

CASE STUDY
Z BY HP AMBASSADOR



TUCKER ARRANTS: MOTIVATED, DETERMINED, ENTHUSIASTIC

Z by HP encourages Kaggle Notebook Master to dive deeper into data science





Sometimes the route to a data science career is as winding as the microelectronics on a printed circuit board. That may be the case for Tucker Arrants, who originally thought he'd work in an area related to physics. However, halfway through his senior year at Chapman University in California, where he graduated in 2020 with a B.A. in philosophy and a B.S. in physics, he decided that a job using physics

wasn't his goal after all. Serendipity pointed Arrants toward data science, which he had recently learned about. He had done scientific coding in his physics program, and he "sees a lot of people with a physics background go into data science because of its computational aspect," he says. Through platforms like Coursera, he completed additional courses used in the field.

AT A GLANCE

TUCKER ARRANTS, VIRGINIA

- Bachelor of Science with Honors, Physics Magna Cum Laude, Chapman University
- Bachelor of Arts with Honors, Philosophy Magna Cum Laude, Chapman University
- Master in Kaggle Notebooks within a year, with a highest rank of 109 out of about 167,000
- Expert in Kaggle Discussion and Competitions
- Enjoys tennis in his free time



As a Z by HP Global Data Science Ambassador, Tucker Arrants' content is sponsored and he was provided with HP products.

After graduating, Arrants interned as a data analyst at Pacific Life in Los Angeles in the employee benefits department, using his data analytics skills to streamline processes there. "People were spending a lot of time with Excel and making graphs, and I helped them automate. It was nice to be able to teach them ways to make their life and jobs easier, and it was fun," he says. Following his internship, Arrants had some decisions to make. Should he enroll in school for additional courses used in data science, including statistics? Or wait for

a person was going to survive the sinking of the Titanic completely "blew his mind," he recalls. He spent a month or so obsessing over that competition and trying to implement techniques he saw other people using.

Sharing raw code with other Kaggle participants, he became a Notebooks Expert in no time, and then rose to Master. In turn, other Kaggle participants added to his code and shared it. "I try to produce work that is explanatory so that others can learn, and in the process, I learn more about it myself," he says.

"THE HP Z SOLUTION IS ONE OF THOSE THINGS WHERE YOU DON'T REALLY REALIZE HOW MUCH YOU NEED IT UNTIL YOU HAVE IT, AND THEN YOU SEE JUST HOW MUCH YOU WERE MISSING OUT ON."

Tucker Arrants, Z by HP & NVIDIA® Data Science Global Ambassador

in-person classes to return? While considering his choices, he accepted a position as a financial advisor in Virginia.

Since his senior year, Arrants has been contributing to the online data science community Kaggle, which he found by searching the internet with the phrase "how to build a data science portfolio." Arrants says, "It's been suggested that people get data sets from Kaggle as a starting point for individual projects to put on a resume."

His first Kaggle competition was an "aha" moment that showed him the potential of data science as a career. Realizing he could look at rows and columns of data and predict whether

Arrants codes every day. He wants to keep his finger on the pulse when it comes to data science because he predicts it's going to take over every industry. It keeps him sharp, he says, and when he jumps back into job hunting in the data science field, he'll be a formidable contender. "Kaggle is the perfect platform to code on. I like the Kaggle community and the competitions are riveting," he adds.

"One of the misconceptions about the platform is that the tutorial competitions have fake data. But when you actually do the series competitions—moving from the tutorials to the ones that are actually sponsored by



SOLUTION HIGHLIGHTS:

HP Z8 G4 1125W PSU

- Dual Gold Intel® Xeon® 6234 3.3 GHz 8C - CPU
- NVIDIA® RTX 8000 - GPU
- 96GB (6x16 GB)
- Ubuntu 20.04
- Z by HP Data Science Software Stack

Z38C DISPLAY

- 37.5-inch diagonal curve
- 3840 X 1600 at 60 Hz resolution

HP ZBOOK STUDIO G7

- Approx: 4 lbs/2 Kilos
- i9 – 10885H processor
- 32GB RAM
- NVIDIA® RTX 5000 (16 GB VRAM)
- 15.6-inch display
- Ubuntu 20.04
- Z by HP Data Science Software Stack

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companies—you're using real, hard data. There was even one for Homeland Security a while ago.”

