SC20

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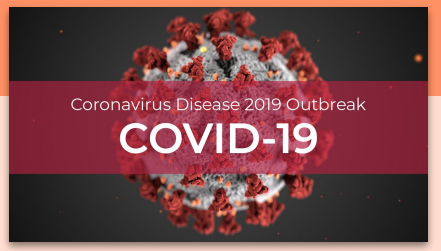
Working Remotely: Onboarding and Mentoring

State of the Practice Track 7: Responding to Pandemic Driven Change

Tuesday, 17 November 2020

Rajesh Sankaran • Argonne National Laboratory



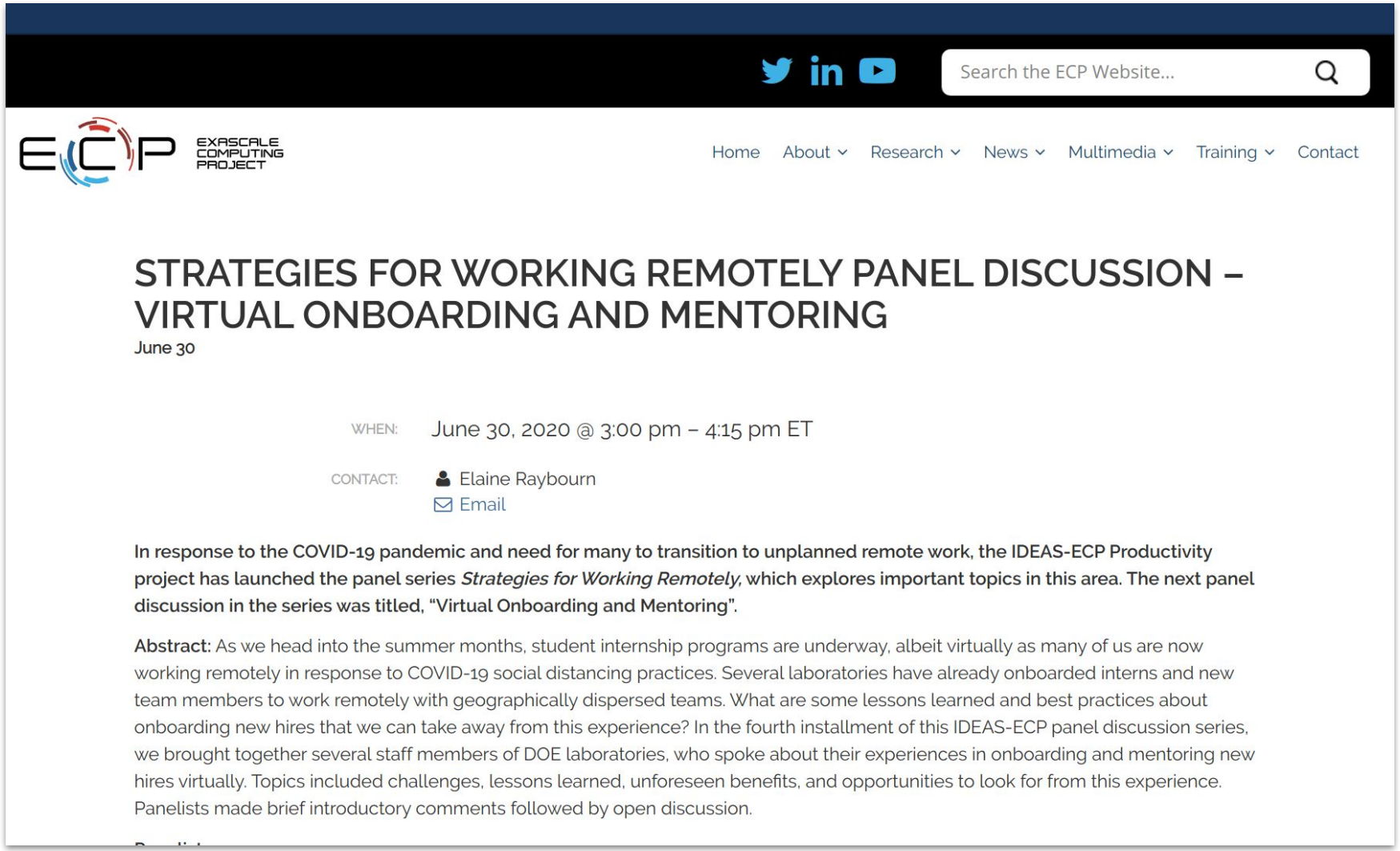
Why this talk?

- Spring 2020 - swift and unprecedented spread of a global pandemic, COVID-19.
- Social distancing practices among other measures adopted worldwide in defense.
- Workplaces turn toward remote work, with the exception of essential services.
- Hiring and onboarding of new hires and student interns over the Internet and telephony bring several challenges.
- Based on current understanding of COVID-19 and the evolution of vaccines and therapeutics, we may have to continue in this mode of operation for the foreseeable future.

Given this new normal, what can we do to make remote onboarding and mentoring processes seamless, efficient, and welcoming to new hires and students?

From working at the lab to working from home...

ECP panel on virtual onboarding and mentoring



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STRATEGIES FOR WORKING REMOTELY PANEL DISCUSSION – VIRTUAL ONBOARDING AND MENTORING

June 30

WHEN: June 30, 2020 @ 3:00 pm – 4:15 pm ET

CONTACT: Elaine Raybourn
Email

In response to the COVID-19 pandemic and need for many to transition to unplanned remote work, the IDEAS-ECP Productivity project has launched the panel series *Strategies for Working Remotely,* which explores important topics in this area. The next panel discussion in the series was titled, "Virtual Onboarding and Mentoring".

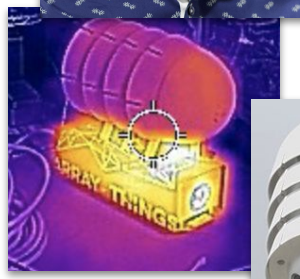
Abstract: As we head into the summer months, student internship programs are underway, albeit virtually as many of us are now working remotely in response to COVID-19 social distancing practices. Several laboratories have already onboarded interns and new team members to work remotely with geographically dispersed teams. What are some lessons learned and best practices about onboarding new hires that we can take away from this experience? In the fourth installment of this IDEAS-ECP panel discussion series, we brought together several staff members of DOE laboratories, who spoke about their experiences in onboarding and mentoring new hires virtually. Topics included challenges, lessons learned, unforeseen benefits, and opportunities to look for from this experience. Panelists made brief introductory comments followed by open discussion.

