



CTC(T&IT), CRPF



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Never stop learning, Because life never stop Teaching

**“I can calculate the motion of heavenly bodies
but not the madness of people.”**

:- Isaac Newton

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READER'S CENTER

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ARTICLE ON DATA SCIENCE

The term "science" implies knowledge gained through systematic study. In one definition, it is a systematic enterprise that builds and organizes knowledge in the form of testable explanations and predictions. Data science might therefore imply a focus involving data and, by extension, statistics, or the systematic study of the organization, properties, and analysis of data and its role in inference, including our confidence in the inference. Why then do we need a new term like data science when we have had statistics for centuries? The fact that we now have huge amounts of data should not in and of itself justify the need for a new term.

Data science is an interdisciplinary field that uses scientific methods, processes, algorithms and systems to extract or extrapolate knowledge and insights from noisy, structured and unstructured data, and apply knowledge from data across a broad range of application domains. Data science is related to data mining, machine learning and big data.

Data science is a "concept to unify statistics, data analysis, informatics, and their related methods" in order to "understand and analyse actual phenomena" with data. It uses techniques and theories drawn from many fields within the context of mathematics, statistics, computer science, information science, and domain knowledge. However, data science is different from computer science and information science. Turing Award winner Jim Gray imagined data science as a "fourth paradigm" of science (empirical, theoretical, computational, and now data-driven) and asserted that "everything about science is changing because of the impact of information technology" and the data deluge.

A data scientist is someone who creates programming code and combines it with statistical knowledge to create insights from data.

□ Data science is an interdisciplinary field, focused on extracting knowledge from typically large data sets and applying the knowledge and insights from that data to solve problems in a wide range of application domains. The field encompasses preparing data for analysis, formulating data science problems, analysing data, developing data-driven solutions, and presenting findings to inform high-level decisions in a broad range of application domains. As such, it incorporates skills from computer science, statistics, information science, mathematics, data visualization, information visualization, data sonification, data integration, graphic design, complex systems, communication and business. Statistician Nathan Yau, drawing on Ben Fry, also links data science to human-computer interaction: users should be able to intuitively control and explore data. In 2015, the American Statistical Association identified database management,

statistics and machine learning, and distributed and parallel systems as the three emerging foundational professional communities.

Relationship to statistics

Many statisticians, including Nate Silver, have argued that data science is not a new field, but rather another name for statistics. Others argue that data science is distinct from statistics because it focuses on problems and techniques unique to digital data. Vasant Dhar writes that statistics emphasizes quantitative data and description. In contrast, data science deals with quantitative and qualitative data (e.g. from images, text, sensors, transactions or customer information, etc) and emphasizes prediction and action. Andrew Gelman of Columbia University has described statistics as a nonessential part of data science.

Stanford professor David Donoho writes that data science is not distinguished from statistics by the size of datasets or use of computing and that many graduate programs misleadingly advertise their analytics and statistics training as the essence of a data-science program. He describes data science as an applied field growing out of traditional statistics.

Early usage

In 1962, John Tukey described a field he called "data analysis", which resembles modern data science. In 1985, in a lecture given to the Chinese Academy of Sciences in Beijing, C. F. Jeff Wu used the term "data science" for the first time as an alternative name for statistics. Later, attendees at a 1992 statistics symposium at the University of Montpellier II acknowledged the emergence of a new discipline focused on data of various origins and forms, combining established concepts and principles of statistics and data analysis with computing.

The term "data science" has been traced back to 1974, when Peter Naur proposed it as an alternative name for computer science. In 1996, the International Federation of Classification Societies became the first conference to specifically feature data science as a topic. However, the definition was still in flux. After the 1985 lecture at the Chinese Academy of Sciences in Beijing, in 1997 C. F. Jeff Wu again suggested that statistics should be renamed data science. He reasoned that a new name would help statistics shed inaccurate stereotypes, such as being synonymous with accounting or limited to describing data. In 1998, Hayashi Chikio argued for data science as a new, interdisciplinary concept, with three aspects: data design, collection, and analysis.

ASI/T Manoj Kumar

TOP 10 TECHNOLOGY

1. Stratechery's Daily Update — Ben Thompson

Stratechery's Daily Update by Ben Thompson who is considered as one of the smartest tech observers in the business is known for its acute observation of technology, ranging from AI to Social media and is a must-have subscription by your side for your regular dose of tech analysis.

2. MIT Tech Review

MIT Tech Review is one of the most sophisticated technology review websites around. It features well-known articles from scientists, engineers, computer programmers and CEO's from eminent companies. Since its inception in 1899, it filters knowledgeable information with in-depth analysis on technology and science.

3. Digital Trends

Digital Trends (DT) is deeply admired as one of "leading source of tech news to the most influential customers on the planet." After it was founded in 2006, DT covers a variety of topics including product reviews, technology trends, video coverage and the best deals that you should consider.

4. Wired

Wired offers a careful mix of technology and current news media that strikes science, security, and design. Articles range from "If You Want To Glimpse The Power of AI, Play These Games," to "The Oral History of The #Hashtag" in a thoughtful description.

