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THOUGHTS OF THE ISSUE 73

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Message

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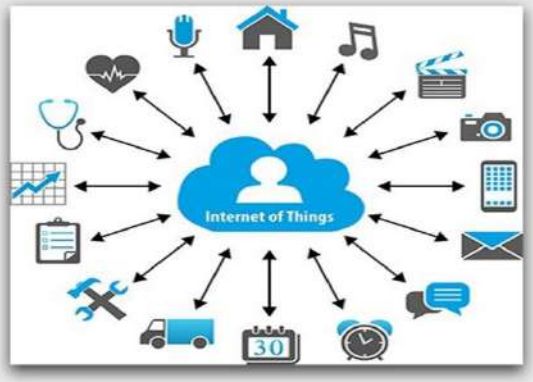

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APTITUDE TEST

PART- 21

Hi all, in this issue we are going to see more about Mechanical Reasoning.

Well Known Mechanical Reasoning Tests

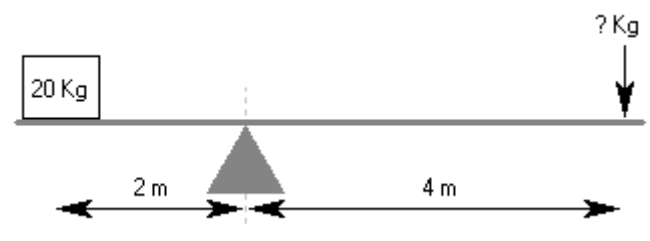
- ***Bennett Test of Mechanical Comprehension:*** This test is generally used for engineering and mechanical occupations, and measures the ability to comprehend how physical force affects mechanics.
- ***Wiesen Test of Mechanical Aptitude:*** This is likely to be used in candidate selection for occupations that require the ability to operate and service tools and machinery; and measures this ability within its assessment.
- ***Barron's Test of Mechanical Aptitude:*** Typically used in selection procedures for the military, this test assesses candidates based on subjects related to the abilities a person would need to succeed in this occupation.
- ***Stenquist Test of Mechanical Aptitude:*** This test does not require experience in a particular area; it is based around questions in which the candidate has to pick one of four pictures that best fits with a picture they are previously shown.

Approaching mechanical reasoning tests

- Mechanical reasoning tests are considered to be a great predictor of how employees will later perform at work. As with all tests, practicing will help you to become more adept at answering these types of questions, and help you to become quicker and more accurate in your responses.
- The tests are timed, so being able to quickly answer the question is beneficial, although these types of tests generally have a 1-5% full completion rate, so getting to the end of the assessment is not as important as the amount of correct answers you provide.
- For roles that require mechanical reasoning tests, the candidate would be likely to have knowledge of the principles and formulas required to answer the questions, so there is no need to worry about receiving mechanical reasoning questions if you are entering into an unrelated sector, such as accountancy.

Examples

1) How much weight is required to balance the lever?



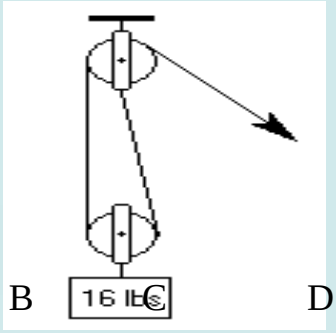
A B C D E

15kg 5kg 10kg 7.5kg 20kg

Hint: The force required in the following way: w x d1 = f x d2
Where, w = weight; d1 = distance from fulcrum to weight; f = force needed; d2 = distance from fulcrum to point where force is applied

Answer: B) 5 Kg

2) Approximately how much force is needed to lift the weight?



A B C D E

9lbs 8lbs 6lbs 4lbs 16lbs

Hint: If the pulley is fixed, then the force required is equal to the weight. If the pulley moves with the weight then the force is equal to half of the weight. Another way of thinking about this is to divide the weight by the number of sections of rope supporting it to obtain the force needed to lift it.

Answer: B) 8lbs

Meet you all in the next issue……Keep practicing!! All the best!

Staff-Editor

CHICKEN DINNER TREND

Player Unknown's Battlegrounds (PUBG) is an online multiplayer battle royale game developed and published by PUBG Corporation, a subsidiary of South Korean video game company Bluehole. The game is based on previous mods that were created by Brendan "PlayerUnknown" Greene for other games using the film Battle Royale for inspiration, and expanded into a standalone game under Greene's creative direction. In the game, up to one hundred players parachute onto an island and scavenge for weapons and equipment to kill others while avoiding getting killed themselves. The available safe area of the game's map decreases in size over time, directing surviving players into tighter areas to force encounters. The last player or team standing wins the round. The game was first released for Microsoft Windows via Steam's earlyaccess be ta program in March 2017, with a full release on December 20, 2017. That same month, the game was released by Microsoft Studios for the Xbox One via its Xbox Game Preview program, and officially released in September 2018.

The same year, a port for the PlayStation 4 was released, in addition to two different mobile versions for Android and is. The game is one of the best-selling of all time, with over fifty million sold across all platforms by June 2018. In addition, the Windows version holds a peak concurrent player count of over three million on Steam, which is an all-time high on the platform. Battlegrounds received positive reviews from critics, who found that while the game still was not fully finished and had some technical flaws, it presented new types of gameplay that could be easily approached by players of any skill level and was highly replayable.

Do you know?

Google announced it added a feature to its AI-based Assistant which predicts flight delays. The feature debuted on Google Flights.

