, Gold also talked about the need to speed up the process of technological advancement and avoid "the valley of death," which is the gap between conceiving a new idea and securing the necessary funding.

"We changed inside our organization, to process faster," he stressed, adding that the team was able to successfully shorten the time it takes to pair researchers with a start-up from one year to two months. "I hope we can shrink it to two weeks," he stated.

ISRAELDEFENSE

IDF used artificial intelligence to expose Hamas commanders, says top IDF commander

During Operation "Guardian of the Walls" in 2021, the IDF was able to use its AI system to identify commanders of Hamas missile units, as well as other terrorists in Gaza

Col. Yoav, commander of the Artificial Intelligence Center of Unit 8200, the elite IDF intelligence unit, revealed that during Operation "Guardian of the Walls" in 2021, the IDF was able to use its AI system to identify commanders of Hamas missile units, as well as other terrorists in Gaza.

Our data science and AI tools have significantly increased our ability to thwart terror attacks," he said.

Speaking at the Tel Aviv University AI Week conference, Yoav added that "one of the most significant tools we have built and are operating today, is a system that knows how to locate dangerous people based on the input of a list of previously incriminated people. The system can complete this process within seconds – this is something that, in the past, would have taken weeks and required hundreds of investigators."

The colonel also revealed that during the operation, IDF intelligence was able to create a bank of 200 new targets, using the AI tools built in Unit 8200. In addition, throughout the operation the unit managed to update and upgrade the system about 150 times, thereby upgrading the battlefield's capabilities.

The new system joins previous IDF-developed AI systems, such as the "Alchemist" and the "Gospel."

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Uniting the Whole Ecosystem for AI Week

As AI continues to advance, it will continue to permeate every layer of society.

The most noticeable example has been with the release of OpenAI's ChatGPT last year, but for years AI has been deployed across the board in sectors and industries ranging from defense and security to education to retail and for a variety of uses ranging from detecting anomalies to offering product recommendations.

With generative AI top of mind, but not the only hot item in the space, data scientists, data engineers, entrepreneurs, policy makers, students, and academics from around the world will meet in Tel Aviv this week for AI Week to exchange knowledge and ideas on the technologies that are rapidly changing our world.

"It's not enough to develop the technology by itself. You have to develop the whole ecosystem," said conference chair Maj. Gen. (Ret.) Prof. Isaac Ben Israel.

Tasked with preparing Israeli society for AI, Maj. Gen. (Ret.) Prof. Isaac Ben Israel started AI Week, a mix of a multi-day conference along with satellite events, four years ago to bring together the whole ecosystem.

"It's not only technology by itself, or computer science by itself, or machine learning, etc., but also decision makers who contribute to our lives in healthcare, transportation, agriculture, even food, almost anything in our life. So it's an interdisciplinary conference," continued Ben Israel, who is director of Tel Aviv University Blavatnik Interdisciplinary Cyber Research Center and co-head of Israel's AI Initiative.

This year will see thousands of participants from around the world attend the event in Tel Aviv in-person as well as virtually, he added.

Topics that will be covered include Computer Vision, AI in Defense, AI in Health, NLP, ML Theory, Recommender Systems, and more.

Ahead of the conference, CDInsights spoke with a few of the speakers.

Here are some highlights:

Session: Scalable Trustworthy AI – Beyond "what," towards "how"

Seong Joon Oh, Leader of the Scalable Trustworthy AI group at the University of Tubingen, will give an overview of his previous search for such ingredients that make models more explainable and more robust to distribution shifts. He will then discuss exciting future sources of such ingredients.

"People should leave my session thinking that they should change the way they collect training data and that we should acknowledge that our models do not have the right characteristics like trustworthiness or a lot of alignment with human intention. AI initiatives are trying to transfer knowledge from the human

domain to the computational domain. The best method we have now is through annotation, but we should be trying to collect more information from humans, from the annotators, for example."

Session: AI in Health Care: Promise Meets Reality

Professor Margaret Brandeau (Stanford), a Professor in the School of Engineering and a Professor of Medicine, will discuss what is needed in order for AI to be successfully integrated into healthcare systems and the next steps that can be taken to advance implementation.

"Our ultimate goal for our AI projects is to have some automated decision making in our hospital. I'm going to talk about the five steps we've identified that every successful AI project goes through. We define the success of a project as sustained measured value.

"First, you have to have stakeholder buy in, then you have to have solved the problem, implement your algorithm or expert system, you have to sustain the use of the system by the people for whom it's been built, and finally, you have to measure the value.

"I'll present four projects we did at the Lucile Packard Hospital Stanford: three made it through part of the chain, and one has made it all the way where its use is sustained and the value it creates has been measured."

Session: Power to the People: A New Framework for Content Moderation and Governance for Internet Platforms

Anjali Joshi, Board Director Lattice Semiconductor, Alteryx; Executive in Residence, INSEAD, will discuss an alternative, decentralized framework for AI-enabled content moderation that uses a more tailored algorithm augmented with a contextual layer adapted to the type of content that a given community finds acceptable.

"The idea is that in real life, people in different countries have different rules by which they operate. And so to apply one model, across the entire world, is obviously not going to work. And it's going to flag both false positives as well as false negatives in terms of the content. So, that's the thesis of the talk, which is to now think about not building such huge single models across everything, but to build smaller contextual models, which can be used to moderate communities."