5. Futurism

Futurism uses witty infographics and image-populated stories that capture curious minded technology enthusiasts. If you're interested in future society or how robots and machines will greatly benefit civilization (or obliterate us), check out how AR tablets will change education.

6. TED

TED talks are well-known for their innovative and inspirational content. If you want to keep yourself up-to-date with new talks when they're released, subscribe to the TED newsletter, which you can receive daily or weekly. They also feature podcasts, videos, and interviews.

7. Hacker Newsletter

Hacker newsletter is a weekly newsletter comprising of the best articles on startups, technology, programming etc. Hacker Newsletter, curated by Kale Davis has earned the distinction of being featured in Smashing Magazine, Entrepreneur and MailChimp.

8. IT World

ITworld's canvas offers a wide range of technology topics, including software, security, operating systems, mobile, storage, servers and data centers, emerging tech and the internet of things. Sign up for the various types of newsletters on offer and keep yourself abreast with the latest technology-related content around.

9. CB Insights

CBInsights is one of the newsletters for people to follow who work in tech. If you're interested in clarity of analysis with impeccable data, this is the where you should be. With an overwhelming amount of research, served palatably, this extremely engrossing read should occupy pride of place on your subscription list.

10. Benedict's Newsletter

While emojis are not the most essential part of a newsletter, they add some sparkle nonetheless. It's curated with a personal touch by none other than Ben Evans of the VC firm Andreessen Horowitz.

HC/RO Kumar Nagmani

DJI AVATA (DRONE)



The DJI Avata is a nimble cinewhoop drone for FPV novices.

Cinewhoop drones are all the rage right now, as they can dive and twist and speed through unreachable places to produce spectacular footage. DJI has jumped on that trend with the Avata, an FPV drone that's far removed from the company's speedy DJI model actually called the FPV. Instead, the Avata is more about agility and has propeller guards that make it safe to fly around people. It's available with the new Goggles 2 that are smaller and lighter than the Goggles V2 that come with the DJI FPV drone. You can also get it with an updated Motion Controller that lets you steer the Avata by moving your wrists.

The system could help drone users get into the world of FPV and cinewhoop, but it isn't cheap with the Goggles 2 and Motion Controller.

BODY:-

The Avata doesn't look like any of DJI's other consumer drones. To fly indoors, around people or in tight spaces, it has prop guards and a small, 7-inch square by 3.1-inch high body. At 410 grams it's much lighter than the FPV, but a bit heavier than the 249-gram Mini 3 Pro. As such, it requires registration or a license in Europe, the US and many other countries.

The batteries use a flexible connector designed to limit crash damage. DJI claims up to 18 minutes of flight time, but we generally got around 10-12 minutes, or even less if we flew it extremely fast. That's still good for an FPV drone (most are under 10 minutes), but DJI should be a bit more realistic in its marketing. The Avata's battery charges in about 45 minutes, and you can get two extra batteries and a charger.

I'd also buy the largest micro SD cards possible, because the slot tucked underneath is extremely awkward to access – particularly when removing a card. The USB-C port for transfers and charging is equally hard to get to. DJI normally excels with these types of features, but these are honestly serious design flaws. On the plus side, the Avata has 20GB of internal storage that can serve in a pinch.

Gallery: DJI Avata FPV drone image gallery

The extra sharpness and small size are nice, but you can't wear glasses underneath the Goggles 2. Instead, they have built in diopters to correct your eyesight. If you have astigmatism, DJI includes lens mountings that you can send back to have your prescription made.

The Goggles 2 let you fly the Avata with no mobile phone, as they have a mini-version of the DJI Fly app built-in. If you want to let others have a view, you can connect a smartphone via USB-C port on the side, though. The Goggles 2 control the Avata via DJI's Ocusync O3, providing a 50Mbps video feed from up to 6.2 miles away.

Performance

The Avata is a blast to fly, but it's not as fast as some FPV drones. It tops out at 60 MPH in manual mode, well under the 87 MPH of DJI's FPV. And that's in manual mode – sport and normal modes are considerably slower at 31 MPH and 18 MPH, respectively. It has awesome manoeuvrability though, letting you fly in places you'd never take another drone. It can also bounce off a person without doing them any harm.

The Motion Controller is easy to use – you simply point it where you want to fly and pull the trigger to speed up. To climb, tilt the controller upward and apply power, and reverse that for descents. A large button on top brings it to a hover, and the red button lets you take off and land.

It has some limitations, though. You can't transition vertically or fly backwards with the Motion Controller, so you have to use a button to land. It also lacks precision, especially indoors. In fact, we found that without a GPS lock inside, the Avata was sometimes unflyable with the Motion Controller.

If you have some experience, the FPV Controller 2 is a better option. It allows you to engage manual mode to cruise faster, fly low to the ground and zag between trees or rooftops. Inside, you can fly precisely between rooms, objects and people.

Manual mode also opens up flips, dives, climbs, hairpin turns, rolls and other tricks. Just bear in mind that there are no sensor safeguards. While Avata drone is tough, it's not unbreakable and could really hurt someone at 60 MPH. It's also more unstable, so flying it requires serious skill.