PROGRAMMING LANGUAGE USED IN PUBG:

Making a game like PUBG is not by any particular programming language. It is a combination of many languages, files, databases, and many more. It uses languages like Python, Java, JavaScript, Android virtual machines(for PUBG Mobile Emulator), Android studio(for making the .apk file for Android devices), swift(for apps for iOS devices), and Ruby as well. It requires many different platforms such as managing databases, creating UI for providing the 3D virtual world, data transfer between server and client and many more tasks which are beyond our imagination. Every programming language has its own superpower. So it is not possible to tell a particular programming language used to create the game. Developers of Recent have developed PUBG game (Both PC & MOBILE) using a special game development platform IDE called “Unreal Engine” by “Epic Games”. Now, Unreal consist of 2D and 3D games development, and consist of C# programming language. C# is considered as way too confusing that Java, but it isn't. It's just the syntax which is not understandable at the very beginning.

PUBG EMULATOR:

Tancent games supports the pc gamers by creating an emulator named “Tancent gaming buddy”. Tancent gaming buddy helps the players to play the game in pc. Custom controllers can also be used with the emulator.

Pubg can also be played in the pc with the help of bluestacks. The BlueStacks App Player is designed to enable Android applications to run on PCs running Microsoft Windows and Apple's macOS.

CLOUD COMPUTING RETURNS

Introduction

The term "cloud" originates form the world of telecommunication when provide began using VIRTUAL PRIVATE NETWORK (VPN) service for data and the communication, The main goal of cloud computing is to make a better use of distributed resources , combine them to achieve higher throughput and be able to solve large computation problems. Cloud computing deals with virtualization, scalability, interoperability, quality of service and the delivery models of the cloud namely private, public and hybrid.

HISTORY OF CLOUD COMPUTING:

The underlying concept of cloud computing was introduced way back in 1960s by John McCarthy.

His opinion was that "computation may someday be organized as a public utility.

Also the characteristics of cloud computing were explored for the first time in 1966 by Douglas Parkhill in his book. The challenge of the computer utility. The history of the term cloud is form the telecommunication world, where telecom companies started offering Virtual Private Network (VPN) services with comparable quality of service at a much lower cost.

CLOUD COMPUTING EFFICIENT IN FIELD:

1. The service can be obtained by the use of multiple sites which is suitable for business continuity and disaster recovery. However, sometimes many cloud computing service have suffered outages and in such time it users can hardly do anything

2. Sharing of resources and costs amongst a large collection of users allows efficient utilization of the infrastructure.

3. Sharing of resources and costs amongst a large collection of users allows efficient utilization of the infrastructure.

CHALLENGES AND ISSUES:

In this section we explain the challenges & issues cloud computing has to face. As a lot of economics is tied to this field it will be better that these issues are resolved as early as possible. Fig. 2 depicts the summary of the survey conducted by us on the basic issues of the cloud computing. The client's primary concern is taken in to account.

1. Security: When using cloud-based services, one is entrusting their data to a third-party for storage and security.

2. Performance: Cloud computing Suffers from severe performance issues. The cloud provider must ensure that the performance of the service being provided remains the same all through.

There may be peak time break downs, internal flaws, and technical snags arising. Load balancer, data replicators, high end servers must be installed when needed.

FUTURE SCOPE:

The issues that are highlighted in this paper will be a hot spot for researchers in future. Areas like security, Load balancing, Standardization will be the major research top

PROBLEMS:

We've looked at the basics of cloud. There are interests and concerns in the cloud. From a technology point of view, there are interesting technical problems to solve. From a service or consumer point of view, there are essential usability, stability, and reliability problems to solve. On one hand, there are many stories of problems with clouds, from data loss, to service interruption, to compromised sensitive data.

If the cloud providers are too slow to provide safe, secure, reliable data storage and application services, they may miss one of the greatest opportunities of this century.

GLOVES FOR VIRTUAL TOUCH

Engineers and software developers around the world are seeking to create technology that lets users touch, grasp and manipulate virtual objects, while feeling like they are actually touching something in the real world.

Scientists at EPFL and ETH Zurich have just made a major step toward this goal with their new haptic glove, which is not only lightweight less than 8 grams per finger but also provides feedback that is extremely realistic.