E. Raybourn, H. Cademartori, M. Kelley, J. Lofstead, B. Mccormick, R. Sankaran, A. Barker, and R. Hartman-Baker, "Strategies for Working Remotely Panel Discussion – Virtual Onboarding and Mentoring."

https://www.exascaleproject.org/event/virtualonboarding/.

A little background about the speaker...

I am Rajesh Sankaran from Argonne National Laboratory. (https://www.mcs.anl.gov/~rajesh/)

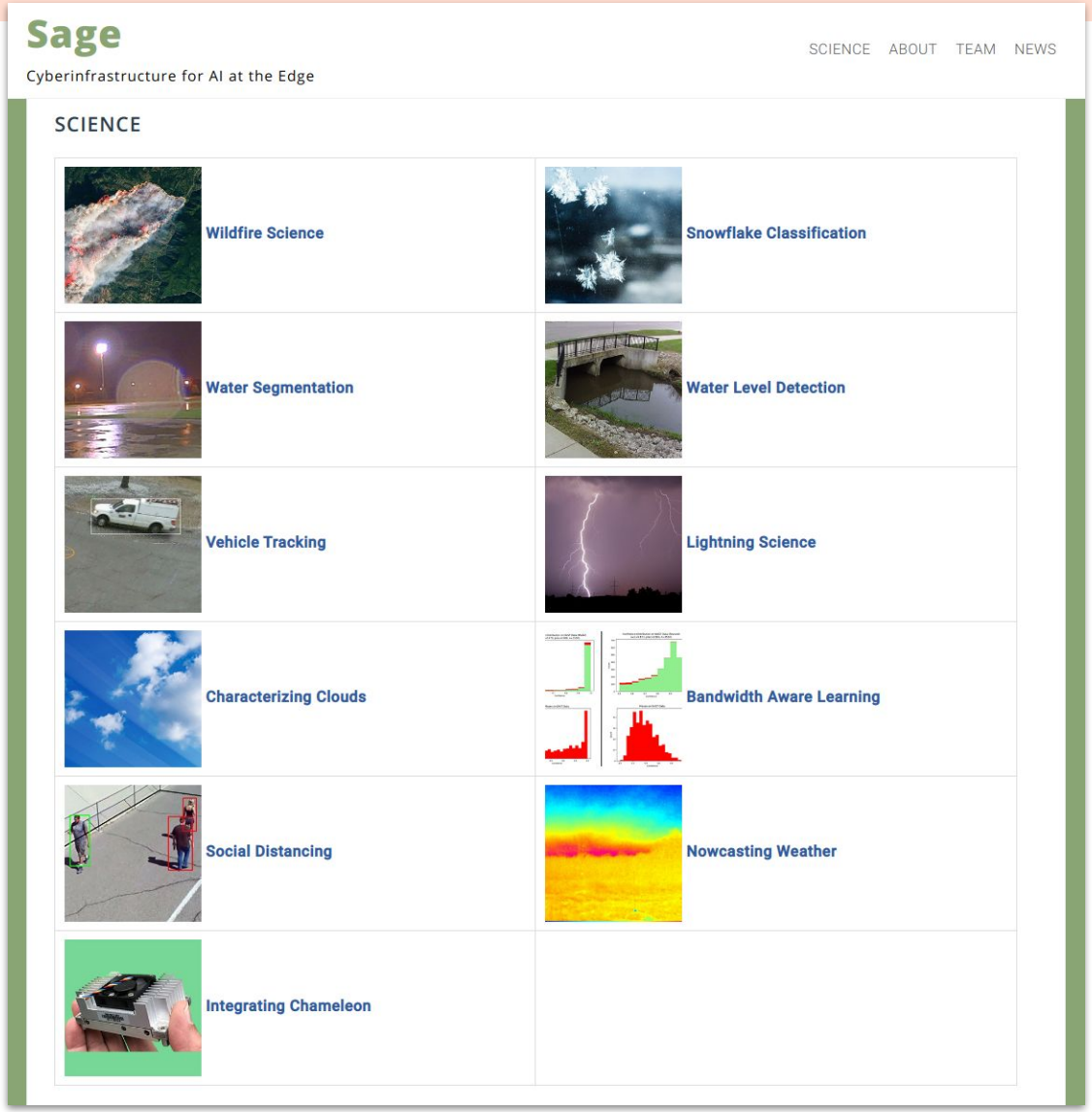


- Experimental Systems Specialist in Mathematics and Computer Science Division.
- Started at Argonne as a graduate intern in 2010, which was followed by a post-doc starting a year later.
- Co-lead the Waggle AI@Edge Computing group, focused on building field-deployable computing and sensing systems.
- My interests include Edge Computing, AI/ML applications, Distributed Sensing, and Embedded Computing Systems.
- While not working with computing hardware, electronics and code, I indulge in hiking, camping, reading, badminton, biking, motorcycling, photography, and mostly edible experiments with food in the name of cooking.

Some pictures...

Students interns this year...

Waggle group remotely on-boarded, mentored, and employed about a dozen students. The students have worked on projects ranging from application of machine learning and artificial intelligence techniques, to building system software in support of edge-computing, and integrating new sensors like LiDARs and radiation detectors into the platform.

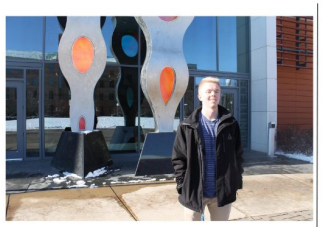


Sage

Projects: https://sagecontinuum.org/science/

Students and their passions…

Luke Jacobs, UIUC, Lisle IL

SAGE/Waggle Research

Goals: My goal for this summer is to discover my interests within IoT and AI

Science: My work will be used to accelerate the labeling and training processes necessary to develop robust neural network models that can learn about patterns in nature

Learning: I am learning what research with IoT devices looks like and how to construct learning algorithms with accuracy and efficiency in mind

My Science

Fav Science: I enjoy any science that doesn't end with a robot uprising or zombie apocalypse

Education: I am a rising sophomore at the University of Illinois in Urbana-Champaign and I plan on going to grad school for electrical engineering or computer science (whichever seems more interesting ☺)

Career?: I would love to work with extreme computing or the theory and implementation of algorithms

My Fun Side

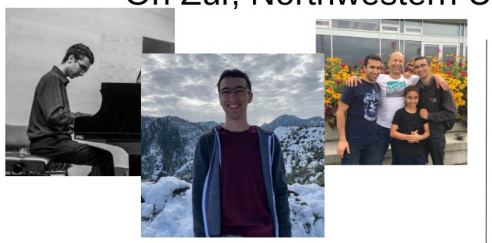
FUN!: I enjoy playing the electric guitar, learning Android development, making memes, and Zooming with my friends

Quarantining in: The Chicago suburbs


Running a Python script on a Raspberry Pi you found on Amazon for a few bucks


Machine Learning at the Edge

Ori Zur, Northwestern University (Evanston, IL)



SAGE/Waggle Research

Goals: Design and code a social distancing detector

Science: My project will aid in COVID-19 research related to human interaction and social distancing policies

Learning: Python, OpenCV, related ML algorithms

My Science

Fav Science: I enjoy learning about and solving problems related to logic, algorithms, and audio

Education: Rising junior at Northwestern University studying compsci and music composition

Career?: Combine my passion of music and compsci in fields such as audio engineering, electronic music, and composing for movies, TV, and videogames.

