



AITS Newsletter

AUGUST 2020

Our world and the best of humanity [Abraham John, Executive Director, AITS]

We, humans, are the dominant species of planet Earth. Our physical creations are magnificent. Our cultures are rich in every imaginable way. We have shaped our physical world to suit our needs. Our minds have imagined fantastic things and our hands have made them reality. We have explored our globe, plumbed the depths of our oceans, ventured into the vastness of space and our creations have even left our solar system for the coldness of interstellar space. All in all humans are remarkable in what we have created and achieved.

We are remarkable in our capacity for compassion, empathy, love, courage, and bravery. Our capacity for all the baser qualities has no equal either. At the beginning of the year 2020, we stood at the pinnacle of this world and considered ourselves invincible.

However, we as a species forgot something very important. We forgot that we live in a world that makes fools of the strong and great. We forgot that we live in a universe where the small confounds the large and from birth, danger is all around us.

At the beginning of this year, we were brought face-to-face with this reality. An organism that is about .00000472 inches or about 120 nanometers in size brought the entire world to a grinding halt. This tiny invader did not have large cities or cultures, it did not care about love or empathy, it did not hate or get angry, and it was driven by a singular purpose: reproduce!

People retreated to the safety of their homes but even so, this enemy continued and continues to wreak devastation and take lives. Faced with this invader, all economies shut down, all medical capabilities were overwhelmed, all supply chains broke down, and this tiny enemy still challenges our brightest minds in their quest for a cure or even adequate therapeutics.

This tiny invader would also create an environment where divisions deepened and hostilities that were simmering would emerge. Watching my world, I could not help but fearfully think about biblical passages that referred to the pouring out of the first cup or of humanity being "pulled down from the stars". The world I knew was being undone!

Then the quality that all human beings possess and best expressed in Lord Alfred Tennyson's poem of "not going silently into the night" reasserted itself. This quality could be seen working in very short order across the world.

We will find a medical solution to this invader BUT our world as we knew it will never be the same. The economic devastation, if we do not act wisely, will leave irreparable damage. There is a frequent comparison to the Influenza pandemic of 1918, and the crash of 1929 that ushered in the Great Depression.

It is good to remember history because it is a testament to both foolishness and wisdom. The 1918 Influenza pandemic came at the heels of WWI with infected soldiers returning home and it lasted from February 1918 to April 1920. Medical science was not what it is today and the world economies were not as



Enjoy this
brain teaser ☺

Which of the
following
scrambled words
does not belong
when the words
are unscrambled
and why?

"UATISN"
"AOTATW"
"LCAAGYR"
"TTOOORN"
"ARWAWS"



**SARS-COV-2
is the name of
the virus, COVID-
19 is the name of
the illness.**

interdependent. The world population was also about a third of what it is today. On the medical front, time will tell if we fare any better in 2020 than we did in 1918.

The lessons from the crash of 1929 as it applies to what is taking place economically may not necessarily be applicable. The crash of 1929 that led to the Great Depression is also a story of the Fed not easing money supply. We seem to have learned that lesson well if the crash of 2008 is any measure. However, does that lesson apply where economies, business, jobs, livelihoods are being destroyed because of an external existential threat?

While safety is paramount, where every business, organization and government can make a measurable difference is on the economic front. Will the actions taken by businesses, organization and governments leave people irreparably damaged?

These are some of the thoughts that have occupied my thinking as I have watched and worked alongside my colleagues as we tirelessly continued to deliver the operational service that has kept the University of North Texas Information Technology systems afloat these months following the March 2020 closures. I have observed my colleagues from every discipline stand shoulder to shoulder, determined to see our organization through this crisis.

Speaking about the Information Technology profession, it is clear there is a great deal of misunderstanding about the effort it takes to deliver the service that keeps our wonderful organization moving forward. As in other fields, there is tremendous effort expended by the dedicated employees of UNT and UNT System that will ensure success through this crisis.

As a nonprofessional observer when it comes to finances, perhaps there are different solutions on the economic front than those employed to weather recessions and business down cycles. In 1929, the prevailing wisdom brought misery to millions. That lesson from history ought to be a consideration in financial and economic decisions.

There are brilliant minds and wise people at UNT and UNT System. Perhaps this is a time for us to consider history and to think about what debilitating budget cuts might mean in the long-term. I was encouraged when I heard our CFO mention during the special Board of Regents meeting that we expect over 40,000 students in the fall. We are a physical campus. Let us look for ways in which we can capitalize on our strengths. First, let us make this a safe place for people so that we can achieve our mission of providing a college experience for our students. Let expansion and growth be the call of the day and my hope is that the incredibly smart people who lead us will continue to give us the tools that allow us to grow and not shrink.

Speaking of my colleagues in the Information Technology field and of our CIO, I have seen dedication and wisdom. I have also seen kindness and compassion from my colleagues and our CIO, especially as we have had to deal with not just the changes to our environment to counter the biological threats of this crisis but also with the downward spiraling of budgets.

Of my teams, AITS and UIT, I could not be prouder. Within my teams and other Information Technology teams, there is creativity, dedication, loyalty and an understanding about UNT and UNT System. This will allow us to serve our current students and will enable us to continue to provide the college experience that is the hallmark of institutions such as ours.

The enemy we face is not just a biological threat. How we react to this through the best of humanity's qualities will define our future.

Village Laptops [Scott Jackson]

How do you respond to a student body that needs mobile computing during a pandemic? Effort, cooperation, and dedication from everyone!

As everyone is aware, March of 2020 marks a time where the COVID-19 situation forced the world to react. Who would have thought the last time we would see all of UNT students together for the FY20/21 academic year would be March 9th? It happened, but as the University decisively shifted to remote teaching, it was evident that a number of students did not have the equipment needed to participate effectively in this remote delivery model. In response, the UNT IT community accepted the task to bridge the gaps with a solution.

The first challenge was identifying available equipment across campus. This seems relatively simple on the surface, but there are multiple variables to consider. We needed to answer the following questions.

- *Will the asset owner need the equipment to complete the rest of the semester?*

Early stages of the response were riddled with uncertainty, and very little indication of whether or not classes would resume later in the semester. If students returned to campus and respective colleges did not have laptop resources, classes and assignments would be difficult to complete.

- *Will the asset owner need to make their laptops available to "their" respective students?*

Understandably, all colleges want to ensure their students have the resources needed to succeed academically. How could they guarantee their students access to equipment?

- *What are the nuances and requirements within the inventory system for the State of Texas? Every asset manager and custodian is aware of the numerous caveats that come with relocating a tagged asset out of your jurisdiction.*

After addressing these concerns, we initiated a campus-wide call for available laptops to determine availability for students to use for the remainder of the semester. The response was overwhelming, resulting in pooling over 700 laptops in a joint effort between the College of Business, College of Education, College of Arts & Science, College of Merchandising Hospitality & Tourism, College of Visual Art & Design, University Information Technology & the Library.