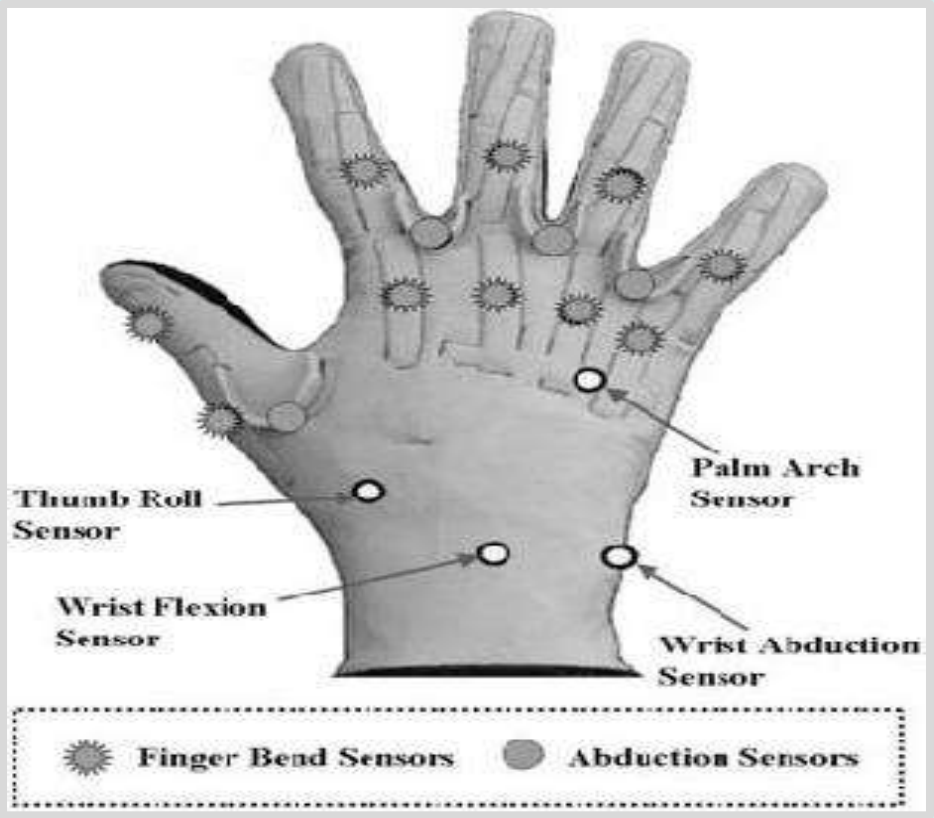
The glove is able to generate up to 40 Newton's of holding force on each finger with just 200 Volts and only a few kilowatts of power.

We wanted to develop a lightweight device that unlike existing virtual-reality gloves doesn't require a bulky exoskeleton, pumps or very thick cables, says Herbert Shea, head of EPFL's Soft Transducers Laboratory (LMTS).

The scientists' glove, called Dexter's, has been successfully tested on volunteers in Zurich and will be presented at the upcoming ACM Symposium on User Interface Software and Technology (UIST).

FABRIC, METAL STRIPS AND ELECTRICITY:

Dexter's is made of nylon with thin elastic metal strips running over the fingers. The strips are separated by a thin insulator. When the user's fingers come into contact with a virtual object, the controller applies a voltage difference between the metal strips causing them to stick together via electrostatic attraction this produces a braking force that blocks the finger's or thumb's movement. Once the voltage is removed, the metal strips glide smoothly and the user can once again move his fingers freely.



TRICKING YOUR BRAIN:

For now the glove is powered by a very thin electrical cable, but thanks to the low voltage and power required, a very small battery could eventually be used instead.

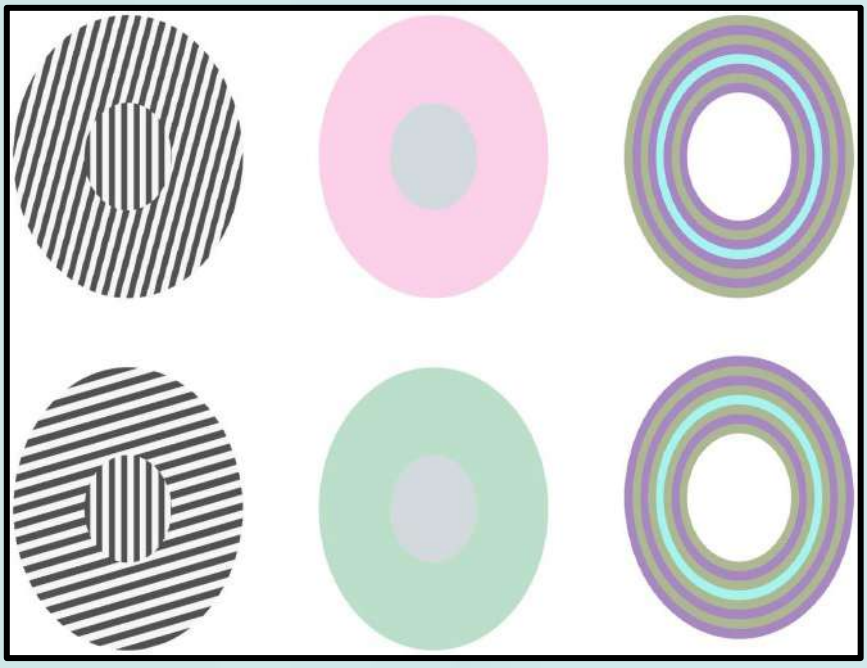
"The system's low power requirement is due to the fact that it doesn't create a movement, but blocks one," explains Shea. The researchers also need to conduct tests to see just how closely they have to simulate real conditions to give users a realistic experience.

"The human sensory system is highly developed and highly complex. We have many different kinds of receptors at a very high density in the joints of our fingers and embedded in the skin.

In this joint research project, the hardware was developed by EPFL at its Micro city campus in Neuchâtel, and the virtual reality system was created by ETH Zurich, which also carried out the user tests."Our partnership with the EPFL lab is a very good match. It allows us to tackle some of the longstanding challenges in virtual reality at a pace and depth that would otherwise not be possible," adds Hilliness. The next step will be to scale up the device and apply it to other parts of the body using conductive fabric. Gamers are currently the biggest market, but there are many other potential applications especially in healthcare, such as for training surgeons. The technology could also be applied in augmented reality.