My Fun Side

FUN!: Playing piano, cello, and guitar, speed-solving Rubik's cubes, Netflix/Hulu binging, Guitar Hero, League of Legends

Quarantining in: Los Angeles, CA

Spencer Ng, The University of Chicago (Chicago, IL)



SAGE/Waggle Research

Goals: Determine the best image sampling methods for retraining ML models to improve accuracy

Science: Used by ML at the edge for selecting images to send back to the Beehive server for retraining

Learning: How neural networks function, using YOLO and Pytorch, selecting data for training, data augmentation

My Science

Fav Science: I enjoy solving problems through computer software, either analyzing/visualizing data or creating computational models

Education: Rising second-year majoring in Computer Science and minoring in Theater & Performance Studies, unsure about future education plans

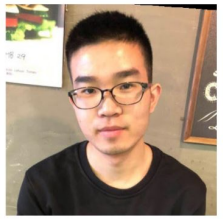
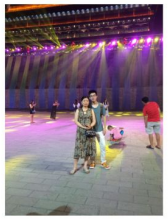
Ca
ente

My Fun Side

FUN!: Hobbies and activities include theater, performing magic, running and strength training, video making, reading critical theory, video games

Quarantining in: North Brunswick, NJ

Liangkai Liu, Wayne State University, Detroit, MI

SAGE/Waggle Research

Goals: A Framework/Architecture for Resource, Sensors and Data Sharing in Edge Computing Infrastructure

Science: Profile the performance of ROS, ROS 2 on top of generic / Real-Time kernels to figure out the bottleneck and optimization opportunities for the data sharing framework

Learning: Docker, ROS/ROS 2, messaging queuing (RabbitMQ, ZeroMQ, ActiveMQ, etc), RT kernel, …

My Science

Fav Science: Cutting edge system research that can help human in their daily life.

Education: Currently I'm a third year PhD candidate. Two years to go. After graduation, I wish I can be a faculty or computer scientist.

Career?: I enjoy doing research and wish to be a faculty in the future.

My Fun Side

FUN!:

- Like playing sports (basketball, football, etc);
- Love music, play guitar and Djembe;
- Love cooking Chinese food.

Quarantining in:
Detroit MI
near WSU campus.

Students and their passions…

Hannah Kim, Purdue University, West Lafayette, IN


SAGE/Waggle Research

Goals: Getting hands-on experience
Science: Monitoring the services attached to the Beehive server
Learning: Prometheus, RabbitMQ, Cassandra and a bunch of Linux commands

My Science

Fav Science: Information Technology
Education: Working on my master's degree, hoping to be done with school after this…:-D
Career?: Hoping to work as a software engineer in the future!

My Fun Side

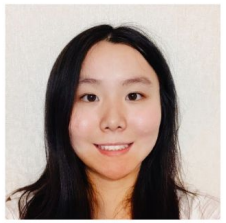
FUN!: Not so fun fact about me, I double majored in Korean Linguistics and Literature and Convergence Software in college.

Quarantining in: West Lafayette, Indiana

Lily Yan, Northwestern University, China

Photos:

- My phone broke, so I cannot get access to my past photos, but will upload more later.



SAGE/Waggle Research

Goals: I would like to build a successful ML model and learn more knowledge about ML and CV.
Science: My work can be used for detections of flooding from images/videos and predict rainfall amount
Learning: I am learning knowledge about machine learning and computer vision.

My Science

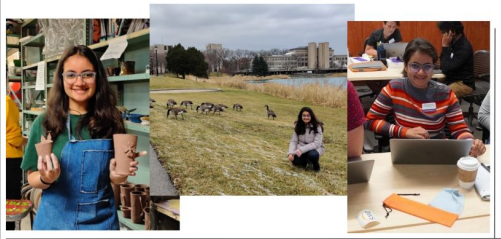
Fav Science: Chemistry, Problems that need team cooperation and imagination
Education: I am currently a undergrad freshman. Next step, I think I will go for industry and possibly MBA in the future.
Career?: I want to be a project manager!

My Fun Side

FUN!: I love dancing kpop and chinese traditional dance, singing, swimming. Fun fact is I have been travelling by plane for over 40 hours for a single time.

Quarantining in: I will be back home in China.

Neelanshi Varia, Northwestern University (Evanston, IL)



SAGE/Waggle Research

Goals: Developing an automated deep learning and/or opencv framework to classify habits/types of snowflakes
Science: To understand the impact of ice clouds on climate change
Learning: I will be learning opencv in more depth than I know. Also about snowflakes and the related science (how cool is that!)

My Science

Fav Science: I enjoy solving and applying algorithms consisting of logic, optimisation, etc. on practical problems
Education: Pursuing MS in Artificial Intelligence and plan to work as a Machine Learning Analyst/Engineer
Career? I would love to work on a startup on of the few

My Fun Side

FUN!: I like to paint, read and sometimes write on my irregularly maintained blog

Quarantining in: Evanston, IL

Aristana Scourtas, Northwestern University, Evanston, IL

SAGE/Waggle Research

Goals: learn how to become a career computational scientist and apply ML/AI to real-world environmental issues

Science: early wildfire smoke detection using computer vision

Learning: all about wildfire spread and deep learning with time series data!

My Science

Fav Science: computer science and AI, applied to help others!

Education: current Master's in Artificial Intelligence student. We'll see where this year takes me!

Career: I strive to be an engineer working at the intersection of computing and environmental issues

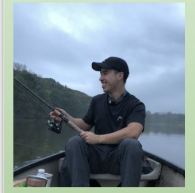
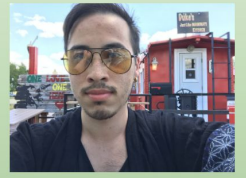
My Fun Side

FUN!: wilderness backpacking, plant care, drawing from life, sci-fi

Quarantining in: Evanston, IL

Students and their passions…

Rick Nueve From Northern Illinois University in DeKalb IL

SAGE/Waggle Research

Goals: Design a Deep Learning Model to perform Image Sequence Analysis for Forecasting Future Solar Radiation.
Science: My work can be used for solar energy research.
Learning: This summer, I am learning about Edge Computing, Distributed Strategies for Deep Learning, and Spatial-Temporal Forecasting.

