

Computational Journalism

Tuesday and Thursday Evenings, Spring of 2023
Instructors, Mark Hansen and Wayne Lee

JOINT BRIEFING



You!

What experience do you have working with data, in or out of journalism?



Chang, Duojiao
dc3667



Cruz-Luviano, Alma
alc2313



Fan, Hangyu
hf2465



Galloway, Alana
amg2425



Jiang, Lai
lj2562



Marx, Sarah
sjm2255



Patwardhan, Anvita
ap4302



Shailer, Daniel
dls2226



Woods, Ellen
ehw2134



Wu, Ruoheng
rw2958



Brahmabhatt, Manan
mb4984



Fan, Yongyang
yf2635



Gu, Jingyu
jf4536



Hanger, Rachel
rah2240



Hawkins, Diahmin
dlh2166



Lam, Daniel
dr12163



Li, Chongzhi
cl4324



Nguyen, Kieu-Giang
kn2521



Ngwenya, Mengezi
mn3040



Wei, Jiahao
jw4312



Zhou, Hongyan
hz2827

Assignments

Each week, we will have assignments that involve more open-ended exploration in data and computation. You will work in Jupyter notebooks, hosted by Google Colab. They will usually be due a week later, but specific deadlines will be given with each. For the journalists, the level of detail in the notebooks will depend on the material. Sometimes they will be more drill-like, and other times they will challenge you to create something new — but don't worry, we do not assume you know anything about Python, in particular, or coding, in general. The statisticians needing a refresher are welcome to try the journalists drills.

You may work on your assignment in groups, but you should answer any questions in your own words. No copying. It is important that we see how well you are understanding the material.

In addition, you will continue with your computational journalism journal, each week finding a story or some technology (program, platform, web site) that deals with the themes of the class. You will write a summary/critique, and submit it via Courseworks. To help you, here are the kinds of questions you might address about a story you read.

- a. What is the story about? Use no more than two sentences.
- b. What drew you to this story, and why does it enhance our class discussion?
- c. What data is used in the story, if any? How did the journalist obtain the data?
- d. How did the computing help in telling the story? Who performed the computations?
- e. Did the journalist "show their work" and could you recreate their results?
- f. What non-computing sources were used, and how do they contribute to the story?
- g. What would you do to follow up on this story? Where would you go next?

These writeups are due by 5pm Tuesday evenings.

Assignments

The class will culminate in a final project, the largest component of your grade. You will work in teams, mixing statistics and journalism students. Your project is meant to be an act of computational journalism. The topic will be suggested by a "local" newsroom and you will see their short descriptions later tonight. You will meet with your newsroom representative each week.

Each week you will also update a notebook with the progress that you've made on your project. This will happen each Tuesday by 5pm. Initially, this might consist entirely of text and straight-up reporting, along with questions about a story idea and how to proceed. It might also consist of computations and progress toward a final story memo. We expect just one update per group. And we understand that topics will shift during this period. We just want to see that people are thinking about their projects early.

A significant story pitch describing your project is due Tuesday, February 28 by 5pm. This should be of sufficient detail that it's clear you will have a strong, finished project by the end of the term — you might have started building something, reporting on something and analyzing data, etc. The purpose of this midterm check-in is to avoid end-of-term surprises as data fall through, holes emerge or analyses break down.

Your final project is due May 9th. This could be a fully completed story or at least a significant story memo.

Grading

Grades will be divided between weekly writing assignments (computing journal write-ups and project updates), weekly coding drills, your final project, and attendance/participation. We expect you to complete each of these by the deadlines. If you are having trouble keeping up, let us know right away. We expect you to attend every class. Here is how grading breaks down.

- 15% Attendance and participation
- 15% Computing journal contributions
- 15% Project updates
- 15% Coding homework
- 40% Final project

For the journalism students, we will make use of the "low pass" option for grading.

Participation includes contributing to and occasionally leading class discussions, offering reflections on how course topics can impact journalistic/statistics practice, and help steer the course into topics that are "breaking" in the tech world.

Class Themes

In this year's edition of the course, we are exploring an explicit combination of two fields, journalism and statistics. Wayne and I believe that the pairing will bring technical capabilities to journalism, and establish new priorities for statistical work.