COMPUTER LEARNS ILLUSION

Optical illusions can be fun to experience and debate, but understanding how human brains perceive these different phenomena remains an active area of scientific research. For one class of optical illusions, called contextual phenomena, those perceptions are known to depend on context. For example, the colour you think a central circle is depends on the colour of the surrounding- ring. Sometimes the outer colour makes the inner colour appear more similar, such as a neighbouring green ring making a blue ring appear turquoise but sometimes the outer colour makes the inner colour appear less similar, such as a pink ring making a grey circle appear greenish.



A team of Brown University computer vision experts went back to square one to understand the neural mechanisms of these contextual phenomena. There's growing consensus that optical illusions are not a bug but a feature.

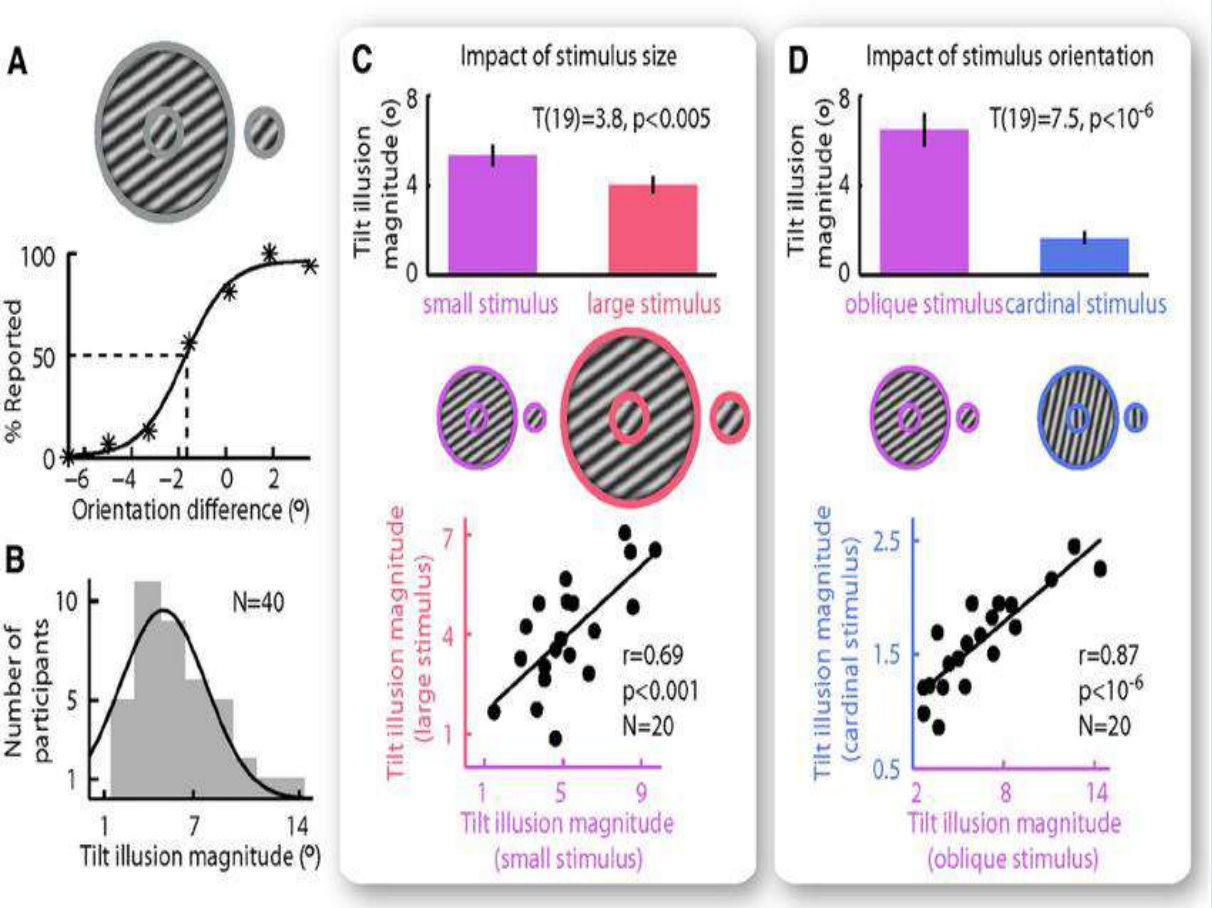
RESULT OF THE STUDY:

For the study, the team lead by Serre, who is affiliated with Brown's Carney Institute for Brain Science, started with a computational model constrained by anatomical and neurophysiological data of the visual cortex. The model aimed to capture how neighbouring cortical neurons send messages to each other and adjust one another's responses when presented with complex stimuli such as contextual optical illusions. One innovation the team included in their model was a specific pattern of hypothesized feedback connections between neurons. These feedback connections are able to increase or decrease excites or inhibits the response of a central neuron, depending on the visual context.

THE FINAL MODEL:

Once the model was constructed, the team presented it a variety of context-dependent illusions. The researchers "tuned" the strength of the feedback excitatory or inhibitory connections so that model neurons responded in a way consistent with neurophysiology data from the primate visual cortex.

This model is the simplest model that is both necessary and sufficient to explain the behaviour of the visual cortex in regard to contextual illusions, Serre said. This was really textbook computational neuroscience work we started with a model to explain neurophysiology data and ended with predictions for human psychophysics data.



In order to test if they made the model needlessly complex, they lesion the model selectively removing some of the connections. When the model was missing some of the connections, the data didn't match the human perception data as accurately.

Varoius developments are made with the illusion based components.

