

Good evening. Imagine you're given a photograph of a massive crowd at a festival here in Bhubaneswar, containing thousands of people. Your job is to identify every single person.

The traditional way to do this is to take every single face, one by one, and compare it to a photo album of known residents. This is incredibly slow, tedious, and you have a huge problem: what if most of the people in the crowd are tourists? They're not in your album. You'd fail to identify them.

This is exactly the problem our scientists face when they analyze life in the deep sea. They get a flood of genetic data—tens of thousands of tiny DNA 'barcodes'—from a single water sample. The only tool they have is that limited photo album, a database of known species. They are trying to match every single barcode, one by one. It's slow, and because our deep sea is so unexplored, most of the barcodes they find have no match. They are missing the discoveries.

Our project fixes this. We've built an AI that works smarter, not harder.

Instead of that slow, one-by-one matching, our AI acts like a modern facial recognition system. It looks at the entire crowd of 17,000 genetic barcodes at once and intelligently groups them. It says, 'Okay, all of these look related, let's put them in Group A. All of these look related, that's Group B.' It discovers the underlying structure in the data first, without even looking at the photo album.

Then, instead of checking all 17,000 faces, we just check one face from each of our 700 groups.

This single innovation does two incredible things: First, it makes the process over 96% faster, turning a multi-day analysis into less than an hour. And second, it hands scientists the most exciting result: the groups of barcodes that have no match at all. These are their strongest leads for discovering completely new forms of life.

Now, that's our core AI innovation. But we didn't stop there.

We saw another huge problem. The old way of doing this was like a fragile chain of different software tools. A scientist had to manually run Step 1, then feed the output to Step 2, and so on. If the computer crashed or the power went out 30 hours into a 40-hour analysis... you had to start all over again, from zero.

We solved this completely. We've built the entire workflow into a single, intelligent, automated program. A scientist can now launch this complex, multi-day analysis with a single click. And if it gets interrupted for any reason, you just restart it, and it smartly picks up exactly where it left off. This makes our system not just powerful, but reliable and practical for real-world use. No other tool, academic or commercial, offers this level of automation and resilience.

So, where's the business potential? This technology is far bigger than just the deep sea.

Think about public health. We can use this system to analyze a water sample from any river in India and get a near-instant map of every virus and bacteria present. We can spot new disease outbreaks or dangerous mutations before they affect a single person. This is a national healthcare early-warning system.

Think about agriculture. A farmer could use this to get an instant 'health report' for their soil, identifying beneficial microbes or detecting a new, invasive pest before it can destroy their crops. This is a tool for ensuring our nation's food security.

And think about industry. The undiscovered life in our oceans is a treasure chest of new compounds for creating life-saving medicines and new industrial products. Our platform is the key that unlocks that chest, creating a multi-crore opportunity for pharmaceutical and biotech companies right here in India.

Our business model is to provide this as a Platform-as-a-Service. We will offer subscriptions to government research labs, universities, and private companies who need fast, reliable, and powerful genetic analysis.

So, in summary: we've taken a slow, fragile, and blind process and transformed it into a fast, robust, discovery engine. We have built a working prototype that proves every claim I've made today.

We're not just creating a piece of software; we're building a platform that will accelerate scientific discovery across healthcare, agriculture, and industry—sectors that are critical to India's future.

Thank you.