My Science

Fav Science: Probability Theory, Statistical Learning Theory, and Time-Series Forecasting Using Deep Learning.
Education: Planning to return to grad school in 2021 (after a season of studying for that Math Subject GRE).
Career?: Aspiring to be a Researcher in Machine Learning in Industry or a High-Frequency Options Trader for a Quant Firm.

My Fun Side

FUN!: For fun, I like to learn about Quantum Probability, Blog, read, spend time with my dog, and play chess with a cup of coffee.

Quarantining in: West Dundee, Illinois

Akhil Kodumuri - University of Illinois Urbana-Champaign

Photos:



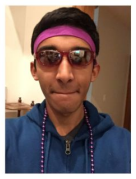
SAGE/Waggle Research

Goals: To learn as much as I can!
Science: The integration of Sage hardware and software stacks with the Chameleon cloud infrastructure.
Learning: Sage, Chameleon, and Docker containers

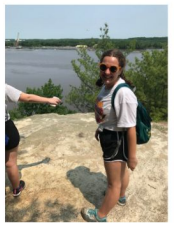
My Science

Fav Science: Anything to help find aliens.
Education: I am currently an undergraduate and next is grad school.
Career?: I would like to have my own start-up and one day educate the masses (teach).

My Fun Side



Zoey Papka, University of Chicago, Batavia,IL


SAGE/Waggle Research

Goals: Get general job experience in a professional lab.
Science: I will be helping get the label of the water detection pictures started.
Learning: I hope to learn what it is like to work in a professional setting and prepare me for work during my undergrad.

My Science

Fav Science: Environmental Science and Ecology
Education: I will be a first year undergrad student at the University of Chicago in the fall.
Career?: I would like to work on research for more sustainable alternatives for things either working in urban areas or the agriculture and food industry to make these changes.

My Fun Side

FUN!: I enjoy running, going on bike rides, baking, and cooking.

Quarantining in: At home in Batavia, IL

Hazel Han, Purdue University, West Lafayette, IN



SAGE/Waggle Research

Goals: To learn how to make good contributions to the team and to carry out the project successfully by bringing what I already have and learning what I don't have yet.
Science: Utilize and improve existing deep learning based vehicle tracking models and implement those on SAGE node properly. Inferencing would be done at the edge. Hopefully my work during the summer could testify that SAGE nodes are usable for vehicle tracking purpose.
Learning: Edge Computing (Inferencing), Deep Learning.

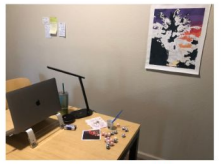
My Science

Fav Science: Mostly, technologies related to computer science field. I also like mathematics as well.
Love to watch documentaries or read articles about space.
Education: Currently in master's program. One more year to go. After I graduate, I wish I could work at a tech company as a software engineer.
(BTW, I've earned BS in Industrial Engineering so I also have basic knowledge in Operation Research, Optimization, etc.)
Career?: Software engineer, technical writer/blogger, vlogger, traveler. (dream jobs...☺)