The State-of-the-art artificial vision algorithms are composed according to the need, such as those used to tag faces or recognize stop signs, have trouble seeing context, he noted.

INSTA360 CAMERA

INSTA360 TITAN 11K

The Titan is an eight-lens cinematic VR camera that captures 360 photos and video at up to 11K resolution. The eight sensors within are "Micro Four Thirds", which the company says are the largest available in any standalone VR camera. Insta360 has announced a new VR cinema camera called the Titan that packs a whopping 8 lenses and Micro Four Thirds sensors to capture 360-degree 11K-resolution footage. It's the first standalone 360-degree camera that's 11K-ready.

The M4/3-format sensors are the largest available in a standalone VR camera, the company says, as other cameras in the industry use sensor sizes that are more typical of smart phones or action cameras.

"These sensors maximize image quality, dynamic range, low-light The The performance and colour depth, raising the bar for realism in high-end professional VR capture.

In addition to shooting 11K at 30fps, the Titan can also do 10K 3D at 30fps, 11K 360-degree photos in both 3D and monoscopic formats, 8K at 60fps, and 5.3K at 120fps.

OTHER FEATURES:

Other features and specs of the Titan include eight 200° f/3.2 fisheye lenses, DNG RAW photos, 10-shot continuous burst mode, time-lapse mode, an ISO range of 100-6400, 9 SD card ports, 4 mono microphones, an aluminium alloy build, 10-bit colour, a high dynamic range, Flow State gimbals - like 9-axis stabilization, Far sight live monitoring and control (Using a transmitter and smart phone/tablet-based receiver), a 10000mAh removable battery, GPS, Wi-Fi, and Crystal View playback tech (Only what's being watched is rendered to save computing resources). These new features makes this camera very useful and efficient at the same time.

DELIVER WHAT YOU SHOOT.

Ultra-high-res VR content presents a distribution challenge. Most playback systems aren't ready to decode immersive video at higher than 4K, let alone 11K. Crystal View is Insta360's proprietary playback tech which lets creators easily playback the VR content even in very high resolutions. It renders in real time exactly the part of a video a viewer is watching – with no computing power wasted on displaying what's behind their head.

PRICING

Therefore even mainstream smart phones will be able to play back full-quality Titan content. As a high-end cinematic camera, this camera won't come cheap:

We can place a reservation today with a fully refundable deposit, but we'll need to fork over $14,999(retail for about $15,000.) for a camera when it launches in April 2019 with a pilot program with select filmmakers ahead of that official launch date.

FLOWSTATE STABILIZATION

One of the key features of the Titan is the addition of Insta360's flowstate stabilization which provides near perfect stabilization for moving video. Even though the Titan is a pretty large camera, operators may still be required to use it while moving. Flowstate stabilization will be able to ensure the immersive video being shot with the Titan is comfortable to view in VR. The Titan, designed as a high-end cinematic virtual reality camera, captures 11K at 30 fps in the 360 format or 10K at 30 fps in the 3D format necessary for VR.

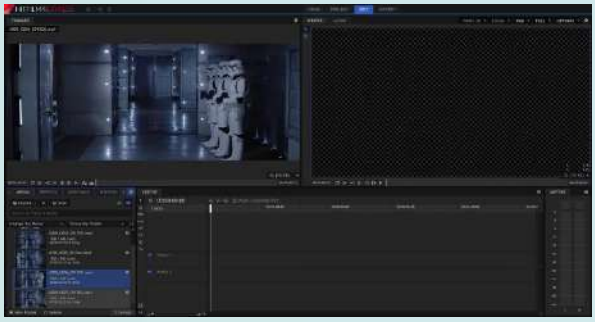
#LEARN A TOOL

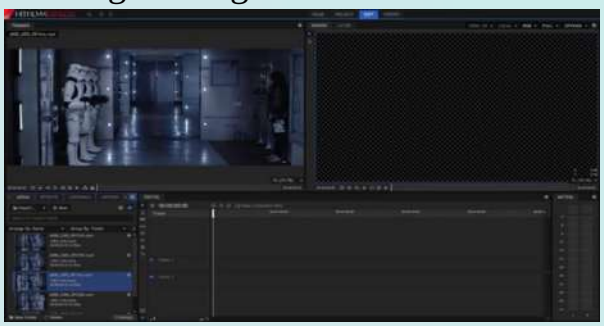
@Tutorial III – Cloning using mask and crop.

Hello beloved tech savvies, Learn a tool is back again with a simple and effective tutorial on the video editing software - Hitfilm Express 2018. If you recall our last tutorial, we told you about how to make use of Green Screen effect in Hitfilm, and in this super exciting tutorial, we will teach you how to clown videos using mask and crop. So, let's get started…

#1 IMPORT ALL SAMPLE VIDEO / IMAGE AND CREATE COMPOSITE SHOT

First step is obviously importing all sample Image/Video, for instance in this tutorial we have used two videos, the first one has the white soldiers at the right end and in another video we have some white soldiers at the very left end. One of the video will act as our background layer, and another video will act as our foreground layer. After import, Go to Media panel, and Right Click on the image/video. In the popup menu, click on the option Make Composite Shot. Name the layer, and you are good to go.