So statistics and/as journalism. There are lessons for students from each discipline. We hope you will leave the class thinking about (and practicing) your profession differently. You will learn a variety of tools, and our primary programming language will be **Python**. We will talk through how we came to this decision, but for the moment, know that it is a flexible language that lets you easily connect to networks like Twitter, assemble and analyze data from formal databases and the web, and build responsive services based on all these inputs.

Some of this may be new (or in need of a refresher) for the statisticians as well. The statisticians will learn a great deal about applying their craft in the context of a joint, quarter-long project. We will also give you more open-ended assignments that come from your data journal.

Historically, this class attracts people with different skill levels, most having no background in computation, some having recently been introduced to Python, and occasionally one or two who are already proficient in many of the topics we are covering. The course assignments will be structured in ways that everyone has something new to do, with those needing less in the way of a technical introduction focusing on applications to reporting or the work of journalism broadly.

We will use Python from within a so-called “**notebook**” framework. The notebook is an ideal way to address you journalistic and programming needs. Beyond simply commenting on what your code is doing, these notebooks are a legitimate authoring system that you will use to create (and publish) pitches and memos for this class.

Weekly Plan

This year, we will try to bring in different kinds of learning from data, and telling those stories once surfaced. As we move from week to week, our data will get more complex as will analyses.

Quantification and Classification

Sources of Data

Data Summaries I

Building Data — Scraping, APIs

Special Topics I — Spatial Data

Data Summaries II

Building Models I — Stories

Building Models II — Large Models

Building Models II — Community Stakeholders

Presenting Statistical Ideas I — Model Outputs

Presenting Statistical Ideas II — Uncertainty

Inference

Special Topics II — Networks

Special Topics III — Streaming Data

Computational Journalism

Tuesday and Thursday Evenings, Spring of 2023
Instructors, Mark Hansen and Wayne Lee

INTRODUCTIONS!



REVISED AND UPDATED 4TH EDITION

BILL KOVACH
& TOM ROSENSTIEL

— THE —
ELEMENTS
OF
JOURNALISM

What Newspeople Should Know
and the Public Should Expect

In their book [The Elements of Journalism](#), Bill Kovach and Tom Rosenstiel identify the essential principles and practices of journalism.

Here are 10 elements common to good journalism, drawn from the book.

Statistics making an impact

John Pullinger

House of Commons Library, London, UK

[The address of the President, delivered to The Royal Statistical Society on Wednesday, June 26th, 2013]

Summary. Statistics provides a special kind of understanding that enables well-informed decisions. As citizens and consumers we are faced with an array of choices. Statistics can help us to choose well. Our statistical brains need to be nurtured: we can all learn and practise some simple rules of statistical thinking. To understand how statistics can play a bigger part in our lives today we can draw inspiration from the founders of the Royal Statistical Society. Although in today's world the information landscape is confused, there is an opportunity for statistics that is there to be seized. This calls for us to celebrate the discipline of statistics, to show confidence in our profession, to use statistics in the public interest and to champion statistical education. The Royal Statistical Society has a vital role to play.

Keywords: Chartered Statistician; Citizenship; Economic growth; Evidence; getstats; Justice; Open data; Public good; The state; Wise choices

1. Introduction

Dictionarys trace the source of the word statistics from the Latin ‘status’, the state, to the Italian ‘statista’, one skilled in statecraft, and on to the German ‘Statistik’, the science dealing with data about the condition of a state or community. The *Oxford English Dictionary* brings ‘statistics’ into English in 1787. Florence Nightingale held that ‘the thoughts and purpose of the Deity are only to be discovered by the statistical study of natural phenomena... the application of the results of such study [is] the religious duty of man’ (Pearson, 1924).

Statistics is about matters of the highest importance in human affairs. It is about our comprehension of the world around us and how that comprehension affects the lives we live: our health, wealth and wellbeing; our understanding of the state of our planet and the condition of our local communities; our choices at work and at play.