Hardware was just the first part of the solution, and we quickly needed to decide what software and functionality to include. A short survey of the various colleges and requirements conveyed the need to include Microsoft Office/Teams/Zoom, Creative Cloud, Respondus Browser, VMWare Horizon Browser, and Cisco AnyConnect Secure Mobility App. Given the circumstances and limited time, we determined that the best course of action was to allow the student to be an administrator of the local device, a significant deviation from standard operating procedures. There are obvious risks involved; however, providing each student with administrator access would allow installation of any needed devices or software needed to complete courses, eliminating the need to bring the device back to campus.

Consistency and inventory management is a requirement, and to streamline services, laptops and chargers were assigned Library barcodes and tagged accordingly. Barcodes were recorded on inventory sheets provided by the originating department as a secondary means of inventory control as well as our in-house Laptop Checkout Database. In addition, the University's Asset Management unit developed new requirements, requesting that along with a Valid UNT ID, and being a current enrolled student, the student needed to see the agreement and acknowledge they understood all of the provisions. Incorporating these new mandates into the process required changes workflow and database.

With all of the items inventoried and barcoded, it was all hands on deck to image and prepare different models of hardware for student use. Multiple ad-hoc imaging racks were created and everyone was taught how to image and perform quality



Coronavirus
is a type of
common virus
that can infect
your nose,
sinuses, or upper
throat.

control, which included ensuring all drivers were properly installed and functioning correctly with the installed software.

Windows and Mac laptops, along with corresponding chargers, were ready for checkout on March 19th, and were distributed on a first come first served bases. At the apex of distribution, just over 600 laptops were disbursed.

Given it was our first endeavor; the process was relatively smooth, though we did not anticipate nor consider the fact that some students would return devices before the end of the semester. Unbeknownst to us, some students only wanted a device for a limited time, being just days or even just a few hours. In an ever-evolving process, we had to create a quarantine procedure where returned devices were allowed to "breathe" for 3-5 days. After that time period the device would be thoroughly wiped down before be re-imaged to returned to service.

Even with its challenges, it was a great experience to be a part of a campus wide effort to serve those that needed it the most: the students. They have come here from all over the world to succeed, and we get to be a part of it.



**Almost
everyone gets a
coronavirus
infection at least
once in their life.**

All About UIT Digital Testing Services

[Dr. Elizabeth Hinkle-Turner]

UIT Digital Testing Services (DTS – <https://it.unt.edu/dts>) consists of the Scantron-based resources and analysis provided by our Exam and Research Data Services (ERDS – <https://it.unt.edu/erds>) department and the online testing-center-based, mobile, and virtual assessment services provided by the Sage Hall Testing Center and its related resources (<https://it.unt.edu/test>). DTS provides support for face-to-face, blended, and remote classes and have staff ready to assist faculty in designing, scheduling and developing secure assessment solutions that best fit their teaching goals and students' learning needs. We provide secure, high stakes testing services for online assessments; rapid turnaround time and analysis for Scantron-based exams; and easy-to-implement virtual testing solutions for a variety of class sizes and situations.

The DTS team includes Dr. Elizabeth Hinkle-Turner, IT Director; Samuel Wiggins, Operations Service Desk Manager; Yonathan Khoe, Cross-Functional IT Support Manager; Joann Luksich, Sr. Administrative Specialist; and Catherine Pike, Office Support Associate along with several student tech employees and graduate student testing proctors. This group of long-time UNT employees, UNT alumni, and current students prides itself on its hard work, creativity, and agility to adjust to ever-changing academic assessment needs.

ERDS – Traditional Paper-Based Exams: Yes, those do still matter

The services offered by the ERDS team have been in existence in one form or another since the early 1980's. Despite the many ways that faculty can assess their students using technology built into Canvas and other learning management systems, many still enjoy the reliability and stability of the in-class Scantron-sheet based exam. In fact, over 120,000 Scantron sheets on average are scanned per year in ERDS's centralized area (GAB 206) serving 150+ unique faculty teaching 1600+ core courses. Faculty regularly praise the services in ERDS and also use the department for the processing of traditional paper research surveys and class evaluations.

This does not mean that ERDS rests on its "vintage" Scantron laurels. The department has continually expanded its analysis tools and services to give faculty the student success feedback they need from their exams and ably matches the data sets and reports available in Canvas and other learning management systems using tools developed in SAS and SPSS and Remark software. Additionally, ERDS introduced **GradeHub** last fall. GradeHub is a company formed by a former CEO of Scantron to allow faculty to develop custom Scantron forms remotely for their students, distribute them to the students digitally saving time and money, and scanning them into Canvas to take advantage of the LMS gradebook features, Canvas's student success analysis tools and additional analysis tools found within the GradeHub Canvas extension. GradeHub has also allowed for easy creation of answer-entry-tools by faculty for use in live proctored virtual testing environments (described below) keeping this resource quite relevant during the COVID crisis. Given our current budgetary challenges, GradeHub will not be available. Contact Joann Luksich at joann.luksich@unt.edu for more information about using ERDS services.

Testing Center and Mobile Laptop Testing Support and Services

The Sage Hall Computer Based Testing Center (Sage C330) was established in 2010-2011 in collaboration and cooperation with the Office of the Provost and the Center for Learning Experimentation, Application and Research (CLEAR – now a part of the Office of the VP for Digital Strategy and Innovation). This centralized online testing resource continues to operate in close collaboration with DSI/CLEAR and the Office of the Provost as well as all of the colleges and schools of UNT. Additional collaborations with the Ryan College of Business (RCOB), the College of Merchandising, Housing, and Tourism (CMHT) and the College of Education (COE)

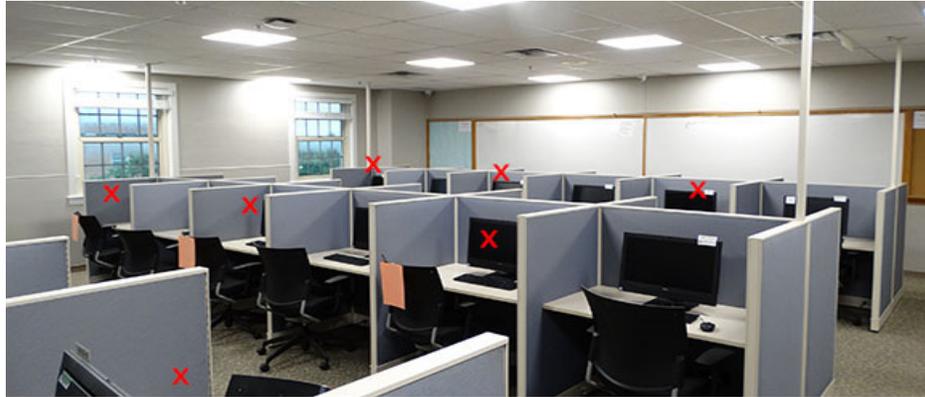


Coronaviruses that cause Middle East Respiratory Syndrome (MERS) or Severe Acute Respiratory Syndrome (SARS) can be deadly.