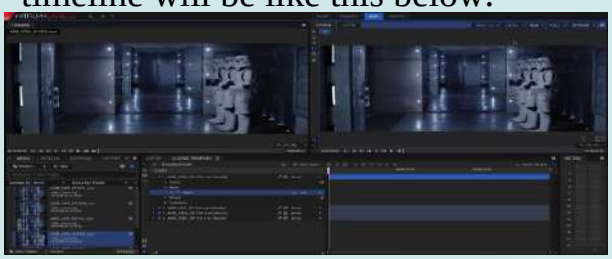


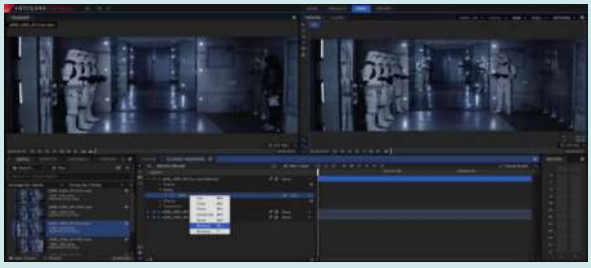


#2 PLACING BOTH THE VIDEOS IN THE TIMELINE/EDITOR

The next step is to place the videos in the editor. (These videos are stock footages, and are easily available over the internet).but you are free to use any video, so after composite shot--your timeline will be like this below.

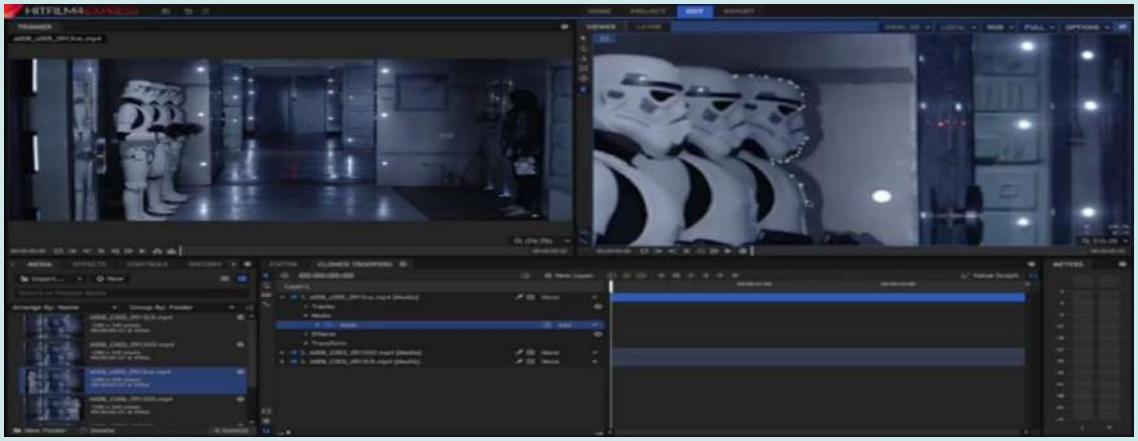
The background video will be overlapped by the foreground video. To place the video in the editor/Timeline panel, just drag it from the Media panel and place it above the video layer.





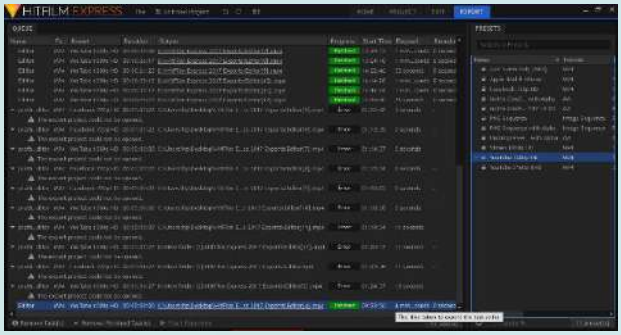
#3 USING CROP AND MASK

Here comes the most awaited step, in this, we will use the mask and crop method to enable the technique of cloning. To do so, we should first go to Editor Panel, and Right Click on the video, in the popup menu, Click the option mask, then again another menu will popup. Click manual mask, then draw dots around the edge of the foreground video as shown in the image below. Be careful not to cut out the essential parts. You can zoom in and out too.



#4 FINAL EDITING AND EXPORTING THE VIDEO

You are almost done, but not yet. The final editing steps involves, placing the background layer in accordance with the foreground layer, and adding sounds and filters if required. Make sure you preview the final edited video before exporting it. When outputting the video, select the required format and click render to start the export process. That's it folks, you are equipped with cloning skill.



#5 WATCH AND ENJOY YOUR NEWLY CREATED MASTERPIECE

That's it for now, let's meet in the next issue with more interesting tutorial on Hitfilm Express 2018. A quick preview on the next tutorial, we will be teaching you how to track objects and elements using tracking method. Till then it's a farewell from Learn a Tool. Keep Innovating…

@REVIEW BOX

@MICROSOFT 3D PAINT

Hello again, to all you application lovers out there, Review Box Team is back again with a brand new and exciting product. In this fresh issue of Review box, we will do our technical surgery on the most famous Microsoft 3D paint, so before we get started, let us take out all our technical tools and start our intensive surgery… Let's Charge… (For this review, we have used 3D paint on a laptop running Windows 10.)