Arrants is particularly fascinated with the computer vision part of data science because of the deep learning, even if it can really only be used in specific situations. However, the part of the field he thinks will completely revolutionize all industries is natural language processing. “That excites me a lot because there’s been so much progress even in the last three or four years. In my internship, one marketing project was using natural language processing to figure out the best lingo to send in an email to get as much engagement as possible from the people you’re contacting. You can get very good results that you can immediately apply. Language is so ingrained in our society, and natural language processing can be used in so many ways. In addition, the results are easily interpretable, which is very important from a business perspective,” he notes.

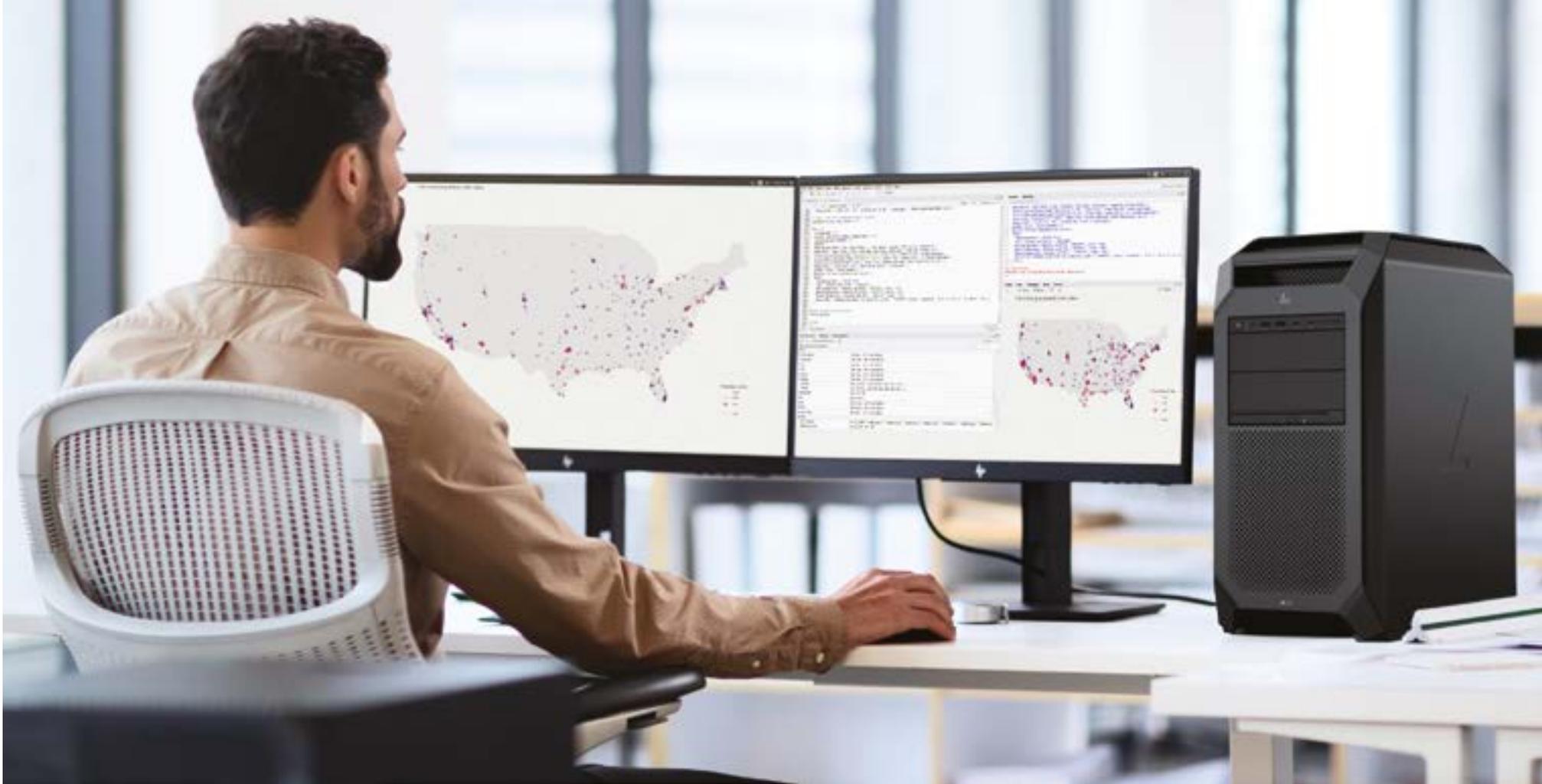
Versatile, convenient, super light

Data science can not only help companies gain insights into problems; it has played a role in the COVID-19 pandemic. As one example, the publication Analytics Insight notes that “Healthcare providers [have leveraged] data from countries that were affected earlier by the pandemic to forecast needs for hospital beds, masks and ventilators.” As another, Arrants worked on an individual project on development platform Github that involved predicting degradation rates at locations along an RNA sequence to help researchers develop an mRNA vaccine.



