Lawrence Hui and Severine Catreux of Illumina.
Video still by Illumina

Video: Two Illumina scientists share their "why"

Directors of bioinformatics and of commercial insights and innovation talk about the real impact of their work in genomics

PEOPLE JOIN ILLUMINA from every academic and professional background you can imagine—not just biology. And every employee brings not only their unique expertise, but their own personal reason for contributing to the company's mission to unlock the power of the genome.

We recently sat down with two Illumina scientists to ask them about their "why." Why they're excited to come to work every day. Why their work matters—and why they would recommend Illumina to others who want to make a real difference for human health.

Watch the videos below for the highlights of their answers, and read on to learn even more.

Watch Lawrence Hui's video at youtube.com/watch?v=EII5fV3UbRw

Lawrence Hui, Associate Director of Commercial Insights and Innovation

Lawrence Hui earned his bachelor's and master's degrees in bioengineering from the University of California, San Diego, and graduated in 2008—"not the easiest time to find a job," he says. But his persistence paid off: He was hired as a software systems analyst at Illumina and has been with the company ever since.

Back then, he remembers being greeted with blank stares when he mentioned working in gene sequencing. "I think I explained it to my relatives maybe 15 times." Now, he says—due in part to the pandemic—everyone has heard of mRNA and molecular variants.

Hui leads a group that focuses solely on helping our customers succeed. They use predictive analytics to prevent unplanned Illumina instrument downtime, and help customers get back up and running again if downtime does occur. He's frequently awed by the scope and difficulty of the problems that customers are tackling. "At times it's hard to fathom how many different uses of Illumina's technologies there are," he says. "To hear all the different areas we're able to impact, influence, and even to further, is inspiring."

The mission is personal for him. Many of his family members have had cancer: both grandfathers, a grandmother, and both parents. Some have survived, and many haven't. So it's imperative to him that humanity finds a cure—and he believes that Illumina will enable the researchers who will solve cancer in our lifetime.

"It's hard to keep track of all the advancements we're making on the hardware side, the application side—even

on the sample prep and bioinformatics side," he says. "It's encouraging when I think about the future, because there are so many questions that I think sequencing and genetics will solve."

Watch Severine Catreux's video at youtube.com/watch?v=Et5bLz-OPD8

Severine Catreux, Senior Director of Bioinformatics

Severine Catreux grew up learning to solve analytical problems. What excites her is investigation work: taking a clear problem statement and gathering a team to come up with a method to solve it. "At the end of the day," she says, "when your prediction model works fine and you see the results behaving in the way you were hoping for, that's very satisfying to me."

Before Illumina, she spent ten years in the telecom industry, developing ways to detect the important parts of a signal amid a sea of background noise. This translated naturally to genomic data analysis, which sifts through billions of letters of genetic code to find the tiny, individual variations responsible for disease.

She was one of many engineers who transitioned from telecom when they joined Edico Genome. Back then, the data output of Illumina's instruments was increasing all the time, but data analysis couldn't keep up, creating a bottleneck. To solve this, Edico developed DRAGEN secondary analysis software. Illumina acquired Edico in 2018, and DRAGEN is now the gold standard in all of the company's genomic workflows.

Catreux smiles when she talks about DRAGEN, because "we're very proud of it. It's a great tool, and it literally changed the face of Illumina software." Her team is focused on making sure their methods are robust and reliable. "We never take any shortcut in terms of accuracy…because the application is human health. You don't want to make any mistakes."

And yet, she says they've only scratched the surface of what's possible. Genomic sequencing can expedite diagnoses to identify the right treatment for patients as soon as possible, and comprehensive genomic profiling is an important step on the path to personalized medicine.

She imagines a near future when a person's medical records will include a "genetic passport" that their doctors can consult, along with blood work and other diagnostics, to create the exact-right treatment plan. That future can't arrive soon enough, she says: "This field is moving a bit slow—and I tend to be impatient!" But that impatience is exactly what drives her. "We have the tools, the talent, and the vision. I'm excited to be part of the team that's pushing the boundaries to make personalized medicine a reality." ◆