Session: Is your Computing Infrastructure Ready for the Next Wave of AI Research?

Dr. Ronen Dar, CTO and Co-founder of Run:ai, will discuss best practices for architecting, managing, and maintaining computing infrastructure for AI research in the next years to come.

"In my talk, I focus on the problem of GPU utilization and how costly it is today to develop AI. And it's a trend; the cost only increases and increases very fast. I'll go into the details of the problem of why GPU utilization is so low in training farms and when people train AI models. Why it's a problem when teams are deploying AI models in production and the utilization is low. I'll get into the problems, and then I'll briefly share what we do at Run:ai."

Day 3 talks

Day 3 will be virtual and includes five tracks: Ethics, Biomed, Theory, AI Applications, and Recommender Systems

Talks include:

9:20 am: EU Regulation of AI-Based Personalization

Dr. Alžběta Solarczyk Krausová, Head of the Center for Innovations and Cyberlaw Research (CICeRo), Institute of State and Law, Czech Academy of Sciences

9:35 am: Artificial Intelligence in Human Reproduction: Ethical Aspects of AI in IVF

Dr. Sivan Tamir, Researcher, The International Center for Health, Law and Ethics, University of Haifa; Head of Bioethics & Genetic Policy Unit, KSM Research and Innovation Center

10:15 am: Towards Automated Diagnosis of Disease-Related Risk Factors in 3D Medical Imaging Data

Dr. Oren Avram, Postdoctoral Researcher, Department of Computational Medicine, UCLA

11:00 am: Disrupting Drug Development using Multi-Modal Deep Learning and Patient-on-a-Chip Platform

Shahar Harel, Head of AI, Quris

12:20 pm: Dimensionality Reduction: Theory and Practice

Dr. Ora Fandina, Research Fellow, The ML & Algo group, CS Department, Aarhus University in Denmark

13:05 pm: Efficient Risk Averse Reinforcement Learning

Ido Greenberg, Ph.D. Candidate, Technion

14:05 pm: Curating Billion Image Datasets for Improving Model Quality

Dr. Amir Alush, CTO, Visual Layer

14:40 pm: Adapting Transformers for Recommender Systems (without any text!)

Tzoof Avny Brosh, Senior Machine Learning & NLP Researcher, Microsoft

15:25 pm: Combating Cold Start on a Large Scale- Evaluation Framework for Cold-Start Techniques in Large-Scale Production Settings

Moran Haham, Algorithms Manager, Outbrain

*By Lisa Damast and Elisabeth Strenger

AITHORITY
AI TECHNOLOGY INSIGHTS

Run:ai's 2023 State of AI Infrastructure Survey Reveals That Infrastructure and Compute Have Surpassed Data Scarcity as the Top Barrier to AI Development

The 2023 State of AI Infrastructure Survey, commissioned by Run:ai, sheds light on the growing challenges faced by organizations in AI development. The survey, which was conducted by Global Surveyz Research and gathered responses from 450 industry professionals across the US and Western EU, reveals that infrastructure and compute, chosen by 54% and 43% of respondents respectively, are now the primary hurdles, surpassing data as the key challenge facing AI development. This marks a shift compared to last year's survey by Run:ai, where the largest number of respondents – 61% cited data as their top challenge.

The survey also pointed to another shift over the past year as the number of organizations deploying less than half of their AI models in production increased from 77%, according to last year's survey, to 88% this year. Weighted for average, just 37% of AI models make it into production.

Recommended AI: Philips Speech and Sembly AI Launch SmartMeeting As Answer To New Meeting Culture

The adopton of cloud services for AI infrastructure continues to rise, with 73% of surveyed organizations using cloud services. However, the survey found a significant challenge in accessing GPU compute, as only 28% of respondents reported having timely and sufficient access to compute power upon demand. This shortage of on-demand access leads to frequent GPU allocation issues for 89% of respondents who use a ticketing system.

"Despite being on the cloud, organizations are still facing limitations with unlocking the full potential of their data," said Omri Geller, CEO of Run:ai. "This highlights the reality that cloud hasn't delivered on its on-demand promise and the importance of building a robust and scalable infrastructure."

The survey also found that as organizations scale and require more GPUs, they face a proliferation of third-party tools, making it increasingly complex to manage AI infrastructure and get the most out of it. 77% of respondents indicated they are using multiple third-party tools, making it difficult to get the right amount of compute to different workloads and end-users.

"Organizations must shift their focus from solely acquiring more data to ensuring they have the proper infrastructure in place to effectively process and utilize it," added Geller.

Some other findings of the survey:

91% of companies are planning to increase their GPU capacity or other AI infrastructure by an average of 23% in the next 12 months. This shows that despite the uncertain economic climate, companies are still investing in AI due to the potential and value they see in it.

50% of companies plan to implement monitoring, observability, and explainability in the next 6-12 months to keep track of their AI models.

The second and third priorities were model deployment and serving (44%) and orchestration and pipelines (34%). This indicates that companies are focused on bringing their AI models into production and streamlining the process to make it more efficient.

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inside BIGDATA

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