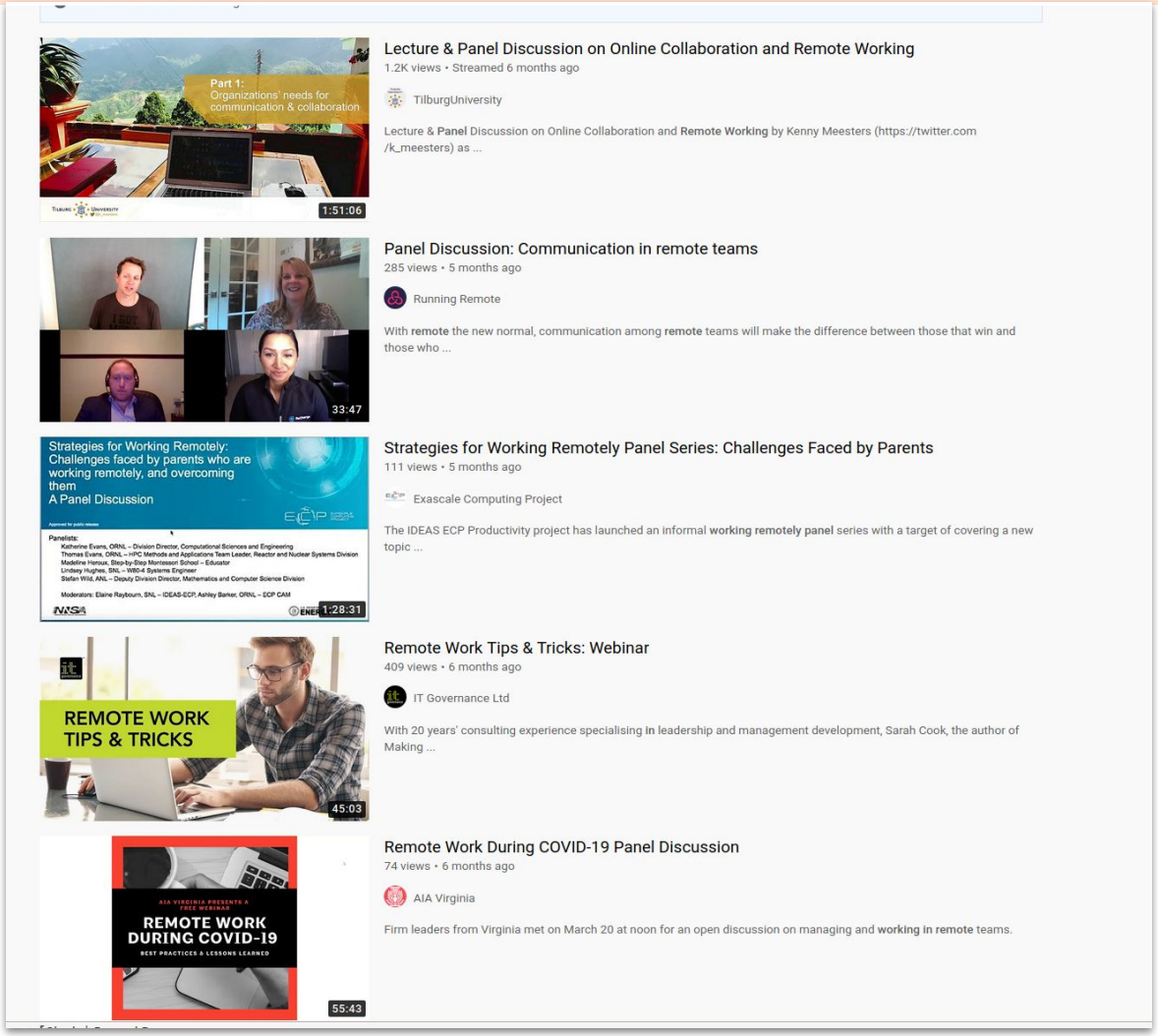
My Fun Side

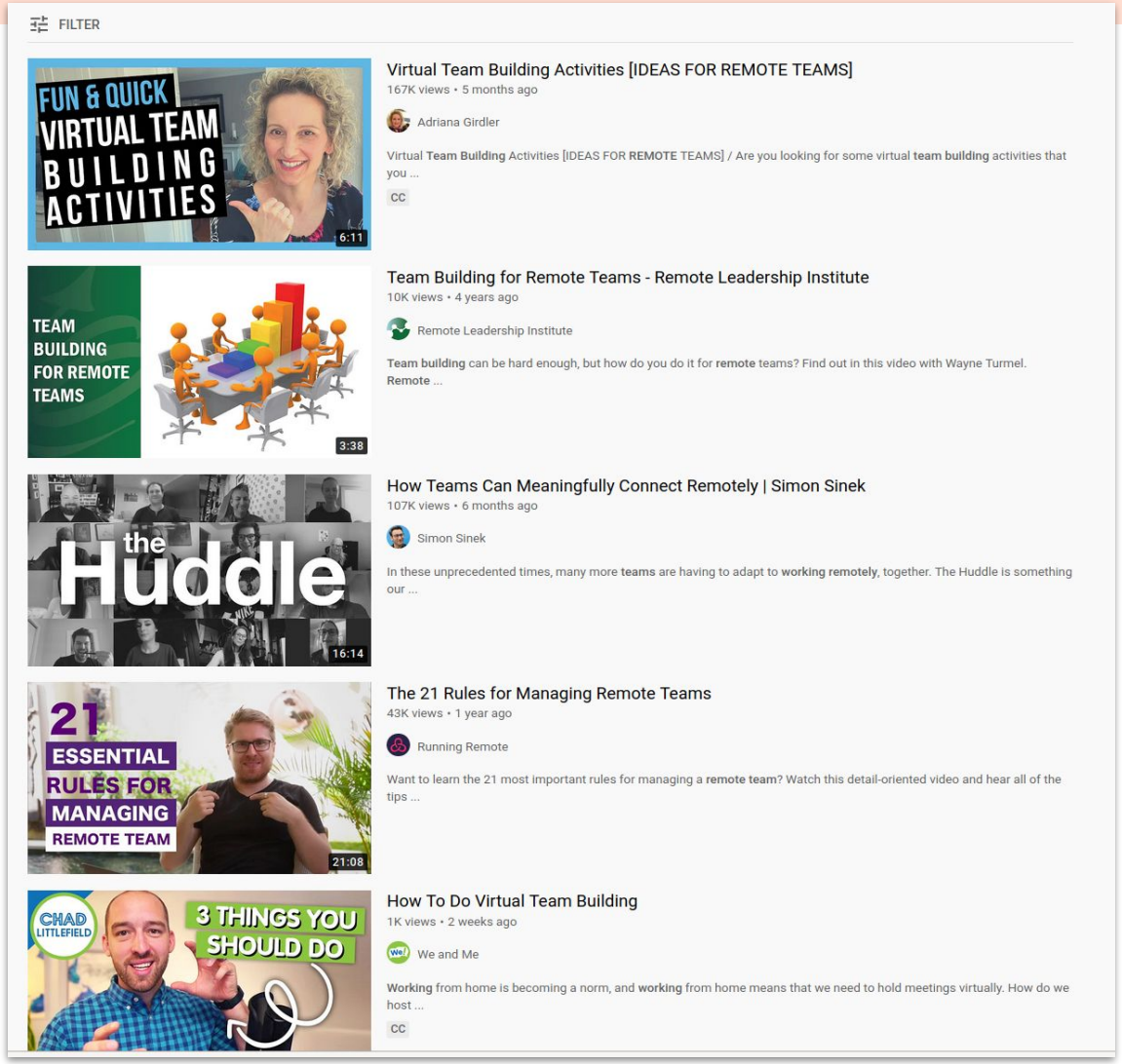
FUN!: Love traveling, taking pictures or filming, coffee, painting.
(But to be honest, due to COVID19, I've been living without any fun bit for a while.Hope we get back to our normal life soon and enjoy the normal life that we've taken for granted!)

Quarantining in:
West Lafayette, IN.
Staying near Purdue campus.


How my workspace looks like...☺
When I get overloaded by TMI from electronic devices, I paint. Refreshing. Brings inner-peace.

Plenty of resources on the web…





*A quick search on **Youtube** shows several intersting panels and educational videos*

Remote work in COVID-19 lockdown - what is different?

Telecommuting

From Wikipedia, the free encyclopedia

"Work from home" redirects here. For other uses, see Work from Home (disambiguation).

Telecommuting, also called **remote work**, **future of work**, **telework**, **teleworking**, **working from home (WFH**[1]), **mobile work**, **remote job**, **work from anywhere (WFA)**, and **flexible workplace**,[2][3] is a work arrangement in which employees do not commute or travel (e.g. by bus, bicycle or car, etc.) to a central place of work, such as an office building, warehouse, or store.

