



Data Science Community Newsletter

24 April 2020

Data Science Community Newsletter

Please let us ([Laura Noren](#), [Brad Stenger](#)) know if you have something to add to next week's newsletter. We are grateful for the generous financial support from the [Academic Data Science Alliance](#) and to NYU's Center for Data Science.

Data Science News

University Data Science News

After **Kim Weeden** and **Ben Cornwell's** network science paper suggesting that if campuses returned as normal in the fall they'd be overrun with COVID-19 cases, some campuses have [started announcing Fall plans](#) (h/t to [Andy Thompson](#) for pulling the list together). Most are holding out until May ([University of South Carolina](#), [Emory](#)), June ([University of Texas System](#)), or even July ([Yale](#)) to make decisions about Fall 2020. **Purdue** has said it will open, though university President **Mitch Daniels** [is aware](#) that, "the virus has proven to be a serious danger to other, older demographic groups, especially those with underlying health problems. The roughly 20% of our Purdue community who are over 35 years old contains a significant number of people with diabetes, asthma, hypertension, and other ailments which together comprise a very high percentage of the fatal and most severe COVID-19 cases." Daniels may try to keep these groups separate, maybe by having professors continue to work from home. Daniels also plans to set aside quarantine barracks for those who test positive during the semester.

The biggest story in California this week has been the [release](#) of two non-peer reviewed seroprevalence studies — one using [Santa Clara County](#) data, the other using [Los Angeles data](#) — that found as much as 5% of people could have antibodies to SARS-CoV-2. Statisticians have been upset with flaws in the published work (some numbers don't add up), the methodology (insufficient understanding of Stata packages?), and the lack of available data required to sort out the previous two questions. The authors have acknowledged that their work is not perfect and they [plan to publish an updated revision](#) that incorporates input that they have received. Senior author **Jay Bhattacharya** told **BuzzFeed News**, "This is exactly the way peer review should work." **Will Fithian** pointed out that he had been asking about [various errors and inconsistencies](#) in the Santa Clara County study before the Los Angeles County report came out. The Santa Clara preprint and the Los Angeles report have some authors in common. Authors, please talk to your would-be peer reviewers before you talk to the press.

Harvard's T. H. Chan School of Public Health has released another useful COVID-19 study. This one found that [people who have spent more of their lives exposed to air pollution have a 15% greater risk of dying from COVID-19](#).

A **rebuttal** of the finding that obesity is a huge risk factor for COVID-19 complications is out in **WIRED** by **Christy Harrison**, a registered dietitian nutritionist.

The **University of California-Santa Barbara** has announced it will **extend graduate student's degree completion clocks by a year** due to COVID. The details about funding extensions to match the temporal expectations are vague, but students will likely be able to continue to obtain TA and RA-ships to see them through. Of course, if the number of TA and RA-ships is fixed, there could certainly be some losers in the game of musical chairs/teaching positions. As you'll recall, graduate students from across the UC system were conducting strikes for an increase in their stipends to make it possible to live in expensive communities like Santa Cruz, Berkeley, Santa Barbara, and even Irvine. The one year extension on expected completion time helps foreign students, which is important, but grad students in the UC system were struggling before COVID and will likely to be worse off because of it.

Benjamin Smarr an Assistant Professor of Bioengineering at **University of California-San Diego** is attempting to work with one of the wearables research projects that is hoping to be able to **predict the onset of COVID symptoms through data collected by wearables**. Without more actual testing, more true positives, these wearable projects are more or less in data collection purgatory.

One of the big pieces that we collectively require in order to stage a safe return from the COVID pause is the ability to trace the contacts of those who have tested positive. As **Yasheng Huang, Meicen Sun** and **Yuze Sui** explain, contact tracing either **requires a mandatory implementation of an app** on every citizen's phone or...a very unlikely situation in which nearly all Americans agree to download the same app voluntarily. Given the attempts of far right organizers to turn COVID into a partisan issue, it's unlikely that voluntary tracing will be as complete as it needs to be. **Princeton** Professor **Kyle Jamieson** got a **NSF RAPID grant to develop a firmware upgrade for mobile phones that would track contacts** in a voluntary and privacy protecting...but, I still don't think app uptake will work at scale. Between lack of marketing budget and concerns about civil liberties (right or wrong), Americans will resist. Get ready for some wild oscillations in the curve because reopening will happen whether we're ready or not.