Video quality

Most so-called Cinewhoop FPV drones use external cameras like the GoPro Hero Bones (or just regular stripped-down GoPros), but the Avata has one built in. It uses the same size 1/1.7-inch sensor as the new Action 3 camera, with 64 percent more area than the FPV.

Like the Action 3, it has normal, wide and ultra-wide options with up to a 155 degree field of view. And on top of the built-in gimbal and RockSteady smoothing, it has the HorizonView option to keep things level, even if the drone is tilting heavily.

The gimbal and RockSteady stabilization keep video smooth despite wind or abrupt maneuvers. And the HorizonView option worked as advertised, keeping things level for even when we were slaloming between trees.

It supports 4K video at up to 60 fps or 1080p and 2.7K at 120 fps with the Goggles V2, but only 100 fps with the Goggles 2. It's not ideal that it has slower speeds than the headset it's sold with, but it's apparently due to the higher resolution. The sensor has 48 megapixels for shooting photos, if you ever want to do that.

Considering the camera's small size, image quality is solid. Video is sharp and colors are accurate, though they can be a bit oversaturated. If you need a bit more dynamic range, it has DJI's D-Cinelike mode.

Overall, it's a very solid camera, though not up to, say, GoPro's standards. The camera is part of a holistic package though – combined with the Avata's small size and maneuverability, it gets shots no other off-the-shelf drones can.

Wrap-up



In sum, the Avata is a fun, rugged and maneuverable little drone that produces great footage, but it does have some weird flaws and limitations. The Goggles 2 limit the slow-motion and aren't ideal if you wear glasses. Plus the Motion Controller doesn't allow for precise FPV flying, and the microSD slot and USB-C port are poorly positioned.

It's also fairly costly. Though the base drone is \$629, it's \$1,388 with the Goggles 2 and Motion Controller, plus another \$279 with the Fly-More kit. If you add the FPV Remote Controller 2, that's another \$199. By comparison, the FPV bundled with the Goggles V2 and older Motion Controller costs \$1,300.

Still, there aren't many other ready-to-fly drones that can do what it does. If you want a highly maneuverable and relatively safe Cinewhoop-style drone without building one yourself, it's really in a class by itself.

HC/RO Gopal Kumar Singh

INTERNET OF THINGS (IOT)

The Internet of Things, or IoT, is a system of interconnected computing devices, mechanical and digital machines, objects, animals, or people that provide unique identifiers (UIDs) and the ability to transfer data across a network without the need for humans. Human or human-to-computer interaction.

As consumers, we are already using and leveraging IoT. We can remotely close our doors if we forget when we leave for work and preheat our ovens at home from work, all while tracking our fitness on our Fitbit. However, businesses have much to gain now and in the near future. IoT can enable better security, efficiency and decision making for businesses as data is collected and analysed. It can enable predictive maintenance, accelerate medical care, improve customer service and provide benefits that we have not even imagined.

And we are only in the early stages of this new technology trend: forecasts suggest that by 2030 these IoT devices will have around 50 billion uses worldwide, a large-scale interconnected device spanning everything from smartphones to kitchen appliances. Creating huge web. Global spending on the Internet of Things (IoT) is estimated to reach US \$ 1.1 trillion in 2022. New technologies like 5G are expected to grow in the coming years.

And if you want to step into this trending technology, you must have information security, AI and machine learning fundamentals, networking, hardware interfacing, data analytics, automation, understanding of embedded systems, and knowledge of devices and design.

ROBOTIC PROCESS AUTOMATION (RPA)

A **Robotic Process Automation (RPA)** approach to streamline internal processes, where people and technology work together in consonance, enable better insights into trends and opportunities for businesses. Robotic Process Automation (RPA) works best with rule-based, routine tasks that require manual input.

Like Artificial Intelligence (AI) and AI, mechanical interaction computerization, or RPA, is another innovation mechanizing businesses. RPA programming is used to mechanize business cycles, for example, to decrypt applications, handle exchanges, manage information, and in any event, note messages. RPA computerizes the sluggish tasks that individuals used to do.

Despite the fact that Forrester Research says that RPA computerization will compromise the occupation of 230 million or more information workers, or about 9 percent of the worldwide labor force, the RPA is too high creating new jobs, altering existing jobs. McKinsey found that less than 5 percent of businesses can be fully automated, but about 60 percent can be partially automated.

RPA opens up a number of professions, including engineers, project supervisors, business specialists, arrangement planners, and consultants, attempting to see further and new innovation patterns as an IT proficiency plan. And these jobs pay well. An RPA developer can earn over K 534K per year – you have to keep an eye on it, making it the next technological trend!

HC/RO L. SATAPATHY

Acknowledgement

We are highly thankful for reading out this compilation and hope it will be useful for you in day to day professional and personal life. We would like to hear your interest areas, suggestions from you to make this newsletter more informative and interesting. Your views will definitely help us to create this newsletter as an effective medium to reach you with latest development in the fields of communication and technology.

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