Podcast Transcript

EPISODE #301

AI and the Border: How Millions of Parcels are Scanned

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EPISODE SYNOPSIS

With international shipping hitting record volumes, customs agencies are turning to cutting-edge AI and industrial CT scanners to keep pace. In this episode, Herman and Corn explore the "needle in a haystack" problem of border security, specifically focusing on Israel’s recent VAT threshold changes and the strict regulations surrounding radio frequencies. From machine vision identifying illegal wireless doorbells to risk-scoring algorithms detecting tax fraud, we go behind the scenes of the world’s most advanced sorting centers. Learn how intelligent document processing and "electronic noses" are transforming the roles of customs officers into data scientists. It’s a fascinating look at the high-speed physics and computer science that ensure your five-dollar socks—and everything else—arrive safely and legally at your doorstep.

DANIEL'S PROMPT

Daniel

I’ve always wondered how the customs process actually works for the colossal volume of items entering a country from platforms like AliExpress. Given the sensitivities around things like wireless equipment and restricted goods, how do customs authorities scan such a high volume of packages to ensure they aren't illegal or dangerous? Is this process automated, and how are AI and other technologies used to handle millions of parcels?

TRANSCRIPT

Corn

You know, Herman, I was looking at the hallway earlier, and it is starting to look like a fulfillment center. I think between the three of us, we are keeping the international shipping industry in business.

Herman

Herman Poppleberry at your service, and I feel personally attacked by that statement, Corn. Although, in my defense, those were essential components for the home server upgrade. But you are right, the sheer volume of stuff arriving at our doorstep in Jerusalem is just a tiny fraction of the mountain of parcels hitting the country every single day.

Corn

It really is an avalanche. And our housemate Daniel actually sent us a fascinating prompt about this exact thing. He has been tracking his own orders from AliExpress, watching them go from export customs to release from customs, and he is wondering about the actual mechanics of it all. How do you scan millions of packages for things like illegal wireless equipment or dangerous goods without slowing the whole world down to a crawl?

Herman

It is the ultimate needle in a haystack problem. And Daniel mentioned something very specific, he actually had a wireless doorbell confiscated recently. He had to fill out forms, send spec sheets, and they still would not clear it. It just goes to show that even with all the automation we are going to talk about, there is still a very real, very strict gatekeeper at the border.

Corn

That is the part that gets me. We are talking about over seventy-five million packages entering Israel from overseas websites in a year. That was the figure for twenty twenty-four, and with the recent change in the value added tax threshold, it is only going up.

Herman

Right, that is a huge factor. For years, everyone in Israel was obsessed with that seventy-five dollar limit. If you went over by a cent, you were hit with eighteen percent tax. But as of late December twenty twenty-five, that limit was doubled to one hundred and fifty dollars. The government did it to help with the cost of living, but the side effect is a massive surge in volume for the customs authorities to deal with. It has been controversial, with local retailers calling it election economics, but for the consumer, it is a game changer.

Corn

So how do they actually do it? I mean, if you have three hundred and fifty thousand packages a day arriving at a place like the new Israel Post sorting center in Modiin, you cannot have a human being looking at every single box. That would require an army.

Herman

You are right, you cannot. The secret is that the process starts long before the package even touches Israeli soil. It is all about data. When you buy something on a platform like AliExpress, the digital footprint of that transaction is already moving toward the destination country. This is what we call pre-arrival processing.

Corn

So they know what is in the box before they see the box?

Herman

Exactly. Modern customs systems use something called Intelligent Document Processing. AI models sift through the digital manifests provided by the shippers. They are looking for inconsistencies. For example, if a package is labeled as a plastic toy but weighs five kilograms and is coming from a known high-risk shipper, the AI flags it before it even leaves the warehouse in China.

Corn

That makes sense for the paperwork, but Daniel's question was really about the physical scanning. When that mountain of gray plastic bags arrives on a conveyor belt, what are the machines actually seeing?

Herman

This is where the hardware gets really impressive. We have moved way beyond the basic X-ray machines you see at old airport security checkpoints. We are talking about high-speed, dual-energy X-ray systems and even industrial-scale Computed Tomography, or CT scanners.

Corn

Wait, CT scanners? Like the ones in hospitals?

Herman

Precisely. But instead of looking for a fracture in a human bone, these machines are creating three-dimensional images of parcels at a rate of thousands per hour. A dual-energy X-ray is particularly cool because it uses two different radiation spectrums to identify the effective atomic number of the materials inside. It can tell the difference between organic material, like food or drugs, and inorganic material, like metal or plastic, based on their specific density and atomic signature.

Corn

So the machine sees a bottle of pills and the AI recognizes that density as potentially restricted medication?

Herman

Yes, and it does it using machine vision. There is software now, like the iCMORE system used by major security firms, that is specifically trained to recognize the shapes of prohibited items. It is not just looking for guns or bombs. It is trained on thousands of images of lithium batteries, which are a major fire risk, and even the internal structure of things like wireless doorbells.