@Quick Overview

Microsoft wants to put 3D modelling into everyone's hands. What better way to do this than to put that power into an app that everyone already

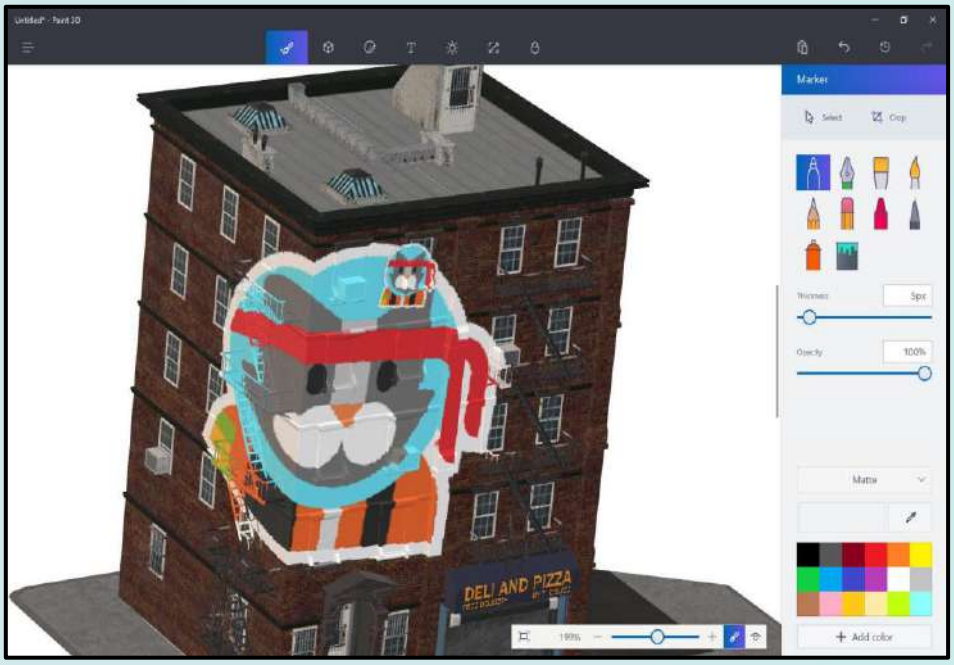
knows, Microsoft Paint. Paint has looked largely the same for decades, but with Windows 10 Creators Update there's a new Paint in town.

@Working with 3D Images

For 3D creation, you can start from scratch using primitives like spheres and boxes, or, better yet, you can grab a prebuilt 3D model from the right-side Remix 3D panel, which offers staff picks, essentials, starter kits, and community objects. You can search for contributed images, for particular users, or for boards containing groups of images. We chose an old NYC building, and tapped the Add to Project bar to get going. ntrols on the resulting screen let you resize, spin, and tilt the image. But the coolest part for me came next, when we chose a sticker to decorate the building.You can download stickers from the community, too. When you apply a sticker to a 3D object, it wraps around the object like, well, paint. For more customization, We opened the Brush panel, which offers a marker, pen, pencil, crayon, and more. We smeared my building a little and just like the sticker, the paint stuck perfectly to the edges of the building. It's incredibly fun. A written review can't convey how much fun it is to use the new Paint 3D.One cool option for viewing your creation is that you can tap the rewind clock icon to replay your steps in creating it. You can even export a movie of this process.

@New Features

You can add multiple 3D objects to your canvas, and select them all at once or separately. The Z-axis tool is nifty for when you need to move an object forward or back. A completely visual help feature shows you how all the 3D adjustments work. One issue we have with stickers is that, once you stick them on, you can't edit them, only undo their application. We also couldn't figure out how to flip the eye sticker so that we could have a right and left eye.



@Sharing and Output

Once you've designed a 3D object of your own, you don't have to keep it to yourself. You can join the online community for sharing 3D creations at Remix3D.com. You can share your work there directly from within the program. It's reminiscent of a gamer community in that you get your own nickname and user picture

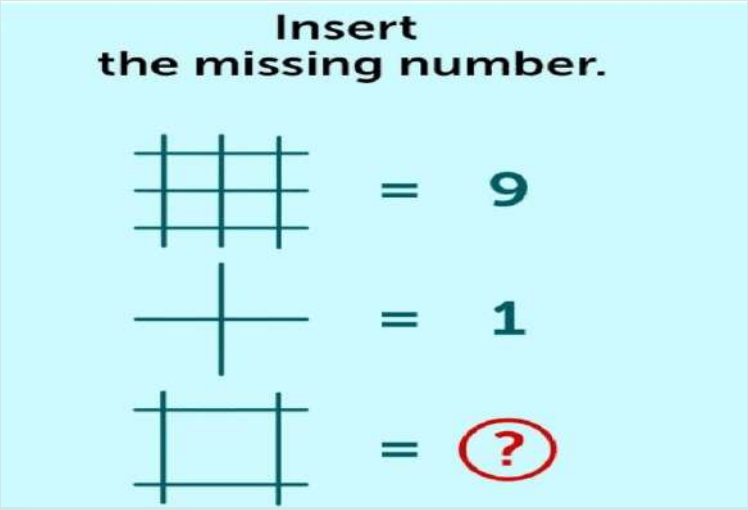
.

@Verdict

We've been playing with Paint 3D for more than a week now on a laptop, and let us tell you, anyone can have fun creating, customizing, decorating, and sharing 3D objects. You can get Paint 3D in the Windows Store like any other Universal app,- -but it only runs in Creators Update or in the Windows Insider early builds of the OS. Last October, Microsoft announced an ancillary app, Capture 3D, which is supposed to let you shoot video of an object to create a 3D image you can use in Paint 3D.