“THE HP ZBOOK STUDIO IS A SUPER LIGHT LAPTOP, AND THE BATTERY AND SPEAKER SYSTEM ARE INCREDIBLE.”

Tucker Arrants, Z by HP & NVIDIA® Data Science Global Ambassador



As a Z by HP & NVIDIA® Data Science Global Ambassador, Arrants is using the HP Z Book Studio, the Z8 Workstation, and the Z38c Monitor. He was already familiar with HP from the Omen Gaming Desktop he had and loved as a kid.

Arrants has one word to describe his experience with the Z by HP solution: fantastic. "It's one of those things where you don't really

realize how much you need it until you have it, and then you see just how much you were missing out on. I love it." He also says it's extremely convenient, and that the amount of time savings and stress relief that the preloaded software brings "is unbelievably helpful."

"The HP ZBook Studio is a super light laptop, and the battery and speaker system are incredible," Arrants continues. "If I'm doing

something coding-related on my older laptop and I don't have it plugged in, it dies within 90 minutes. With my HP ZBook Studio, I can code for five or six hours while I'm running very heavy experiments."

It's also important to have a laptop that's GPU-compatible. When running experiments on his older workstation, he's typically not able to prototype new code when the GPU is busy. He

just has to run his experiment and wait until it's finished. "With the HP ZBook Desktop, I can run new code simultaneously," he explains.

A current Kaggle competition involves translating images of molecules into the actual molecular sequence. "If I wanted to run these models in a Kaggle environment, it would take about seven and a half hours to do one single cycle. But after moving it onto my HP Z laptop,

KAGGLE: LEARN, COMPETE, CHANGE THE WORLD

- Over 6 million registered Kagglers solve data science problems, gain access to powerful tools and resources, and compete for prizes.
- There are five tiers: Novice, Contributor, Expert, Master, and Grandmaster. Currently, there are 211 Grandmasters.
- Kaggle has run hundreds of competitions, from improving gesture recognition to improving the search for the Higgs boson at CERN. Competitions have resulted in successful projects including furthering HIV research and traffic forecasting. The learnings that result from the competitions and shared on Kaggle are being transferred into enterprise workflows to transform how business works.

Visit www.kaggle.com to learn more.



THE POWER OF Z:

Reduces time to run models from 7.5 hours to 1.5 hours

Reduces time to train a model from 7+ days to 2 days

4X longer battery life while coding extensive experiments

No memory limit running large experiments

GPU-compatible

Super light

it took about 90 minutes. That's a savings of six hours. I'm pretty much able to run what I want." He wonders whether people without HP Z laptops are able to compete at a high level.

"The CPU in the Z by HP has so much memory that there's really nothing that holds me back. Just knowing that whatever I want to do my computer can do, not only frees me to try new things, but I don't have any inherent limitations," Arrants says.

He also knows that it takes some people without the HP Solution more than a week to train a single model and it takes him only two days. That's important for enterprises. "As soon as companies unaware of the benefits catch on to what computers they need for data science, there's going to be a serious demand for very powerful workstations like the Z by HP," Arrants predicts. As data science progresses, the tasks that need to be addressed will become more complicated, requiring more and more models. "Having more data, more complex tasks and

more advanced models in the future will make companies happy that they made the change to these HP workstations."

A wish for the future

Coding is involved in every part of data science. Arrants' main hope for the future is that open-source code remains open. "When a team of coders comes up with something new, they don't try to keep it to themselves and patent it. They know that the more they share, the more the code will continue to improve." Since the whole coding and data science community is founded on this principle, that's the main reason why there is so much progress in the field. "I really hope that companies don't start putting intellectual property patents on the code being produced because that would not be in the best interests of innovation," he concludes. And for Arrants and his fellow Kagglers, technological innovation is what it's all about.



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4AAB-0309ENW, February 2022