Coronaviruses are named for their appearance. Under the microscope the viruses look like they are covered with pointed structures that surround them like a corona or crown.

have allowed for creative expansion of mobile online testing resources for greater campus coverage, innovation, and agility.



**The Testing Center lends itself to social distancing and health safety with barriers and staggered machine use
Masks are also required**

The suite of rooms located on the third floor of Sage Hall offers **live proctored**, in-person testing for all types and sizes of UNT classes. Additionally, this Center offers Microsoft Certification exams (as a Pearson authorized certification center); a private and secure Masters' and Doctoral exam environment; as many as 30 qualifying and placement exam events per year for new and transfer students; and is the setting for a variety of camps, study sessions, and tutoring/mentoring events aimed at first-generation students, student remediation, and other students with unique needs. The Sage Hall Testing Center served 31,000+ students during FY2019 from nearly all of the colleges at UNT as well as the Division of Student Affairs. Additionally, the Center partners with various community colleges in the area to provide secured, proctored online exams for UNT students who are dual-enrolled in community college programs. The Center usually can house 135 students but due to social distancing requirements, current capacity is capped at 67 persons.



**A typical laptop exam
Due to COVID social distancing all students here would be seated at least 6 feet apart.
Laptops are sanitized by testing personnel after each use.**

Mobile Laptop Testing Services have also been provided by this team since 2015. 80 laptops in two carts are available to be taken anywhere a faculty member needs a "pop-up testing center" right in their classroom or an administrative division needs a

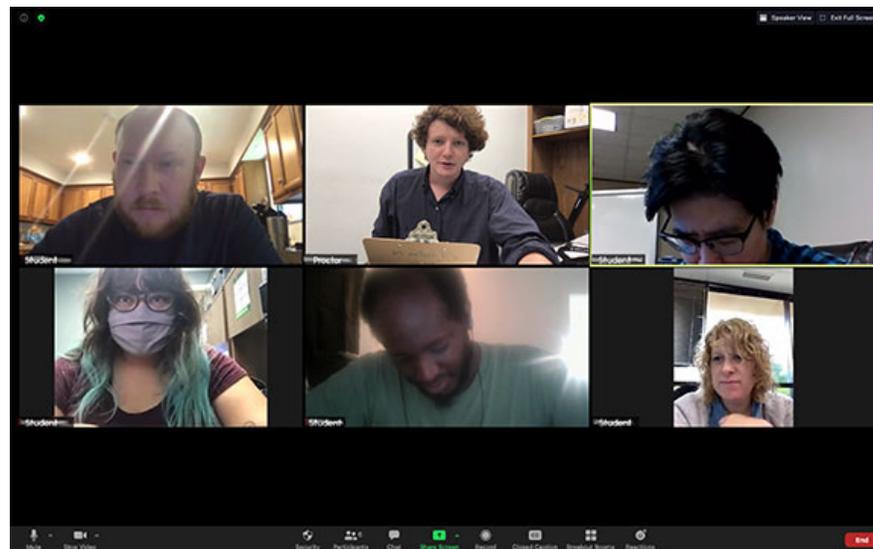


Bats and coronaviruses have been evolving together for millions of years.

"computer-based training site" for events and sessions. A collaborative arrangement established in 2017 with the Ryan College of Business provides for live proctored and secured exams in the Business Leadership Building with over 200 laptops managed by the mobile testing techs. Additional collaborations begun recently include offering secured Microsoft certification testing on laptops for CMHT in Chilton Hall and future plans with the College of Education will bring more mobile laptop testing services to COE faculty and buildings. In FY2019 13,000+ students utilized our mobile laptop testing resources for their exams. Also, during the spring and summer of 2020, the mobile laptop team was able to quickly re-purpose these resources as part of the UNT Libraries laptop checkout initiative providing 100+ laptops to UNT students needing them to complete their classes successfully remotely in this COVID crisis and lockdown period.

And now....New Secure Remote Testing Options in our Virtual Testing Center!

One of the most crucial assets of DTS is our live proctored exam environments. Trained graduate-level students and full-time personnel proctor the hundreds of online exams giving the Sage Center and via the laptops every year. So it was a great challenge to convert our secure proctored "fixed" services to the "virtual" demands of this COVID era. The team rose to the task and has worked tirelessly to develop, stress-test, and manage the Virtual Testing Center to meet the continued and future needs of our educational community in remote teaching and learning. The staff has developed several options to allow faculty to offer exams remotely with live proctoring and enhanced security. Faculty are invited to consult with Samuel Wiggins at Wiggins@unt.edu about the custom setup and implementation of these new options.



An online Zoom proctored exam room

Utilizing technology tools that the university faculty and students already have in place, our team can create a secure virtual testing environment tailored to a specific need. The flexibility of such resources as Zoom, GradeHub, Canvas, smartphone cameras, and free smartphone apps have allowed the following offerings to be developed:

Zoom/Lockdown Browser Combination Testing – These are remote sessions where a proctor or proctors monitor via Zoom and the students' smartphone cameras, a breakout session of 20-30 students. This method allows for the use of Respondus Lockdown Browser and Canvas exams.

Zoom/GradeHub Combination Testing – These remote testing sessions are ideal for multiple choice exams. Faculty simply upload their existing exams as PDFs into



Different kinds of coronaviruses have been found living in 36 bat species found on islands in the western Indian Ocean and coastal areas of Mozambique.

Canvas without the need to retype content. The exam is then proctored via Zoom and smartphone camera. This saves Canvas development time for faculty but it should be noted that it cannot be used for students with certain disabilities because PDFs are not reliably ADA compliant for screen readers.

Zoom/Paper-based Secured Testing and other application-based testing – Yes, we will proctor your paper-based exam or your exam that requires students to utilize Word, Excel, or other non-Canvas applications. Monitoring occurs via Zoom and smartphone camera and students scan and upload their documents to a secured location using a free scanning app such as CamScanner.

Remote/Virtual Pearson Certification Testing – the Pearson company has its own proctoring tools for live proctoring and management of its certification exams and we have been providing those secured exams remotely all spring and summer and continue to welcome certification testing in the fall.

And...that's a wrap!

Altogether, Digital Testing Services offers over a dozen different ways that faculty and students and staff can teach and learn and assess easily and securely using our fixed and virtual resources. We have especially enjoyed meeting the challenge of providing our diverse services in a primarily remote environment and will continue to offer all of these options during this transformative time and beyond. From the 1980's to the 2080's we are here to collaborate and help and we hope you either give us an email, a call at 940-369-6051 or visit our website at <https://it.unt.edu/dts>. Have a great semester!