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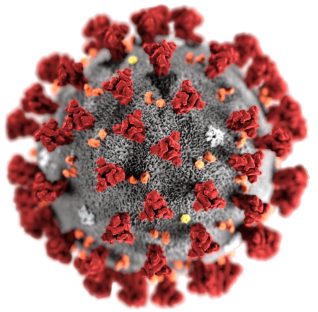
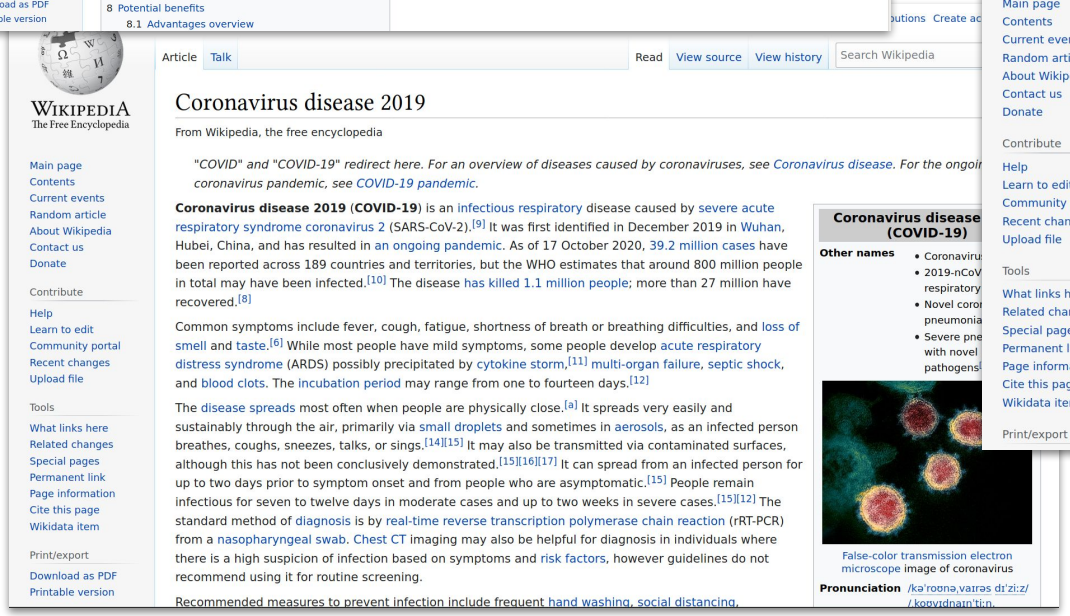
7.3 Sociotechnical systems theory
7.4 Adaptive structural theory
8 Potential benefits
8.1 Advantages overview

The United States Marine Corps began allowing some civilian employees to telework from home in 2010





Coronavirus disease 2019

From Wikipedia, the free encyclopedia

"COVID" and "COVID-19" redirect here. For an overview of diseases caused by coronaviruses, see Coronavirus disease. For the ongoing coronavirus pandemic, see COVID-19 pandemic.

Coronavirus disease 2019 (**COVID-19**) is an infectious respiratory disease caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2).[9] It was first identified in December 2019 in Wuhan, Hubei, China, and has resulted in an ongoing pandemic. As of 17 October 2020, 39.2 million cases have been reported across 189 countries and territories, but the WHO estimates that around 800 million people in total may have been infected.[10] The disease has killed 1.1 million people; more than 27 million have recovered.[8]

Common symptoms include fever, cough, fatigue, shortness of breath or breathing difficulties, and loss of smell and taste.[6] While most people have mild symptoms, some people develop acute respiratory distress syndrome (ARDS) possibly precipitated by cytokine storm,[11] multi-organ failure, septic shock, and blood clots. The incubation period may range from one to fourteen days.[12]

The disease spreads most often when people are physically close.[a] It spreads very easily and sustainably through the air, primarily via small droplets and sometimes in aerosols, as an infected person breathes, coughs, sneezes, talks, or sings.[14][15] It may also be transmitted via contaminated surfaces, although this has not been conclusively demonstrated.[15][16][17] It can spread from an infected person for up to two days prior to symptom onset and from people who are asymptomatic.[15] People remain infectious for seven to twelve days in moderate cases and up to two weeks in severe cases.[15][12] The standard method of diagnosis is by real-time reverse transcription polymerase chain reaction (rRT-PCR) from a nasopharyngeal swab. Chest CT imaging may also be helpful for diagnosis in individuals where there is a high suspicion of infection based on symptoms and risk factors, however guidelines do not recommend using it for routine screening.

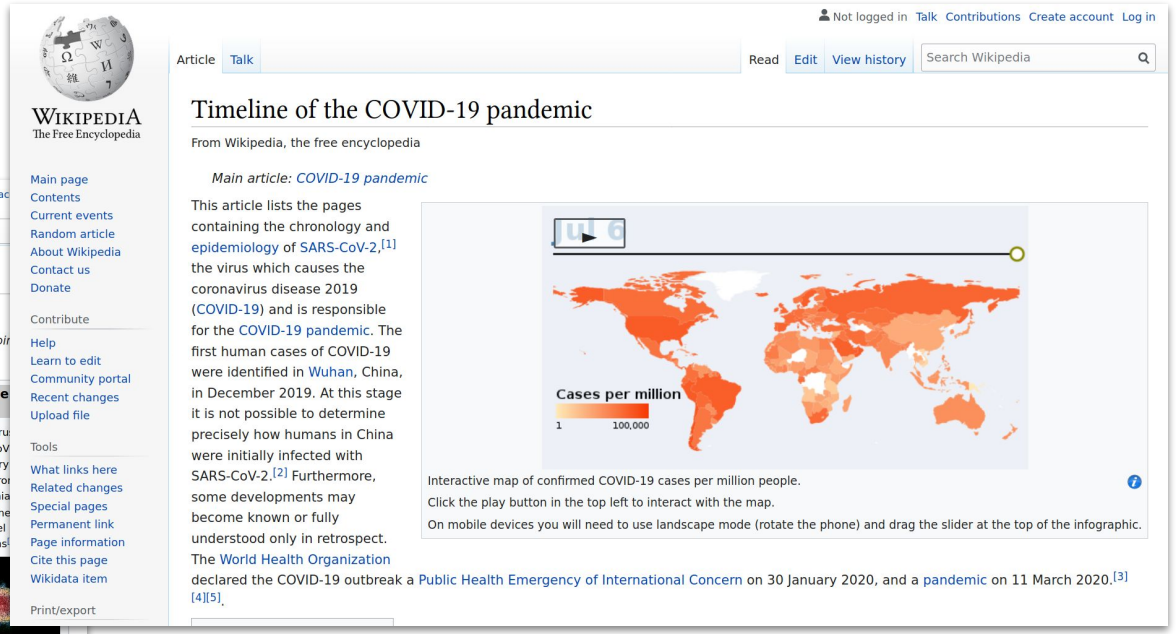
Recommended measures to prevent infection include frequent hand washing, social distancing,

Coronavirus disease (COVID-19)

Other names
- Coronavirus
- 2019-nCoV
- respiratory
- Novel coron
- pneumonia
- Severe pne
- with novel
- pathogens

False-color transmission electron microscope image of coronavirus

Pronunciation /kəˈroʊnəˌvaɪrəs dɪˈziːz/ / koʊvɪdnaɪnˈtiːn



Timeline of the COVID-19 pandemic

From Wikipedia, the free encyclopedia

Main article: COVID-19 pandemic

This article lists the pages containing the chronology and epidemiology of SARS-CoV-2,[1] the virus which causes the coronavirus disease 2019 (COVID-19) and is responsible for the COVID-19 pandemic. The first human cases of COVID-19 were identified in Wuhan, China, in December 2019. At this stage it is not possible to determine precisely how humans in China were initially infected with SARS-CoV-2.[2] Furthermore, some developments may become known or fully understood only in retrospect. The World Health Organization declared the COVID-19 outbreak a Public Health Emergency of International Concern on 30 January 2020, and a pandemic on 11 March 2020.[3][4][5]