Along the same line of thinking, but coming from the other direction, are questions about **which venues can be opened safely**. A new non-peer reviewed paper by a team from **MIT** looked at an existing set of venue usage data, took into account the 6 feet of personal space we now need, and decided that banks are fairly safe (thank goodness, because they're still open!) as are electronics and furniture stores which should be re-opened ahead of sporting goods, liquor and tobacco stores. Welp, the liquor stores never closed and in California, neither did the pot dispensaries which are probably about the same as tobacconists. They write, "cafes should be seventh in line at most. Places of worship should be opened before gyms but after colleges and universities." In **Orange County, California** golf courses became the first venue to reopen after closing. There is new evidence that **only two cases of coronavirus transmission happened out of doors** in the Wuhan outbreak, so the golfers are probably safe. Most transmission happened in homes and transit.

In many parts of the US, K-12 classes have moved online but [one-third of students haven't been seen or heard from](#) much, if at all, since their schools closed. This non-trivial social impact may make the reopening of K-12 schools more important than the reopening of colleges and universities. The impact of coronavirus on children is still being investigated and its unknown how much risk they would pose to their parents, grandparents, and teachers.

A team of researchers from **Michigan Medicine** has partnered with **Blue Cross** to compile data about [the clinical presentation and treatments for COVID-19](#). We've all had it hammered into us that COVID-19's main symptoms are fever, cough, and possibly shortness of breath. There are also reports of [loss of smell, stroke, kidney damage, silent hypoxia, heart complications, toe lesions](#), and even [sudden loss of second language fluency](#).

Science journalist **Christie Aschwanden** has a good rundown of what's known and unknown about [human COVID-19 immune response](#). Mostly, it's unknown but Aschwanden wants to encourage us to think in terms of "immunishness" rather than a binary state of either being immune or being naive. (She also notes there is a possibility that having SARS-CoV-2 once could make people less able to respond if they get it again, though this is unlikely.)

Kevin Systrom is spending his quarantine putting together [Jupyter notebooks to model R0 value for coronavirus](#). They are good. Systrom, in case you're having trouble placing the name, is the ex-CEO of **Instagram**. His model found that **Arkansas, Nebraska** and **Iowa** have the highest R0. They are three of the five states that do not have lockdown orders in place. Science (sort of) thanks federalism for creating quasi-experimental conditions. **California** and **Ohio**, with relatively early lockdowns, also have fairly high R0 values. Of course, any estimation of R0 at this point unreliable, but the notebook can be updated as more data is available.

And in some good news, the **PLOS** family of journals has announced a new policy under which papers will be [accepted for publication](#) even if they are substantially similar to a paper published in the previous 6 months. It takes some of the sting out of being scooped. Their argument is that two or more labs working on the same study at the same time offer a kind of instantly reproduced study. It's hard to argue against reproducibility. This is a crucial change in the way publishing happens and adds back some of the credibility that science has lost during the reproducibility crisis.

In personnel news, **The Carpentries** has a [new executive director, Dr. Kari L. Jordan](#). Dr. Jordan was the Acting Executive Director and had previously held other roles within The Carpentries.

Company Data Science News

The data science job market, like most job markets, has [fallen off a cliff](#). The graph of 2020's job postings for data science positions looks exactly like a ravine in profile. On a more positive note, layoffs and furloughs have only impacted 3% of the data scientists in the sampled pool.

Google has announced it will [slow hiring for the rest of 2020](#) due to the negative economic impact of coronavirus on ad spending. Anyone who has already secured an offer will be onboarded and

hiring will continue apace for certain targeted areas. The retail and travel sectors that have been hit hard were big Google Ads spenders. Frankly, I'm heartened by the fact that the big G is only slowing hiring, not halting it, given how reliant they are on advertising spend in those hard-hit sectors.