Getting Started with a Smart Home

[Ryan Faulder]

Now that all of us are spending more time than ever at home the utility of automating your home is even more apparent. Smart homes allow you to automate many processes within your home like the HVAC, lights, cameras, robovac's and much more. Smart home tasks at its most basic form consists of a trigger and an action. A trigger could be based on a variety items like a schedule, your location or when a calendar event starts. The possible actions you can use are nearly limitless only limited by what smart home devices you have your imagination.

Many of you may already have the basic items needed to get started. You just need a phone or tablet, a WiFi network and a smart home device like a smart bulb, plug or security camera. There are two major entry level platforms for managing your smart home, Amazon's Alexa and Google Home. These platforms serve as a method to give commands to your device, schedule routines, see content and listen to different media. I've included resources below for getting started depending on which system you prefer.

Example Routines

Trigger: Weekdays at 6:45 am

Action: Turn on bedroom lights, play the daily weather report and provide a summary of events on a calendar.

Trigger: Arrive at home

Action: Set A/C to 70°, turn on the living room lights, turn off security cameras and open blinds.

Trigger: Vacation event on calendar

Action: Cancel the morning routine, play a beach playlist and silence the doorbell.

Additional Resources:

Google Home Setup: <https://www.tomsguide.com/us/google-home-mini-setup,review-4963.html>

Google Home Commands: <https://www.tomsguide.com/round-up/best-google-assistant-commands>

Amazon Alexa Setup and Tips: <https://www.tomsguide.com/us/how-to-use-alexa,review-3488.html>

Amazon Alexa Commands: <https://www.cnet.com/how-to/every-alexa-command-you-can-give-your-amazon-echo-smart-speaker/>

Smart Home Devices: <https://www.tomsguide.com/us/best-smart-home-devices,review-2008.html>



Bats and other mammal groups are natural carriers of coronaviruses.

Working From Home – No longer considered a perk of the job but a necessity

[Chuck White]

I started in my new role with the University of North Texas in February after seven years in Amazon IT. As a previous IT Manager, working from home was not the norm for me. Similar to my role in UNT, my previous role required an onsite presence. Even though I was in the office at Amazon, I would spend the vast majority of my working hours in phone or video conferences throughout the day.

None of my peers were local, my manager was remote and the bulk of my direct reports were in locations outside of DFW and the state of Texas. As you might imagine, my weekly conference time in Amazon was not unique to me and finding available conference rooms in Amazon corporate locations was a daily challenge. Why would I want to leave Amazon and my role in isolation? The ability to collaborate in person was very appealing to me. Fast forward to the first wave of the pandemic in mid-March, requests to support UNT staff who would be working from home started to roll in. By the end of March (my sixth week with UNT), I was deemed essential and approved to work from home. Suddenly working from home was no longer an impossibility but a necessity. As the infection rates in America continued to rise, more and more employers shifted their work force to remote work. According to a Gallup poll conducted between March 30th and April 2nd, 62% of American workers were working remotely.

It's both ironic and sad that the lucky few fortunate enough to have a position that can be done remotely are now dealing with aspects of the work from home environment that were not as impactful while working in the office. In a recent poll from Fluent, the top two detrimental aspects of working from home were (1) more distractions (29%) and (2) less social interactions (25%). Difficulties managing work-life balance came in third (18%), with poor home office environment and being less productive at home both equally only 10%. 8% polled stated that it was harder to communicate with team members from home.

Communicating with people can be challenge in the best environment but made even more difficult while conversing via a remote communication method. Day after day we are spending more time in virtual conversations that are taxing our brain so much so that the slang term "Zoom fatigue" is being applied to how we feel after hours of seemingly endless video conferences. Attending a meeting in-person normally affords us the chance to break away from the typical office distractions whereas virtual meetings do not. Studies have shown productivity degrades while multitasking or otherwise known as task switching. Staying "tuned in" to the meeting while trying to multitask is stressing out work from home users on a global scale.

So what can we do? Come up with a cure to the COVID-19 pandemic would be a good start. Humor aside there are a few suggestions that might help. First and most importantly, take breaks! Back to back video conferences should not be your top priority. Second, try to space virtual meetings out and block time in your schedule to use for breaks. Third, physically move around between meetings. Lastly, mix up your meetings a bit and don't share video. Intensively gazing at one or multiple people for hours on end is visually taxing so if it's acceptable, opt-out on video. We all are becoming our own experts at working from home these are just a few tips that have worked for me over the years.



Camels are the known intermediate hosts of MERS-Cov but bats are suspected to be the ancestral host.

Migrating Drupal 7 to Drupal 9

[Sharon Huang]

Drupal 6 reached the end of life and was no longer supported on February 24th 2016, we migrated UNT sites from Drupal 6 to Drupal 7 when Drupal 8 was already out. Now Drupal 9 is released, migrating from Drupal 7 to Drupal 9 directly will be our best way to go, and it's about time for us to think about what we do with our Drupal 7 daily practice and future migrating to Drupal 9.

Due to COVID-19, Drupal 7 extended the life from November 2021 to November 2022, while Drupal 8 is still end-of-life in November 2021. (Reference- <https://www.drupal.org/docs/understanding-drupal/drupal-9-release-date-and-what-it-means/what-happens-to-drupal-7-now-that>) It's very reasonable for us skip Drupal 8, and it's not too early to get prepared for migrating from Drupal 7 to Drupal 9. Even though UNT was thinking about moving away from Drupal, I think we will stay with Drupal before late 2022. It's my educated guess with the Dupal features including easy-to-use, powerful functions/modules, reusable content types, and wide support from Drupal community.

How to prepare your Drupal 7 site for Drupal 9?

1. As we might stay in Drupal 7 for another 2 plus years, it's a good idea to keep up with Drupal 7 core and module/theme releases for security as usual. The university is also considering moving away from Drupal, however, as long as we are on Drupal now, it's almost required to keep up with the updates for security, follow Drupal security advisories on <https://www.drupal.org/security>
2. Keep modules compatible to Drupal 8/9. When you are developing on Drupal 7, try to use modules which are compatible to Drupal 8 or 9, which will make the future migration easy.
3. Organize CSS in one place. Use facilities.unt as an example, we first had our CSS file, then added CSS global block. And for easy demo/modification, I added CSS in pages too. It will make job easier to organize them all in one place.
4. Documentation and backup PHP template. Same, I use facilities.unt as an example, we needed to modify PHP files and added some background clip into the template to customize the site for UNT Facilities, these will not transfer when migrating to Drupal 9, it's always a good idea to have backups and document all the special requested settings from your clients. I use Teams and SharePoint to document them.
5. Clean up unnecessary content and modules. When we move, most of us need to give away many things, especially furniture, same as moving from Drupal 7 to 9. There is no reason to keep years of announcements/news or outdated forms and contents on your web site.

How to migrate from Drupal 7 to Drupal 9?