Jul 6

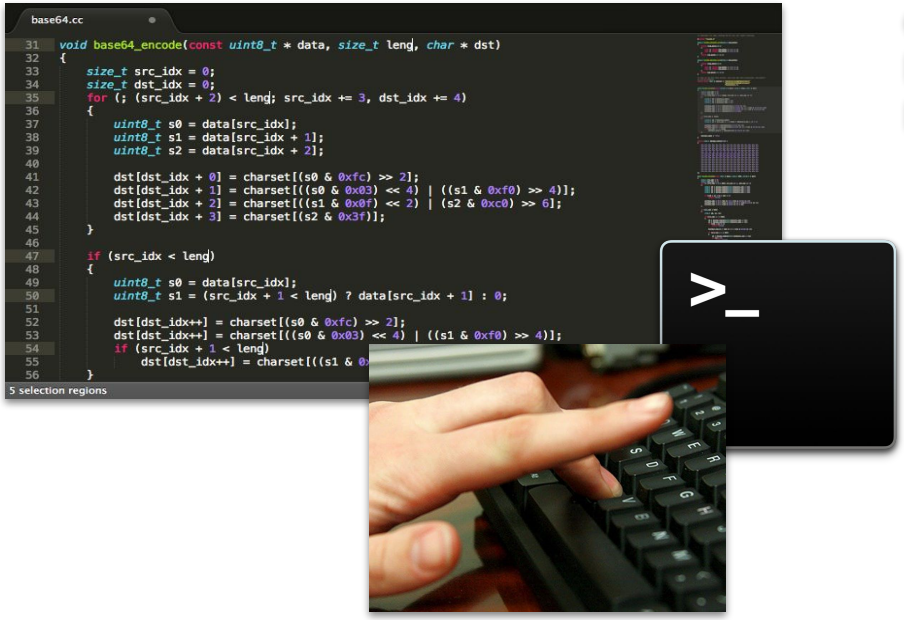
Cases per million
1 100,000

Interactive map of confirmed COVID-19 cases per million people.
Click the play button in the top left to interact with the map.
On mobile devices you will need to use landscape mode (rotate the phone) and drag the slider at the top of the infographic.

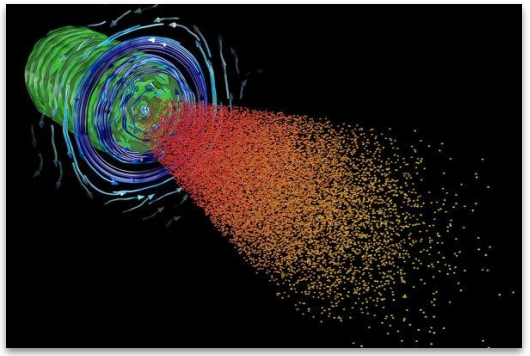
Images Source: Wikipedia

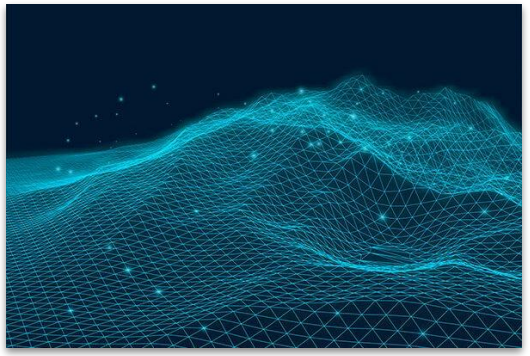
Working remotely is not new to the computing community!

Aurora is a planned supercomputer to be completed in 2021 at Argonne. It will be the United States' second exascale computer, closely following Frontier at Oak Ridge.



Codes are developed on HPC resources remotely, and executed in parallel.





With exascale computing, scientists and engineers will be able to solve problems that previously were out of reach, in several domains including National Security, Scientific Discovery, Economic Security, Energy Security and Healthcare.

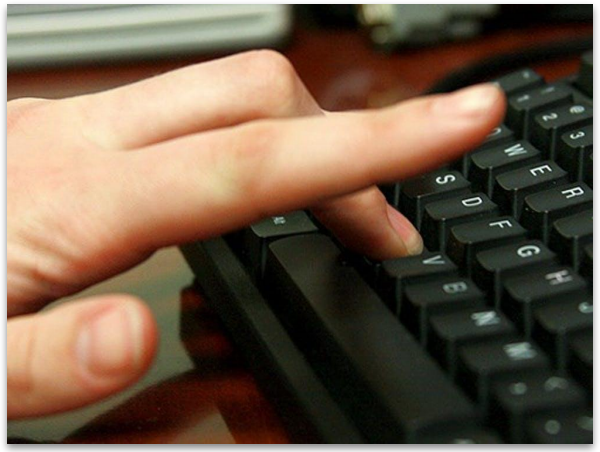
from: https://www.exascaleproject.org/about/

Some thoughts on remote student mentoring

- **The World of Work:** For many students, this is their first real employment outside of school.
- **Needs Assessment:** Students may not have a good setup for working from home – equipment, infrastructure etc. - ask them what they need? Find creative ways out!
- **Transition to Online:** Be ready to move all paper & pen tasks to online resources. Explore available teamwork resources (Slack, Jira, Miro, BlueJeans, Zoom etc.) and pick ones that suit your team.
- **Logistics:** Some things take longer – international students' approvals, lab approvals and onboarding. Work closely with your educational programs – they are under lot of stress, but they will get it done.

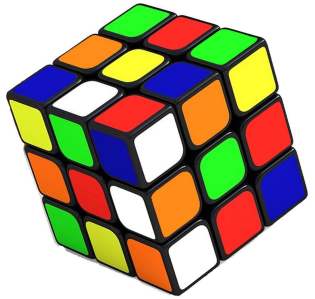
New hires: Some thoughts on onboarding and beyond

- **Teleworking** has been on the rise during the last decade.
- However, it is **not everyone's preferred** mode of working for various reasons.
- In many cases, the employer has been **predominantly setup for in-person** steps during **hiring and onboarding** processes due to safety and security needs.
- New hires may be **fresh out of school** and it may be their **first real employment**.
- Remember, they are **trying to fit in** with other employees who have built relationships in person already.
- **Performance anxiety** can set in, without proper feedback.
- **Remote work** is and can be a **leveler**, and more **inclusive**. Try to exploit it!