In January **Microsoft** planned to become carbon negative by 2030. This week, in celebration of Earth Day, the company [announced a series of initiatives](#) that advance its corporate stewardship of the environment:

- + it will build a Planetary Computer to "aggregate environmental data"
- + it will publicly advocate for policies to "measure and manage ecosystems"
- + encourage Microsoft employees to contribute to citizen science projects on **Zooniverse**
- + deepen an existing partnership with the geo-data company **Esri**, all according to Microsoft President, **Brad Smith**

Airbnb is [nearing bankruptcy](#). The company has evolved in recent years from mostly individual homeowners sharing their spaces to mostly aggregators listing multiple properties. A few weeks back the appeal of a "coronavirus-free bunker" kept Airbnb afloat, but now cancellations are rampant and new bookings have dropped 85% compared to last year. A data scientist working on New York real estate data suggests that when these Airbnb units fail, they will either hit the sales market or the long-term rental market, softening both. Given that New York already had a soft real estate market at the high end, and that buyers there tend to rely on stock market performance more than traditional savings accounts, this could spell a serious readjustment in NYC. Other areas with a smaller percentage of Airbnb units and a stronger pre-COVID real estate market will likely fair better; Hong Kong's real estate market bounced back immediately after SARS I. [March US home sales were down 15%](#) and expected to fall further as sellers stop listing in this crazy pandemic market.

Verizon has [announced](#) it will provide an open source "big data" search engine (+ API) for the data in the CORD-19 COVID academic articles database. The dataset is updated everyday to include all the newest SARS-CoV-2 and COVID-19 research.

Marc Andreessen of the well-known Sand Hill Road venture capital firm Andreessen Horowitz has [weighed in on both the cause and solution to the coronavirus](#). He believes we should now rely on "aggressive investment" and competition in the free market to build more...well, he sort of skates around exactly what we need to be building because the market will determine that, in the infinite wisdom of the markets. He blames regulation and lack of money as handcuffs on the market leading up to this moment. None of that is surprising given his line of work. What is surprising is how many people thought he was 1) saying something new that was 2) exactly what we need to hear right now. I prefer to read more studies, fewer speculative essays at this particular moment. Usually I have a hard time avoiding the urge to give every speculative essay its own tab in my browser window so I've included this one for readers who are receptive to think pieces by venture capitalists.

David States, Chief Medical Officer for **Affigen** is getting [tired of hearing about the vaccine that's going to save us all](#) in 18 months. That's an unlikely scenario. **Oxford's Sir Patrick Vallance makes a similar argument. Why? States cites a UK preprint** by lead author **Emily**

Adams et al. that found many COVID+ people don't go on to develop much of an antibody response. Even the puny response they do have fades after a couple months. Likely, anyone who gets it now could get it again in a couple years or sooner. These things we already guessed because they are typical for coronaviruses. States goes on to point out that SARS-CoV-2 is worse than influenza because it's significantly more contagious. Combine a partially effective vaccine with very contagious disease and you end up with far less public health protection resulting from a vaccine.

Whole Foods is tracking its employees to find hot spots. No, the tracking is not to help them stay six feet away from each other or customers and find COVID-19 hotspots. Amazon cut health insurance coverage for part-time Whole Foods workers this past January 1, 30 months after making the \$13.8 billion acquisition. Amazon is now worried employees might decide to unionize. This is why we can't just start tracking everyone. The technology goes off in a nefarious direction quickly.

Government Data Science News

Minnesota announced it will administer the COVID-19 diagnostic test to all residents. Now *that's* the state leadership we need. The state's biggest health care players — **Mayo Clinic**, the **University of Minnesota** and **HealthPartners** — are carrying out the effort. Note that these three are also some of the state's largest employers so not only is this effort an excellent public health strategy, it's also a good economic strategy. Minnesota also has the in-state capacity to test thousands of people for antibodies to coronavirus every day. We're all hoping more states have the ways and means to follow suit.

China has instituted another lockdown, this time in the northeastern city Harbin after 72 new COVID-19 cases were detected. The curve will oscillate.