When it comes the day we need to move to Drupal 9, there are tools to help us, see more details from the reference- <https://www.drupal.org/docs/understanding-drupal/drupal-9-release-date-and-what-it-means/what-happens-to-drupal-7-now-that>.



When exposed to a coronavirus the bat cells adapt and the virus adapts quickly by mutating one specific gene. This harmless balance stays until a disease or other stressor breaks the balance and the virus takes over.

1. Drupal core provides [the migrate module suite](#) to execute data/content migrations from Drupal 7.
2. The [Drupal 7 version of the Upgrade Status module](#) summarizes the Drupal 8 or Drupal 9 availability of the modules currently in use.
3. The [Drupal Module Upgrader](#) is a command-line script that scans the source of a Drupal 7 module, flags any code that requires updating to Drupal 8 or 9, points off to any relevant API change notices, and (where possible) will actually attempt to convert the Drupal 7 code automatically to the Drupal 9 version.

As UNT is still deciding on moving away from Drupal, we will dig into the actual migrating when we need, the process will be similar to what we did when migrating Drupal 6 to Drupal 7. We have experience already, cheers!



**A nanometer
is equal to one-
billionth of a
meter.**

Telehealth and COVID-19

[Chris Stoermer]

Checkups with your health professional may be easier than ever, at least temporarily, due to the COVID-19 health crisis and emerging technologies related to telehealth. The Department of Health and Human Services (HHS) defines telehealth as the use of electronic information and telecommunication technologies to support and promote long-distance clinical health care, patient and professional health-related education and public health and health administration. Electronic technologies which are not necessarily HIPAA compliant might include video conferencing, streaming media, text messaging and other forms of wireless communication. HHS has relaxed several of their enforcement efforts related to these telehealth technologies to “empower medical providers to serve patients wherever they are during this national public health emergency”. In fact, most of the Telecom companies have pushed modifications to their phone platforms to allow for COVID-19 tracking. If you haven’t noticed, check your mobile phone’s health settings to ensure you know if you are sharing personal information.

This does not mean your protected health records are no longer protected by the Health Insurance Portability and Accountability Act (HIPAA). The Office of Civil Rights (OCR), the enforcement arm of the HHS, says that the HHS temporary ruling allows the OCR to exercise its enforcement discretion to not impose penalties for non-compliance related to the provision of telehealth services made in good faith during the COVID-19 nationwide public health emergency. Once the HHS determines the crisis has passed, these technologies will be required to comply with regulations, or be subject to OCR enforcement actions.

How do you know your provider is exercising the use of telehealth in a safe manner? There are obvious applications which simply shouldn’t be used, like Facebook, TikTok, Twitter, Twitch, or any other form of remote communication that is designed to be open to the public. However, if your provider is using a new technology for contact, or to provide health services, they should be able to explain how the technology meets the telehealth guidelines from HHS and how they plan to safeguard your protected health information used by the technology once the crisis has ended.

As always, if you feel a health professional has violated HIPAA regulations, you can file a complaint through the [OCR online portal](#). The OCR is committed to handling all complaints as quickly as possible but understand that many of these federal employees are also teleworking during the national public health emergency, so the process can take longer than usual. Find out more about HIPAA, the coronavirus response and many other health related topics on the [Department of Health and Human Services website](#).



Atoms are
smaller than a
nanometer.

10 Technology Trends in the COVID-19 Pandemic

[Alexandra Martinez]

During the COVID-19 pandemic, technologies are playing a crucial role in keeping our society functional in a time of lockdowns and quarantines. And these technologies may have a long-lasting impact beyond COVID-19.

Here are 10 technology trends that help build a resilient society, as well as consideration about their effects on how we do business, trade, work, produce goods, learn, seek medical, and entertain ourselves.

1. Online Shopping and Robot Deliveries

COVID-19 has transformed online shopping from a nice-to-have to a must-have around the world. Many delivery companies and restaurants in the US and China are launching contactless delivery services where goods are picked up and dropped off at a designated location instead of from or into the hands of a person.

The shift we've seen in consumers moving to online shopping can only help to accelerate innovation in ecommerce across multiple industries. As companies have been working hard to improve their ecommerce experience. Whether that be from improving delivery times, updating product descriptions on web pages, or utilizing ratings and reviews across their products. It will be interesting to see whether once Covid-19 is over these consumers keep shopping online, or if they will want to return to shopping in physical stores.

2. Digital and Contactless Payments

The momentum behind adoption has been given an additional boost as COVID-19 quickly became a disruptor across the payments landscape and caused a sharp acceleration in the use of contactless payment methods. The more the pandemic raged, the more this marked shift in consumer behavior showed its potential to have a long-term impact. Unexpected health and safety concerns heightened during the pandemic, such as possible safety risks around physical interactions with cash and chip-and-pin card machines.

With all of this momentum for contactless, it's no surprise that 57% of U.S. consumers said that using contactless during the COVID-19 pandemic has made them more comfortable with the concept of a cashless society. As network connection improves and product and infrastructural evolve, consumers may well look to contactless permanently for a new and improved user experience.



3. Remote Work



The width of a human hair is approximately 75,000 nanometers.



A sheet of toilet paper is about 100,000 nanometers thick.

With the use of virtual private networks (VPNs), voice over internet protocols (VoIP), virtual meetings, cloud technology, and work collaboration tools has made remote work possible. This technology has allowed many companies to have employees work from home. In addition to preventing the spread of the viruses, remote work also saves commute time and provides more flexibility.

Even though remote work has prevented the spread of the virus, it still imposes challenges to employers and employees. A few examples are information security, privacy, and timely tech support. Remoted work can also complicate labor law issues, such as those associated with providing a safe work environment and income tax issues. Employees may also experience loneliness and a lack of work-life balance. If remote work becomes more common after the COVID-19 pandemic, employers may decide to reduce lease costs and hire people from regions with cheaper labor costs.

Laws and regulations must be updated to accommodate remote work, and further psychological studies need to be conducted to understand the effect of remote work on people.

4. Distance Learning



While countries are at different points in their COVID-19 infection rates, worldwide there are currently more than 1.2 billion children in 186 countries affected by school closures due to the pandemic. Many educational institutions started offering courses online to ensure education was not disrupted by quarantine measures. Technologies involved in distant learning are similar to

those for remote and also include virtual reality, augmented reality, 3D printing and AI enabled robot teachers. Even though students haven't stop learning. There's still concerns about distance learning including the possibility the technologies could create a wider divide in terms of digital readiness and income level. Distance learning could also create economic pressure on parents who need to stay home to watch their children and may face decreased productivity at work.

5. Telehealth

Telehealth or the remote delivery of healthcare services has become an effective way to contain the spread of COVID-19 while still providing essential primary care. With some online services reporting up to a 500% increase in usage during the pandemic, it appears that digital healthcare will go mainstream even faster than expected. Healthcare companies are building their telehealth platform using a programmable video platform. It enables providers to launch a video visit with a patient, review relevant patient history, and update clinical documentation directly within the application.