Some more thoughts from the panel...

- First time with remote students, so a learning process.
- More frequent conversations are a must - voice plays a stronger roll in remote communications. Many students feel lonely and isolated, and have high than normal anxiety levels.
- A picture speaks a thousand words
  - Reading body language through video is important.
  - Students and new hires need to read body language or they are more likely to misinterpret messages to be negative. It may lead to increased concerns about their performance.
- Develop some standard practices in tech and logistics, automate the process as much as possible.
- Approach this circumstance as working with a globally distributed team while on travel, rather than working remotely.



Unforeseen benefits ?!

Student Interns:

- Housing and commuting challenges avoided – less stress, and financial savings. No office space issues on-site either.
- A chance to explore creative ways of solving problems, leading to new opportunities for students and new collaborations (cross-domain benefits).
- Virtual students may be able to work part time during the school year.

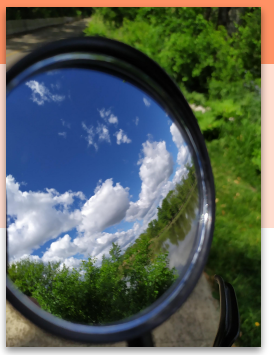
Full-time Employees:

- Capabilities prioritized over other subjective criteria in hiring
- Culture/stigmas around telecommuting are changing
- New resources, virtual tours, tutorials that we expect to be able to use for many other situations.
- Schedule flexibility may make you more productive and happier
- Forces us to look at limitations in onboarding experience

A positive spin? Opportunities?

- With no work-related travel and other associated time-costs, can one mentor more students, and also spend more time on one-on-one discussions with students?
- Some hands-on fields are unable to host interns – explore some cross-cutting/interdisciplinary R&D fronts?
- Several tutorials especially on how to use HPC etc. have been developed, will be very helpful in the future.
- Learning how to run better meetings; becoming better organized due to limited, time-shared space; getting better at using digital tools over paper
- Staff are becoming comfortable managing remotely. Lessons learned could lead to increasing number of virtual projects on campus.
- Virtual intern talks and activities will become the norm on campus. Great opportunity for employers.

It is not all work: Keeping the morale up!



- A challenging time overall
- People may not have the tools and resources
- Listen, do not just hear; look, just do not see.
- One-on-one interactions with staff
- Buddy system
- Online social events, and socially distanced in-person events as permitted

Separating work life and home life crucial, but can be really hard...

Food for thought circulated on social media, from Jonathan Lundberg on Twitter (https://twitter.com/TechJonathan)

Working Remote - COVID 19 Principles

1. You are not "Working From Home", you are "At your home, during a crisis, trying to work".
2. Your personal physical, mental, and emotional health is far more important than anything else right now.
3. You should not try to compensate for lost productivity by working longer hours.
4. You will be kind to yourself and not judge how you are coping based on how you see others coping.
5. You will be kind to others and not judge how they are coping based on how you are coping.
6. Your team's success will not be measured the same way it was when things were normal.

Wrapping up!

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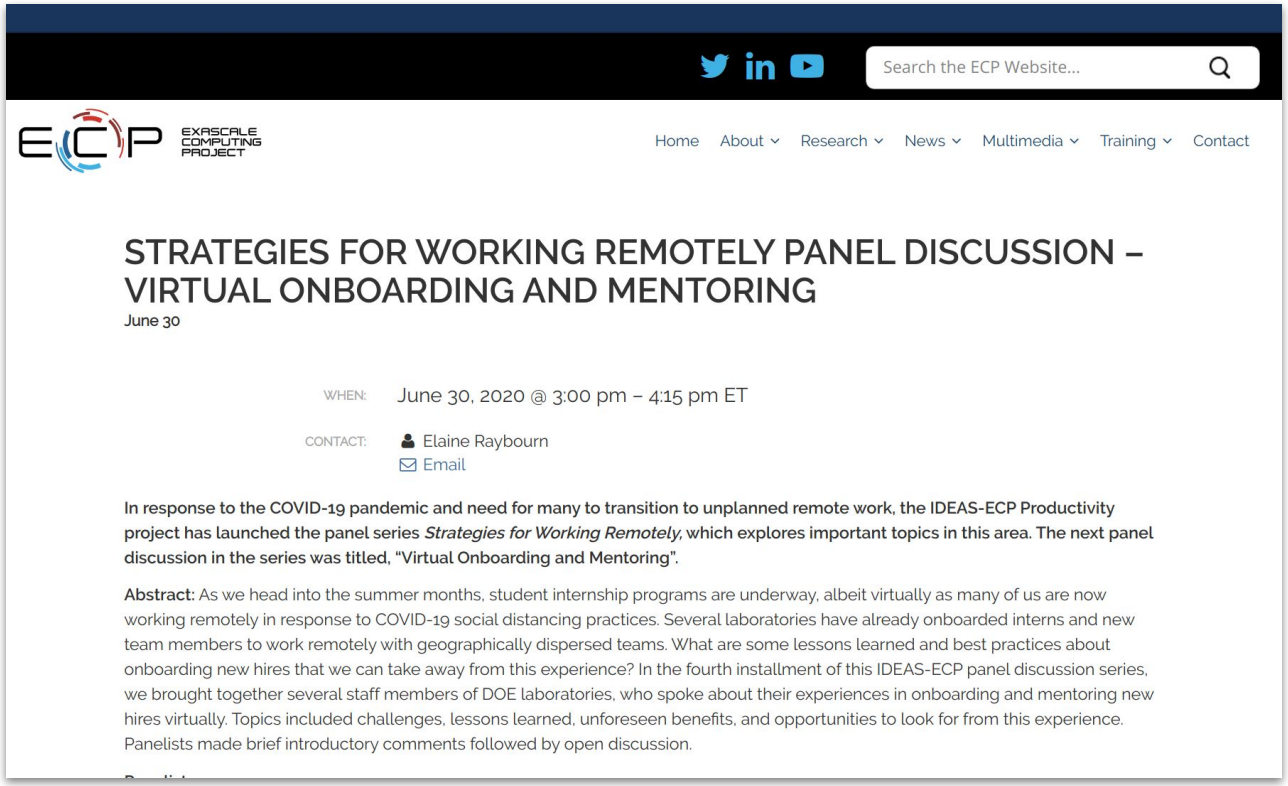

E. Raybourn, H. Cademartori, M. Kelley, J. Lofstead, B. Mccormick, R. Sankaran, A. Barker, and R. Hartman-Baker, "Strategies for Working Remotely Panel Discussion – Virtual Onboarding and Mentoring." https://www.exascaleproject.org/event/virtualonboarding/.

Thanks!