The Congressional Research Office has released a report on the Effects of COVID-19 on the Federal Research and Development Enterprise including everyone who receives **NIH** and **NSF** funding. They brought up the following points, but did not provide magical solutions:

- + canceled conferences generally did not result in refunds either to conference organizers or to individual researchers. Individuals have generally been able to use research funds to cover travel expenses, but conference organizers like professional scientific organizations could not. Some spend upwards of 10% on their annual conferences.
- + conferences are particularly important to computer scientists for whom getting papers into conference proceedings is extremely important for career progression. As noted last week, the **ACM** has suggested that all conferences continue to publish proceedings where ever possible.
- + lab closure will delay research
- + labs that remain open have additional cleaning costs, but may still face lower quality results due to the difficulty of trying to work remotely with some collaborators
- + international collaborations are at heightened risk
- + labs relying on supplies like RNA reagents and cotton swabs are standing down in order to keep COVID research at the helm
- + shutting down and restarting labs incurs extra costs that were not taken into account in the original

grants

+ just auditing the way grants spend during COVID will be more complicated, time consuming, and costly

This study also notes the large amounts of new funding allocated by the CARES Act. Since this new funding may not go to existing grantees, it's not a perfect solution. We will keep watching this space and let you know of any new developments for NIH, NSF, and DoD researchers.

South Korea was one of the first second-wave countries to use widespread testing and contact tracing to keep the deaths from coronavirus to 238 for the entire country. This week, around 180 South Koreans who had tested positive weeks or months ago, were found to **test positive again**. They were far less infectious the second time around. It's not entirely clear why they are testing positive again - could be due to re-infection. More likely, it's a flare-up of the initial infection. There is so much we still do not know about this virus including how long acquired immunity might last and whether or not the virus will linger in some people, only to pop out and cause problems later (like herpes and Ebola).

Extra Extra

China, ahead of the US in all things COVID, has seen a **wave of couples filing for divorce**. In China, getting a divorce is much easier than in the US, "the formalities often tak[e] less than an hour and cost as little as 9 yuan (\$1.25)." **Xiao Mei** summed up what did it for her, "I finally realized my husband is a giant baby."

Probably unrelated, but...people working from home are **dirtier than usual**, according to **Unilever**, who finds them showering less often, shaving less often, and even abandoning deodorant. The admonishment to wash your hands should not mean that you wash *only* your hands.