COVID-19 is forcing industries to figure out how to engage with their customers without seeing them in-person and to implement these new solutions at unprecedented speeds. The forced virtual consultations during COVID-19 have demonstrated to clinicians that patient care doesn't have to be high-touch to be highly effective.

6. Online Entertainment

Although quarantine measures have reduced in-person interactions significantly, human creativity has brought the party online. For instance, Netflix launched a Google Chrome browser extension named Netflix Party which allows the users to access the video in groups and watch them together. Museums and international heritage sites have started to offer virtual tours. There has also been a surge of online gaming traffic since the outbreak.



7. Supply Chain

The spread of COVID-19 is being felt globally across operations in ways that are difficult to model and assess. The affected regions are at the heart of many global supply chains. The lack of visibility on data and lack of diversity and flexibility have made existing supply chain systems vulnerable to any pandemic.

Understanding how global manufacturers are managing through disruptions to their supply chains will help all businesses structure their own responses. Impacts in many companies across many industries seem inevitable. In the near term, the cost of supplies may increase, stemming from overtime and expedited freight costs, as well as from paying premiums to buy up supply and hold capacity. Companies are also working through alternative sourcing strategies. It will be critical to identify alternative supply scenarios and evaluate what these mean for operations for example, as cases of viral transmission emerge in different territories.

8. 3D Printing

3D printing technology has been deployed to mitigate shocks to the supply chain and export bans on personal protective equipment. 3D printing offers flexibility in production: the same printer can produce different products based on different design files and materials, and simple parts can be made onsite quickly without requiring a lengthy procurement process and a long wait for the shipment to arrive.

9. Robotics and Drones

As social distancing becomes the new normal, robots are moving from controlled environments to uncontrolled environments in many industries faster than we expected. They are more critical than ever, as businesses and governments search for new, "contact-less" solutions. During this pandemic, robots have been used to disinfect areas and to deliver food to those in quarantine. Robots are joining our frontline workers and helping to fight the virus. They're helping businesses do



Your
fingernails grow
1 nanometer per
second.

even more, while simultaneously demonstrating new use cases to regulators, workers, and the public.

The pandemic is showing robots in their best light, and the impact won't be forgotten.

10. 5G Network

While 5G mobile data networks became available for the first time in 2019, there were still expensive and limited to functioning in confined areas or major cities. 5G will likely have more affordable data plans and improved coverage. It may become more useful even than the wired networks running into our homes and businesses. The increased bandwidth will give possibilities for growth in the area of the IoT and enable smart machinery to collect and transfer large volumes of data. During the pandemic, when people are staying home, access to 5G mobile internet may become a vital necessity in regions with no internet connection or low coverage.

As you may have noticed, tech trends will not develop separately, but in a synergic way. Development of 5G and edge computing will provide growth of computing power and become a basement for the new-generation IoT platforms. The Integration of block chain technology with AI, big data, IoT, and edge computing, will contribute to resolving issues concerning the online and offline mapping of data and assets. The growth of quantum computing will add vitality to AI and cloud computing.

COVID-19 has demonstrated the importance of digital readiness, which allows business and life to continue as usual during pandemics. Building the necessary infrastructure to support a digitized world and stay current in the latest technology will be essential for any business or country to remain competitive in a post COVID-19 world, as well as take a human-centered and inclusive approach to technology governance.



**SARS-COV-2
can damage cilia
which are the
hair like
projections on
cells.**

The Kasa Smart Home [Matthew Trammell]

Back in April of 2019, I wrote an article called The Rise of a Smart Home. Since then, I have added a few more smart devices. So, I thought that I would share an update on my smart home journey. If you are in search of ways to make your home smart, I hope that you will find this article helpful. Today, I would like to focus on smart plugs, switches, and light bulbs. I researched several options on Amazon and ultimately decided on the Kasa smart devices by TP-Link. TP-Link is a familiar company to me because I know them for their wireless routers. Most importantly, I like the aesthetics of their devices.

I started my Kasa collection by adding a few smart plugs to my Amazon Wish List. Over the holidays, my wife surprised me with a set of four Kasa smart plugs. I initially used them to set up a schedule for our holiday lights. If you know my wife, she likes to decorate for the holidays and put lights up everywhere, both inside and outside the house! Plugging in each strand of lights takes time... enter smart plugs! Now, I can say, "Alexa, turn on lights!" Did I mention that these smart plugs are Alexa compatible? That is an important feature that I look for in a smart device. Many smart devices are also compatible with Google Home as well. Currently, I have two of the original four smart plugs set up for the oscillating fans in my kids' rooms. One is set up for my bedside lamp. The last, I think, is in a storage drawer and yet to be repurposed. It used to control my 5-year-old son's bedside lamp, but he ended up disconnecting the smart plug. I am not sure that he liked that mom and dad could control his light from our phones!

I spent a good amount of time debating myself between smart light switches and smart light bulbs. I was leaning towards smart light switches, but I was also concerned about how hard they would be to install, especially since I am not an electrician. I took an electronics, introduction to circuits' class in middle school and, of course; I have my knowledge of computer circuitry. Yet still, I was a bit nervous working with house power. I like the idea of smart light switches, because they work with any bulb. Depending on the smart bulb you get, you can spend around \$15 per bulb. Or, you can spend around \$15 for one smart light switch and go with cheaper bulbs. Decisions, decisions. I went ahead and put a single pole Kasa Smart Switch (HS200) on my Amazon Wish List. And behold, my wife surprised me with a smart light switch for Father's Day! I am one who can spend days and days thinking about a solution and devising a plan to fix a problem. I could have spent a few more days deciding between light switches or light bulbs. So, it was helpful indeed that my wife started me off with a smart switch. Not long after receiving the switch, I killed the power to the existing light switch from the circuit breaker and went to work.

FIRST DISCLAIMER: Please consult an electrician if you have any questions or concerns about installing a light switch.

I found the Kasa installation video to be helpful and the install went fairly well. After the install, it was easy to connect the light switch to my wireless network and Alexa. Power back on. One light down. The living room niche light. Our thought was to have a light on in case we arrive home late. Thus, I set a schedule for this light to turn on in the evening and off in the morning. Overall, I was happy with the install and being able to say, "Alexa, turn <on/off> niche light." In fact, I felt pretty confident about the install that I went ahead and purchased the Kasa triple pole (or 3-way switch),



Infectious droplets from a cough or sneeze can easily travel as far as 6 feet.



Even speaking can spew out infectious droplets. Hence the CDC recommendation of wearing a mask while out and about.

HS210 kit. Now, I wanted to make our living room ceiling fan light fixture smart. What's two more poles?

SECOND DISCLAIMER: Take pictures of the existing switches and wiring, **both switches**, on each side of the room **before** disconnecting the wires.