Corn

Which brings us back to Daniel’s doorbell. If the AI is so smart, why did his doorbell get flagged? If it is just a doorbell, why the hassle?

Herman

Well, Israel is a very unique case when it comes to the radio spectrum. Because we are a small, densely populated country with a lot of security needs, the Ministry of Communications is incredibly protective of which frequencies are used. Even though they recently relaxed the rules for security cameras and doorbells to reduce regulation, they did not relax the frequency requirements. If a device broadcasts on the nine hundred megahertz band, which is reserved for military and cellular providers here, it is an automatic rejection.

Corn

I remember we talked about this a bit in episode ninety-two when we discussed the scaling wall in technology. The problem is that many manufacturers in other countries use frequencies that are open there but restricted here.

Herman

Exactly. Advanced AI can now identify the specific layout of a circuit board that corresponds to a high-power radio transmitter. When the machine vision sees that specific electronic signature, it flags the package for a secondary inspection. That is when a human customs officer actually opens the bag.

Corn

So the AI is basically a filter that reduces the mountain of packages down to a manageable number of suspicious ones.

Herman

That is the perfect way to put it. It is all about risk management. The customs authority uses a risk scoring algorithm. Every package starts with a score. If it is coming from a reputable seller, has clear documentation, and the X-ray shows exactly what the label says, it gets a low score and zooms through the automated sorter.

Corn

But if the sender has been flagged before for shipping illegal walkie-talkies, or if the weight does not match the description, the score goes up.

Herman

Right. And in twenty twenty-six, these algorithms are getting much better at detecting de minimis fraud. That is when shippers intentionally undervalue a package to avoid taxes. Since the limit just moved to one hundred and fifty dollars, there is a lot of incentive for someone to claim a two hundred dollar smartphone only cost one hundred and forty-nine.

Corn

How does AI catch that? Can it really guess the value of an item just by looking at an X-ray?

Herman

It is getting there! The AI can cross-reference the image of the product with a database of known goods and their market prices. If the scanner sees the silhouette of a high-end graphics card but the manifest says it is a twenty dollar computer fan, the system flags it for a valuation check. It is basically a giant, automated game of spot the difference.

Corn

It feels like an arms race. The shippers get clever with how they hide things, and the customs tech gets clever with how it finds them. But what about the sheer physical speed? If a facility like the one in Modiin can handle three hundred and fifty thousand items a day, that is four packages every second, twenty-four hours a day.

Herman

It is a marvel of engineering. The conveyor belts are moving at several meters per second. The scanners are capturing images of every single item without the belt even slowing down. The images are sent to a server farm where the AI processing happens in milliseconds. If a package needs to be diverted, a high-speed diverter flicks it onto a different track before it even reaches the end of the line.

Corn

I wonder if people realize how much high-level physics and computer science is involved in getting their five dollar pair of socks delivered.

Herman

Most people just see the tracking update that says arrived in destination country and they get annoyed if it stays there for more than twelve hours. But in those twelve hours, that package has likely been weighed, measured, photographed, X-rayed, and run through half a dozen risk models.

Corn

And then there is the human element. Even with all this AI, Daniel still had to talk to a person, right? Or at least a person had to review his spec sheets.

Herman

That is the part that technology cannot fully replace yet. AI is great at spotting anomalies, but it is not great at interpreting complex regulations or understanding context. When Daniel sent in his spec sheet, a human expert at the Ministry of Communications had to look at the decibel levels and the frequency modulations to see if it complied with Israeli law.

Corn

It is funny because Daniel mentioned that they probably destroyed his doorbell. Is that common?

Herman

If an item is deemed a threat to the wireless spectrum or if it is an illegal substance, they usually do not send it back. Shipping it back costs money that no one wants to pay. So, yes, it often ends up in a specialized disposal facility. It is a sad end for a doorbell that just wanted to ring.

Corn

Poor doorbell. But this brings up a good point about the future. We are sitting here in early twenty twenty-six, and we are seeing this massive investment in automation. Do you think we will ever get to a point where the process is one hundred percent automated?

Herman

I do not think so, and for a very important reason: accountability. If an AI makes a mistake and lets something dangerous through, or if it wrongly seizes a thousand legitimate shipments, a human has to be able to explain why and fix the logic. We are seeing a shift where customs officers are becoming more like data scientists and exception managers rather than box openers.

Corn

I like that term, exception managers. They only handle the weird cases that the AI cannot solve.

Herman

Exactly. And the tech is moving into some really interesting areas beyond just X-rays. There are trials now for electronic noses, sensors that can detect the chemical signatures of explosives or narcotics at a molecular level as air is pulled from the shipping containers.

Corn

Like a digital bloodhound. That would be a game changer for the drug trade.