PRECISE NUMBER + PRECISE NUMBER = SLIGHTLY LESS PRECISE NUMBER

PRECISE NUMBER × PRECISE NUMBER = SLIGHTLY LESS PRECISE NUMBER

PRECISE NUMBER + GARBAGE = GARBAGE

PRECISE NUMBER × GARBAGE = GARBAGE

$\sqrt{\text{GARBAGE}}$ = LESS BAD GARBAGE

$(\text{GARBAGE})^2$ = WORSE GARBAGE

$\frac{1}{N} \sum (\text{N PIECES OF STATISTICALLY INDEPENDENT GARBAGE})$ = BETTER GARBAGE

$(\text{PRECISE NUMBER})^{\text{GARBAGE}}$ = MUCH WORSE GARBAGE

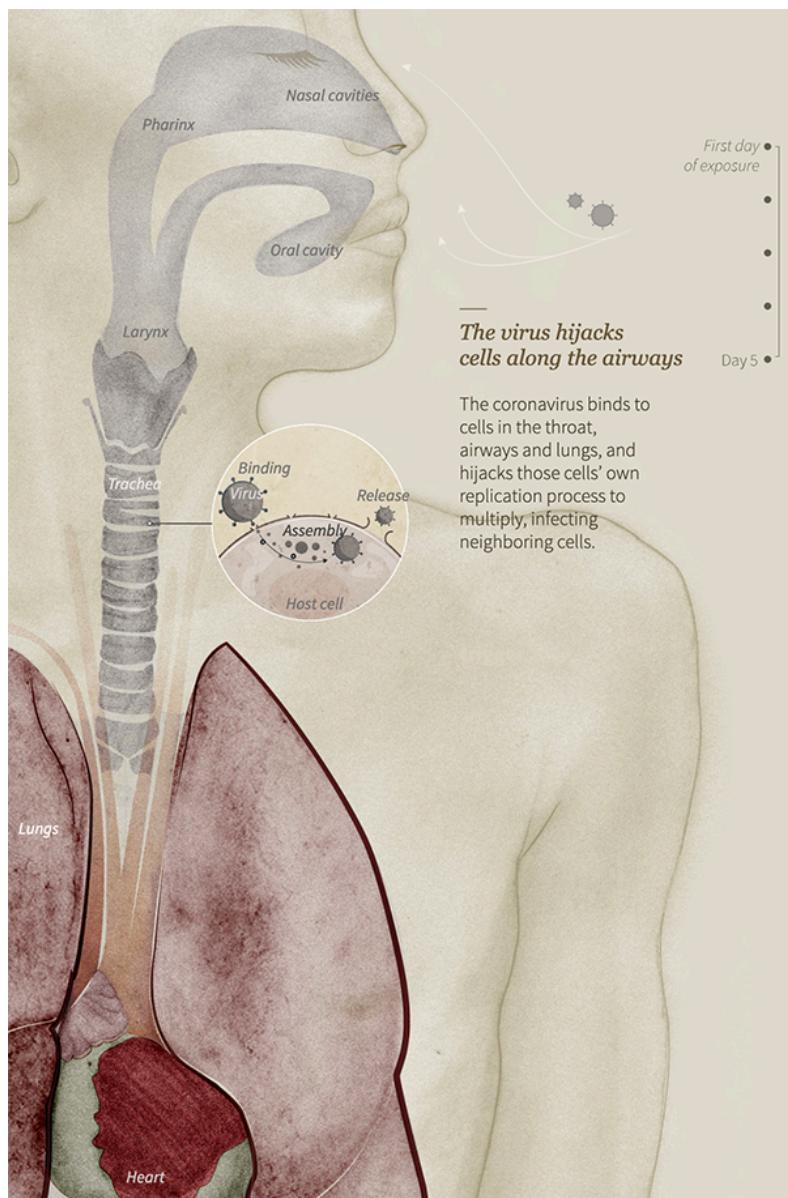
GARBAGE - GARBAGE = MUCH WORSE GARBAGE

$\frac{\text{PRECISE NUMBER}}{\text{GARBAGE} - \text{GARBAGE}}$ = MUCH WORSE GARBAGE, POSSIBLE DIVISION BY ZERO

GARBAGE × 0 = PRECISE NUMBER

Tweet of the Week

Twitter, Esther Wei-Yun Landhuis, and xkcd from April 21, 2020
from [xkcd, "Garbage Math"](#)



Data Visualization of the Week - The most gorgeous data visualization of how COVID infects a body

Reuters, Graphics from April 19, 2020

EVENTS

NIH to Host Webinar on Sharing, Discovering, and Citing COVID-19 Data and Code in Generalist Repositories on April 24

Online April 24, starting at 2 p.m. EDT. " Researchers will have an opportunity to hear from multiple generalist repositories about the ways each repository is supporting discoverability and reusability of COVID-19 data and associated code. The [National Library of Medicine] will also provide an

overview of available COVID-19 literature."

Hack the Virus

Online April 25-26. "A hackathon pairing developers and designers with experts in the medical community and others on the front lines fighting The Coronavirus." [rsvp required]

UCLA Luskin Virtual Summit Series: Session 6, A New Normal for Schools during the Pandemic

Online May 4, starting at 9:30 a.m. PDT. "Panelists on the frontlines will discuss the new normal of schooling and supporting our students, teachers, and parents in a COVID19 reality" [registration required]

PyCon 2020 Online

Online "Due to the unfortunate circumstances we can not come together in person, but we can virtually! For the next 4 weeks we will be posting online content for you to enjoy." [free]

National Bureau of Economic Research, Summer Institute 2020

Online July 7-25. "All Meetings will be Held On-Line. All events are by invitation only."

DEADLINES

Conferences

neuromatch 2.0

Online May 25-27. "An unconference in Computational Neuroscience" Deadline for submissions is May 20.