The installation app tells you to take pictures of the existing switch and wiring. I did not pay as much attention to this because I was confident after installing the single pole switch. I did take a picture for another reason, but I did not get a good close up of the wires and how they were previously connected. I believe that I installed the first switch correctly. However, when I press the second switch across the room, the switch sometimes, more often not, will turn the light on. I have to walk back across the living room and use the first switch again to turn the light on. Or, I can say, "Alexa, turn on living room lights." I have read that for 3-way switches, only one of the switches needs to be smart. I may experiment by adding one of the old 3-way switches back to the circuit. This is a minor annoyance, but it is on my list of things to fix. Aside from the 3-way switch debacle, the other frustrating part for me was trying to shove the light switches back in to their spot and lining them up so that they are not crooked. Surely, there is a tool for that! Electricians are probably laughing at me. See first disclaimer. Needless to say, I now have 3 smart switches installed and mostly working.

I also ended up buying a Kasa LED, Soft White, and Dimmable Smart Light Bulb - for my son's bedside lamp. He likes to sleep with some light at night and I felt that his current light bulb was really bright. So, I got this smart light bulb and installed it. In addition to asking Alexa to power on and off the lamp, you can say, "Alexa, set lamp to <x> percent" to set your preferred dimness setting. This solution worked perfect and allowed us to create dim light that does not blind you while sleeping like the sun is up! The smart lamp also remembers the dimness setting. Say you power off the light and later decide to turn it on again - it will turn on at the previously set dimness level.

I did try to stay with the Kasa family of smart devices for our smart plugs, switches, and light bulbs. Each smart device manufacturer has their own app. So, the more manufacturers of devices you have, the more apps you get to manage on your phone. I currently have six apps so far. Alexa is my primary app. I set up schedules and routines under Alexa, but keep in mind that Alexa is an internet-based application. Without internet, you cannot talk to Alexa and other Alexa features may be unavailable. However, the native manufacturer applications typically allow you to control your smart devices locally. For example, the Kasa app will show a message "Local only" next to each device if the internet is not available.

Back to the smart switch vs smart bulb debate, it really is up to you to decide what works best for your home. In fact, I decided to pick both. My current preference is to use smart switches to replace switches and smart bulbs for items such as lamps that plug directly into wall power. For other, non-lamp items that plug into wall power, such as oscillating fans, toasters (that thought just came to mind. Don't experts say it is wise to unplug toasters when not in use?), etc. you need smart plugs. There are smart power receptacles too, however; I am even more hesitant to mess with those!

I would like to conclude this article by sharing some additional smart devices that we have. We have two Echo Dots, one for my son and one for

my daughter. My wife has a floater Echo Dot that we set up around the house as needed. Sometimes, we'll use it on the backyard patio and stream music. The Echo devices are excellent speakers for playing music and the ability to set speaker groups is cool. I have a myQ device that tells me if my garage door is open or closed and to open and close it remotely. Finally, one of my favorite smart devices and perhaps the kids most favorite is our Ecovacs Deebot. It is a robotic vacuum cleaner that we named "DeeDee". It is great to say, "*Alexa, ask Deebot to clean*" as you walk out of the house for day and then come home to a clean floor. You could also set the Deebot to clean on a schedule. I hope that this article has inspired you with some ideas about how to make your home smart and that you have as much fun setting up smart devices in your home as I have!



**SARS-COV-2
spreads through
entry sites like
the nose, mouth
or eyes.**

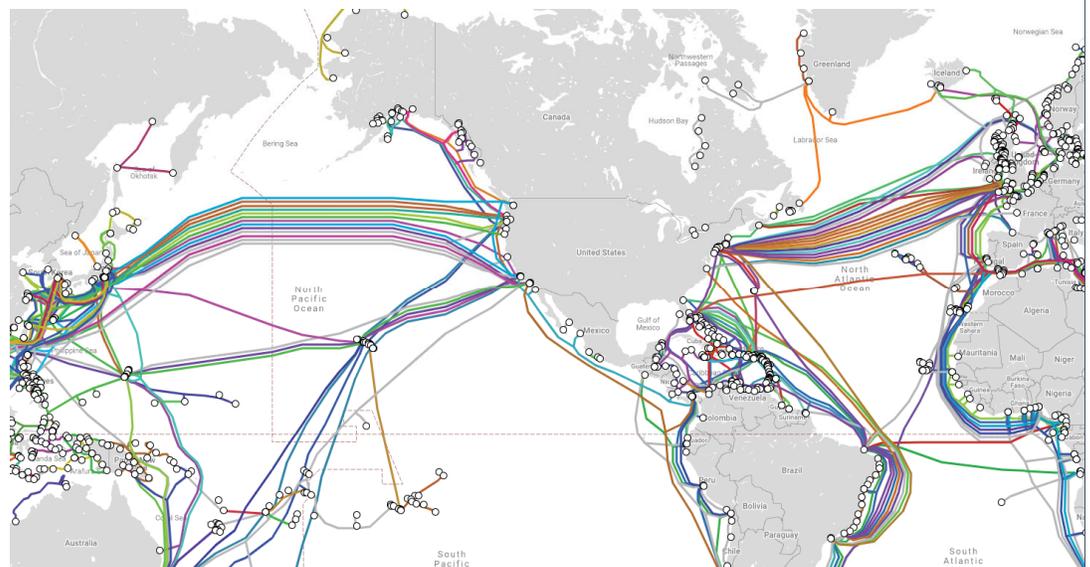
The Internet Beneath the Waves

[James Taylor]

In today's age of hyper-connectivity, most Americans tend to take access to the Internet for granted, and that goes double for wireless access. With the ubiquitous availability of either WiFi access points or cellular data, most people rarely stop to think about how that data travels from their device to whatever service they are using and back again. When you watch a TV show or a movie on your phone or TV, most of the journey that data takes from the streaming server to your screen takes place over cable wiring. While much of the mundane network communications we conduct in the course of our daily lives can be accomplished utilizing overland cables within the United States, we often send and receive packets of data to and from servers that reside in other countries. For example, if you wanted to visit the website for the Uffizi Gallery in Florence, the browser on your device would have to send a request for the website that would then be forwarded from router to router until it finally reached the web server located in Italy. The implication here is that the data from your device traveled across the Atlantic Ocean and back in the literal blink of an eye! This amazing feat of technology is accomplished with the help of submarine communications cables.

Submarine communications cables are cables that are laid on the ocean floor that physically connect two points on either side of a body of water. They are bundles of fiber covered in several layers of protective material that conduct information along their lengths in the form of light. While light signals moving through a fiber medium travel at speeds lower than light in a vacuum, the speeds achieved are still mind blowing: around 124,000 miles per second.

As of today, there are around 380 submarine communications cables in operation around the world. These cables connect Virginia to Brazil, Brazil to Cameroon, China to California, and so on. This is how every nation in the world is able to connect to the world-wide network we call the Internet.



You can see the locations of commercially operated submarine communications cables at the interactive map located at <https://www.submarinecablemap.com/>.