Herman

It really would. And when you combine that with blockchain for supply chain transparency, where you can verify the entire journey of a package from a factory in Shenzhen to a doorstep in Jerusalem, the haystack starts to get a lot smaller.

Corn

It is fascinating, but I also wonder about the privacy side of this. If these machines are getting so good at seeing what is inside our packages and AI is building profiles of what we buy, is there a risk of overreach?

Herman

That is a valid concern. In most countries, including here, customs laws give the government very broad powers to inspect international mail. You essentially waive a lot of your privacy expectations when you import goods across a border. But the data security of those X-ray images and manifests is something that regulators are looking at very closely.

Corn

Right, because that data says a lot about a person. Their health, their hobbies, their lifestyle.

Herman

Exactly. But for now, the focus is purely on security and revenue. The government wants its value added tax, and it wants to make sure no one is accidentally jamming the cellular network with a cheap signal booster from the internet.

Corn

It is a delicate balance. We want our cheap gadgets and we want them fast, but we also want a safe and functional society.

Herman

It is the classic trade-off. And speaking of trade-offs, I think we should talk about some of the practical takeaways for our listeners. If you are a frequent shopper like Daniel, or like us, there are things you can do to make this whole process smoother.

Corn

First and foremost, check the frequencies! Especially if you are in Israel. If you are buying anything wireless, a doorbell, a baby monitor, a remote control car, make sure it operates on the standard two point four or five point eight gigahertz bands. Most reputable sellers on AliExpress will list this in the specifications.

Herman

And look for the CE marking. That stands for Conformite Europeenne, and it means the product meets European safety and environmental standards. Since Israel has recently started aligning more closely with European Union standards for imports, having that mark makes it much more likely that your item will breeze through customs.

Corn

Another big one is the documentation. If the seller offers a space for a comment, you can ask them to include a clear, accurate description of the item. Vague terms like gift or electronics are a huge red flag for the AI risk models.

Herman

And be honest about the value. With the new one hundred and fifty dollar limit, there is much less reason to try and hide the price. If you get caught undervaluing an item, you will not just pay the tax, you might get hit with a fine that is double or triple the original cost.

Corn

It is also worth using the official tracking tools. The Israel Tax Authority has a system where you can enter your tracking number and see exactly where your parcel is in the customs process. It is way more detailed than the generic tracking you get from the shopping apps.

Herman

That is a great tip. It can tell you if it is awaiting clearance, if it has been cleared, or if there is a hold. If there is a hold, you can often resolve it much faster if you reach out before they send you a physical letter.

Corn

So, looking ahead, what is the next big thing? We have AI, we have high-speed CT scans, we have robotic sorters. What is the twenty twenty-seven or twenty twenty-eight version of this?

Herman

I think we are going to see more integration between the e-commerce platforms and the customs authorities. Imagine a world where AliExpress and the Israel Tax Authority have a direct, secure data link. When you click buy, the tax is calculated and paid instantly, the manifest is verified, and the package gets a digital green light before it even reaches the airport.

Corn

That sounds like it would take all the mystery out of it. No more checking the app every five minutes to see if it is released from customs.

Herman

It would be much more efficient. We are already seeing the beginnings of this with the Global Gate system. The goal is a seamless border where the physical inspection is truly only for the highest risk items.

Corn

It is amazing how much effort goes into making the world feel small. You click a button on your phone in Jerusalem, and a week later, a machine in China, a plane in the air, and a robot in Modiin all work together to put a box in your hand.

Herman

It is a miracle of the modern age, even if it occasionally swallows a doorbell.

Corn

Poor Daniel. I hope his next doorbell makes it through. Maybe he should just go with a traditional brass knocker. No frequencies to worry about there.

Herman

I do not know, Corn. Knowing our house, he would probably find a way to order a smart knocker that needs a firmware update.

Corn

You are probably right. Well, this has been a deep dive into a world most of us only see through a tracking number. It is incredible to think about the layers of technology protecting the borders while keeping the gears of global trade turning.

Herman

It really is. And it is a reminder that as much as we talk about AI in the abstract, its most powerful applications are often these invisible, background processes that make our daily lives possible.

Corn

Absolutely. Well, I think that is a wrap on the customs mystery. If you have been enjoying My Weird Prompts, we would really appreciate it if you could leave us a review on your favorite podcast app or on Spotify. It genuinely helps other curious people find the show.

Herman

It really does. We love seeing the community grow. And remember, you can find all our past episodes and a contact form at our website, myweirdprompts.com. We are also on Spotify, so make sure to follow us there for all the latest updates.

Corn

Thanks to Daniel for the prompt that sent us down this rabbit hole. We will have to see what he sends us next week. Hopefully something that does not involve anything being confiscated.

Herman

One can only hope.

Corn

Thanks for listening to My Weird Prompts. I am Corn.

Herman

And I am Herman Poppleberry. Until next time, stay curious.

Corn

See you later.