ACM RecSys 2020 - Important Dates

Online The conference "will be held online, from September 22-26, 2020." Deadline for abstracts submissions is May 25.

Education Opportunities

Simons Postdoctoral Fellowships in Marine Microbial Ecology

"The **Simons Foundation** invites applications for postdoctoral fellowships to support basic research on fundamental problems in marine microbial ecology, with an emphasis on understanding the role of microorganisms in shaping ocean processes, and vice versa. The foundation is particularly interested in applicants with training in different fields, as well as applicants with experience in modeling or theory development." Deadline for applications is May 15.

Paul Evan Peters Fellowship

"The Paul Evan Peters Fellowship was established to honor and perpetuate the memory of Paul Evan Peters (1947-1996), founding executive director of the **Coalition for Networked Information** (CNI). The fellowship will assist students pursuing graduate studies in the information sciences, librarianship, or closely related field, that advance the frontiers of digital information and technology." Deadline for applications is May 24.

Journal/Publishing

Call for Papers: Special Issue on Cyber-Social Health: Promoting Good and Countering Harm on Social Media

"This special issue welcomes theoretical, analytical, and empirical contributions using any kind of research method, including experiments, primary data from social media logs, case studies, simulations, surveys, and so on. Submissions are encouraged to examine the nature of both harmful and social good intentional behaviors on social media towards understanding, detecting, and monitoring good communication while countering harmful communication, by employing computational social media analytics techniques." Deadline for submissions is May 15.

Studies/Surveys

Sportlogiq Data Royale Bracket

"While we all felt levels of 'March Sadness' we've worked closely with our data team to introduce the first-ever **Sportlogiq** Data Royale. An **NHL** themed bracket built using one of our original metrics, Puck Battle Win Percentage.

NIAMS Requesting Input to Advance AI-ready Data Generation and Scalable Computational Approaches

National Institute of Arthritis and Musculoskeletal and Skin Diseases "invites input from the public to help define community needs pertaining to Scalability of computational and modeling approaches (including large-scale AI and machine learning methods). Creating new datasets or re-purposing existing datasets to advance NIAMS-relevant research.

RFP

Notice of Special Interest: Administrative Supplements to Support Enhancement of Software Tools for Open Science

"The National Institute of Arthritis and Musculoskeletal and Skin Diseases National Institutes of Health's Office of Data Science Strategy recently announced the availability of administrative supplements to active grants that focus on biomedical software development or have a significant software development component. These supplements will invest in research software tools with recognized value in a scientific community to enhance their impact by leveraging best practices in software development and advances in cloud computing." Deadline for applications is May 15.

NSF Disrupting Operations of Illicit Supply Networks (D-ISN) Solicitation

"With input from the **U.S. Department of Labor's Office of Child Labor, Forced Labor and Human Trafficking**, the **National Science Foundation** (NSF) recently published a new solicitation on *Disrupting Operations of Illicit Supply Networks* (D-ISN) 'to support the research needed to inform the economy, security, and resilience of the Nation and the world in responding to the global threat posed by illicit supply networks.'" Deadline for submissions is July 1.

Tools & Resources

PyCharm: Here's what Python programming language developers get in new IDE update

ZDNet, Liam Tung from April 15, 2020

"Developer tools maker **JetBrains** has released PyCharm 2020.1, the latest version of its IDE for

Python programming."

Connecting Americans to Coronavirus Information Online

The Networking and Information Technology Research and Development (NITRD)

Program from April 15, 2016

"To increase the online visibility of important COVID-19 information, **Federal Chief Information Officers** have been directed to incorporate the new **Schema.org** vocabulary for tagging websites that contain information about COVID-19 prevention measures, disease spread statistics, etc. These new tags are available in Schema.org Version 7.0, released March 17, 2020 (<http://blog.schema.org/2020/03/schema-for-coronavirus-special.html>)."

"In addition to the direction to Federal Chief Information Officers, state and local government agencies as well as non-profit and private sector organization are encouraged to utilize these tags for publishing and disseminating information related to COVID-19."