SARS-COV-2
invades the
lungs.

COVID-19 and Working at UNT [Christopher Horiates]

To say the past few months have been crazy that would be understatement. The entire world is experiencing something that, according to experts, only happens every 100 years. The pandemic of COVID-19, politics aside, is something we are all dealing with on multiple levels. The sudden and remote work landscape was something that no one saw coming. Having worked at UNT for the past 15 plus years, the past 4 months have been an experience like no other.

March seems like so long ago with all that we have been through. It's as if Spring Break is still going on. The parking lots are empty and there are no students on campus. The unknown as to what COVID-19 is, how dreadful things could get, the safety of our loved ones and how work would continue in the new way of life we were suddenly shifting too created a vast amount of emotions and uncertainty for everyone.

Me personally, I was tasked to stay on campus with a small group of IT personal. The physical day-to-day absence of people on campus and quietness was something that mentally was hard to wrap my head around. Even now coming to work is difficult. The life the campus normally would bring is completely absent. Taking a lunch walk around campus, some days I see a handful of others working on campus, and other days see no one and no cars. It was/is like a scene from a post-apocalyptic movie. You can hear the birds chirping and the squirrels running in the trees. On that note the squirrels looked to have lost weight, their human snacks for food went away with no one around. They look like the squirrels you would see out in the wild and they seem to be more afraid of people now as they run off when you walk by. Of late there has been a few more people on campus, but nothing like was it normally is. For a while other cars on the road driving to and from work was nonexistent. Today there are more cars but I can't remember the last time I was stuck in a traffic jam.

Here's a photo I took walking around 12PM on 4/23/2020. This is Highland Street looking towards the University Union. Any other "normal" day that road, as most of you know, is constant traffic. Even to this day it's still mostly empty.



Currently
there are no
specific antiviral
treatments to
cure SARS-COV-
2.



A virus can be viewed a zombie. It is not alive so it cannot be killed but you can disrupt its biological material and essentially destroy its viability.

As remote calls and remote requests ramped up initially the days seemed long yet short. There was lots of work to do, but the days went by fast. We were suddenly supporting our users, who used to be a simple walk away if we needed to help them, to having to completely support them remotely. To hear a voice or see a familiar face on camera was refreshing. Everyone had a different outlook and take on what all that was going on, yet all seemed positive. While physically on campus, it was as if we were working remote since no one was around. After things settled down into the new "normal" from the first rush of everyone going remote the days truly seemed to blur together. There were some days where I truly would forget what day of the week it was, as I am sure others have or still do experience.

While I understand the importance of keeping a safe distance between others, I personally never liked the term "Social Distance." I would have liked it to be "Physical Distance" We are social creatures and at a time when our entire way of life and work was being upheaved, we need human connection more than ever. Our UNT community, and the hard-working people who work here, seemed to put our heads down and get the job done.

As we are looking forward to the Fall Semester and what challenges it might bring the normal excitement of a new beginning is not there. That feeling in the air of the rush that's about to hit is absent. The Freshman having on campus Orientation, Residents Halls getting ready to open up, the student organizations tabling around the Union, the Drum Line practicing outside the music building, none of it is there. This upcoming semester will be like nothing we have experienced before. When we all left in March we just made it work. Now, we have to make it work. There will be technical challenges we will have to face as well as the challenges and concerns of people's health and safety. Just remember we are all in this together and we will all get through this together. Now more than ever we need to all come together. Stay safe everyone. Hopefully life will get back to normal sooner rather than later.

How Videogames and VR Revolutionized Filmmaking on “The Mandalorian”

[Patrick Kennedy]



The lipid layer that surrounds the SARS-COV-2 is susceptible to soaps and detergents.

“The Mandalorian” has been celebrated not only for its great storytelling, but its amazing visual effects as well. The exotic locations, lasers, and starlight all bounce and reflect beautifully off of the protagonists’ Beskar Mandalorian armor; this is an effect that is extremely difficult to produce when using traditional blue or green screen techniques, as VFX artists would need to “paint out” the green in every single frame. In addition to this, complex light reflections have to be added in or mimicked using controlled lighting cast on the reflective surface. In order to accomplish the photorealistic effects, the production team pioneered a revolutionary filmmaking technique using what they call “the Volume.” The Volume is essentially an LED screen that wraps around 270 degrees, and is 20 feet tall and 75 feet wide. In addition to this, the enormous ceiling is also a massive LED screen, albeit not the same as the walls. The ceiling is still extremely useful for shots, but footage including it must be edited slightly in post-production.

However, you can’t just project an environment onto an LED screen and roll the cameras; as soon as you move the camera, the perspective won’t match, and the illusion falls apart. To accurately maintain the proper perspective, you must track the camera movement within a 3D space, and adapt the environment in real time. In order to solve this, Jon Favreau and his team used VR tracking technology (using at times what appear to be HTC Vives) to capture the position and orientation of the cameras.



Chemicals in hand sanitizers including alcohol will destroy the lipid layer of the SARS-COV-2 virus.



To build these photorealistic virtual environments quickly, they worked with Epic Games to implement their Unreal engine (traditionally used to make videogames). This allowed them to quickly and effectively build 3D spaces in which to film, allowing for a wide variety of exotic locations. This convenience also allows for easy reshoots. Instead of needing to travel to location, the team could load the environment back into the Volume, place the props back onto the floor, and start shooting again within a very short timeframe.

Due to how bright LED's are, lighting becomes significantly simplified. An explosion nearby will light up the actors, laser blasts will reflect off of the Mandalorian's helmet, lava will cast red light on objects, and more. The technology used to make this show is what George Lucas has been dreaming of for 20 years: the ability to essentially make movies in your garage with photorealistic visual effects. With how innovative season one has been, it's no question that the production team will only become more effective with the Volume for season two.



VPN

[Daniel Weirsema]

Working remotely has fast become the new normal. Now our desk is anywhere with Wi-Fi. The main tool that allows us to have this freedom, but still have security is a VPN connection. VPN is a virtual private network. That extends a private network across a public network and enables users to send and receive data across shared or public networks as if their computing devices were directly connected to the private network.

VPN is a new normal for work, but also for everyday life. The same way VPNs can protect work data, it can also secure your network traffic. If you were to use a VPN and your network was accessed. Maybe you are traveling and can't use a secure Wi-Fi. The person who accessed your network traffic, would only be able to see encrypted data.

In the future you hopefully will not have to turn on the VPN every time you connect to a network. The programs you use will have the VPN built in when you log in. In the meantime, VPN is one of the best tools for a secure network environment and will be used for a long time to come.



**Lipids is
another name for
fats.**

Solution to last newsletter's brainteaser

*Pale hands I loved, beside the Shalimar" is a line from an old song.
What is the Shalimar?*

*"The Shalimar" in this poem/song is the "Shalimar Bagh" in Srinagar,
Kashmir, India.*