!MIND PUNCH

1. Find the missing number.



2. There are five sisters in the room:

   Ann is reading books,
   Margaret is cooking,
   Kate is playing chess,
   Marie is doing laundry.

   What is the fifth sister doing?

3. There's a bathtub filled with water in front of you. You have a spoon, a cup and a bucket. What is the fastest way to empty the tub?

4. Which world organization uses commonly the letters UNCTAD instead of its whole name?

A. UN Conference on Trade and Development	B. UN Conference on Trading and Deposits
C. UN Chambers on Trading and Development	D. UN Conference on Trade and Down payments

5. The 3 pumps, working 8 hours a day, can empty a tank in 2 days. How many hours a day must 4 pumps work to empty the tank in 1 day?

A. 9	**B. 10**
C. 11	**D. 12**

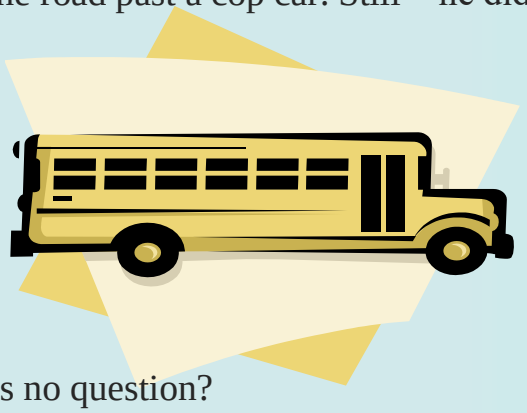
6. I can be found in water, but I'm never wet. What am I?

7. What can you catch but not throw?

8. A bus driver was heading down a street in New York. He went right past a stop sign without stopping,

He turned left where there was a 'no left turn' sign and he went the wrong way on a one-way street.

Then he went on the left side of the road past a cop car. Still – he didn't break any traffic laws. Why not?



9. What demands an answer, but asks no question?

10. A bank was robbed during a fire.

A guard said he wanted to save a bag of money,

But before the emergency exit he crouched down to tie his shoe. Then the door opened and hit him on the head.

When he woke up, the money disappeared.

Why was the guard arrested?

IT VITA+

1. Expand the term SLIP.
2. In which year the '@' sign was first chosen for its use in email address?
3. Who invented the first computer mouse in around 1964 which was made of wood?
4. What is the capacity of the first hard disk drive made in 1979 could hold?
5. What was the original name of windows?
6. If the group of 12 engineers designed the IBM PC, then what is it called as?
7. What is the weight of 1 GB hard disk in 1980?
8. Which is the longest word that can be typed with only the left hand?
9. How many new computer viruses are released every month?
10. What is the name of the video game that deletes a random file on your computer every time you kill an enemy?
11. What was the first ever browser in 1993?
12. Why Windows doesn't allow for creation of folders tagged CON, PRN, AUX, or NUL?
13. Who is the inventor of the first programmable computer?
14. Who is the CEO of SpaceX?
15. Which IT company's nickname is ' The Big Blue '?

$FAMOUS & $FAVORITE

JAMES GOODNIGHT

James Howard Goodnight is an American billionaire businessman and software developer. James Goodnight co-founded the analytics software firm SAS institute in 1976 with John Sall whom he met while he was a Ph.D. student at North Carolina State University. Goodnight's career with computers began when he took a computer course in his sophomore year at North Carolina State University. Goodnight remained CEO of SAS Institute for more than 35 years as the company grew from $138,000 its first year in business, to $420 million in 1993 and $2.43 billion by 2010. Goodnight has been at the helm since the company's inception, when its software was developed to analyse agricultural data. Its products are now used by more than 83,000 organizations around the world, and 2017 revenue was $3.24 billion. Goodnight and Sall, also a billionaire, founded private school Cary Academy together and co-own a country club and a hotel. In 1981 Goodnight was elected as a Fellow of the American Statistical Association. In 2004, he was named a Great American Business Leader by Harvard. That same year he was named one of America's 25 Most Fascinating Entrepreneurs by Inc. Magazine. He has also been a frequent speaker and participant at the World Economic Forum. He rejected acquisition offers and chose against going public to protect the company's work environment.

BORN	6th January 1943
EDUCATION	Doctorate
NATIONALITY	American
OCCUPATION	Businessman and software developer
NET WORTH	US$8.9 billion

SOLUTIONS

!Mind Punch

1. 4

2. She is playing chess with Kate

3. Pull out the plug

4. A. UN Conference on Trade And Development

5. D
Let the required number of working hours per day be x. more pump, less working hours per day (indirect proportion) less days, more working hours per day (indirect proportion)

6. Reflection

7.Cold

8. Bus driver is not driving anything. He is walking in street.

9. Telephone

10. The answer is, the guard was the part of the robbery. Emergency doors open from inside to outside. So how can a door hit him as he was inside the building?

IT Vita+

1. SLIP Serial Line Interface Protocol

2.1972

3. Doug Engelbart

4. 5MB of data.

5. Interface Manager

6. 'The Dirty Dozen”

7. 550 pounds

8. 'Stewardesses'

9. 5000

10. Lose

11. Mosaic

12. These are keywords reserved by DOS.

13. Konrad Zuse

14. Elon musk

15. IBM

SENSE OF

GRATITUDE

The Editorial Board expresses its sincere gratitude to all those who are responsible, either by being on the stage or behind the screen for the successful launch of the magazine …….!!!