Improving Verifiabilityin AI Development

OpenAI from April 16, 2020

"We've contributed to a multi-stakeholder report by 58 co-authors at 30 organizations, including the **Centre for the Future of Intelligence**, **Mila**, **Schwartz Reisman Institute for Technology and Society**, **Center for Advanced Study in the Behavioral Sciences**, and **Center for Security and Emerging Technologies**. This report describes 10 mechanisms to improve the verifiability of claims made about AI systems. Developers can use these tools to provide evidence that AI systems are safe, secure, fair, or privacy-preserving. Users, policymakers, and civil society can use these tools to evaluate AI development processes."

Our Work on COVID-19

Facebook Data for Good from April 17, 2020

Facebook Data for Good has a number of tools and initiatives that can help organizations respond to the COVID-19 pandemic. This includes:

Publicly available tools: (1) High Resolution Population Density Maps and (2) CrowdTangle COVID-19 Live Displays

Tools for nonprofits & researchers: (1) Disease Prevention Maps and (2) Social Connectedness Index Facebook is also a part of the **COVID-19 Mobility Data Network**, a network of infectious disease epidemiologists at universities around the world working with technology companies to use aggregated mobility data to support the COVID-19 response.

Student's Guide to Remote Learning

figshare, Lorena A. Barba from April 19, 2020

"Due to the COVID-19 pandemic crisis, the university implemented emergency remote teaching starting on March 23, 2020. Students are now back home—some in different time zones—and expected to continue learning, with their teachers quickly adopting new technologies and methods to keep courses going. It is a tremendous challenge for all of us! This guide aims to help you as you navigate these difficult times."

[\[keras.io\] transfer_learning.ipynb](#)

Francois Chollet from April 20, 2020

"Transfer learning consists of taking features learned on one problem, and leveraging them on a new, similar problem. For instance, features from a model that has learned to identify racoons may be useful to kick-start a model meant to identify tanukis."

Pandas 100 tricks

Kaggle, Kevin Markham from April 17, 2020

"This kernel is a compilation of tricks of pandas published by **Kevin Markham** weekly."

CAREERS

Tenured and tenure track faculty positions

[Faculty Director for the UC San Diego Design Lab](#)

University of California-San Diego, The Design Lab; La Jolla, CA

Full-time, non-tenured academic positions

[Senior Lecturer in Data Science](#)

University of Greenwich, School of Computing & Mathematical Sciences; Greenwich, England

[Director of Research Data Governance \(reports to associate vice provost for research policy and integrity\)](#)

Stanford University, Office of the Vice Provost and Dean of Research; Palo Alto, CA

Postdocs

[Postdoctoral Fellow](#)

University of Hong Kong, School of Biomedical Sciences; Pok Fu Lam, Hong Kong

[Research Fellow, Biostatistics](#)

Dana-Farber Cancer Institute, Harvard Medical School; Boston, MA

[Postdoctoral Researcher, Machine Learning](#)

Pfizer, R&D; Cambridge, MA

[Postdoctoral Scholar Openings](#)

Stanford University, Artificial Intelligence Laboratory; Palo Alto, CA

[Postdoctoral Fellowship in Computer Science: Knowledge Graphs and Natural Language Processing](#)

Stanford University, Stanford Network Analysis Project; Palo Alto, CA

[Covid-19 Behind Bars Data Project Research Fellows \(2\)](#)

University of California-Los Angeles, Prison Law and Policy Program; Los Angeles, CA, or Remote

Full-time positions outside academia

[Data Scientist](#)

Thresher; Arlington, VA

[Supervisory Other Transactions Authority \(OTA\) Agreements Specialist](#)

National Institutes of Health, National Heart, Lung, and Blood Institute; Montgomery County, MD

Data and Evaluation Manager

TSNE MissionWorks; Boston, MA

Senior Data Visualization Analyst

Pareto Intelligence; Chicago, IL

Senior Epidemiologist/Study Director

Westat; Atlanta, GA

Internships and other temporary positions

Text Mining Student Specialist

University of Washington, eScience Institute; Seattle, WA

NIH DATA Scholar - Data Harmonization, Mobile Analytics, and End-User Support

National Institutes of Health, Office of Strategic Coordination; Bethesda, MD

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