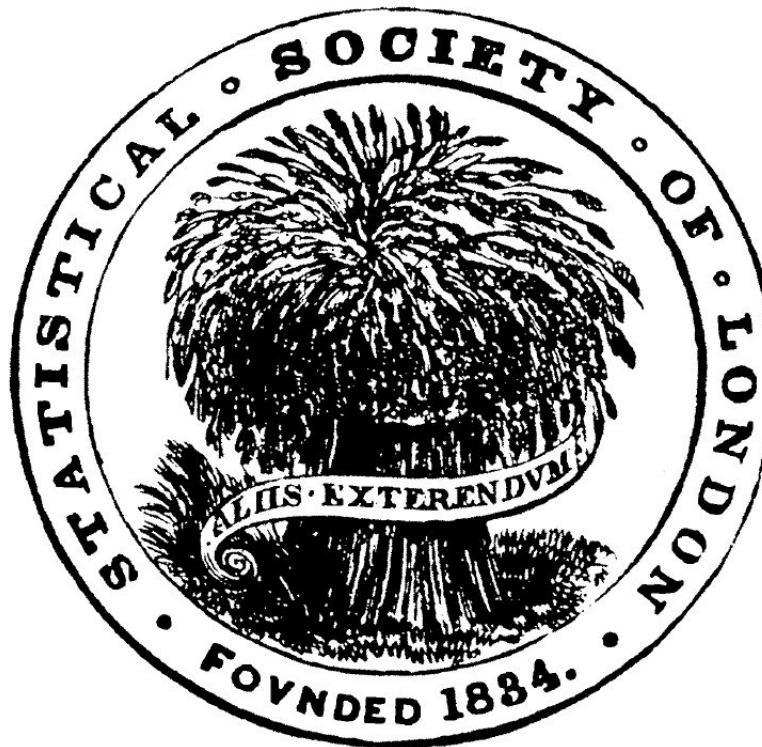
In this address I shall explore the interface between statistics and decision making. I shall identify the principles which give statistics its extraordinary ability to shape our thinking about how we view the world. I shall highlight the leading role played by the Royal Statistical Society in developing the discipline and the profession of statistics since 1834 and draw attention to why it matters so much at this time.

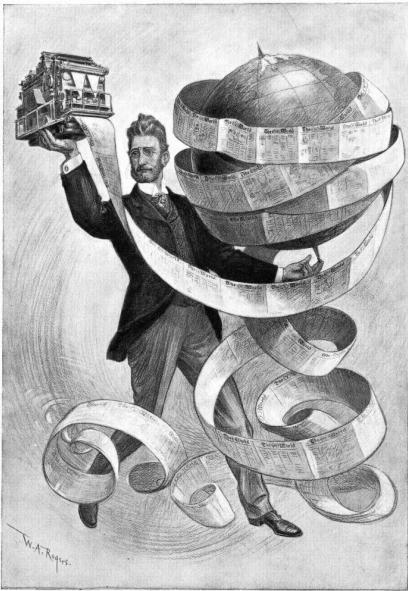
I shall conclude with a call to action for statistics to give people the power to make good choices. A call that chimes with the objectives of this, the International Year of Statistics (see <http://www.statistics2013.org/about-us/>), which is being promoted by the American Statistical Association, the Institute of Mathematical Statistics, the International Biometric Society and the International Statistical Institute (and the Bernoulli Society) as well as the Royal Statistical Society along with over 2000 other organizations around the world:

Address for correspondence: John Pullinger, House of Commons Library, London, SW1A 0AA, UK.
E-mail: j.pullinger@rss.org.uk

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0964–1998/13/176819





AMERICAN EDITORS. II.—JOSEPH PULITZER

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The use of data and computation in journalism is not new. Joseph Pulitzer himself wrote about how important "data" was to journalism.

NORTH AMERICAN REVIEW

No. DLXX.

MAY, 1904.

THE COLLEGE OF JOURNALISM.

A Review of Criticisms and Objections—Reflections Upon the Power, the Progress and the Prejudices of the Press—Why Specialized Concentration and Education at College Would Improve the Character and Work of Journalists and So Promote the Welfare of the Republic.

"The man who writes, the man who month in and month out, week in and week out, day in and day out, furnishes the material which is to shape the thoughts of our people, is essentially the man who more than any other determines the character of the people and the kind of government this people shall possess."

—PRESIDENT ROOSEVELT, April 7, 1904.

BY JOSEPH PULITZER.

THE editor of the NORTH AMERICAN REVIEW has asked me to reply to an article recently printed in its pages criticising the College of Journalism which it has been my pleasure to found and permanently to endow in Columbia University. In complying with his request I have enlarged the scope of the reply to include all other criticisms and misgivings, many honest, some shallow, some based on misunderstanding, but the most representing only prejudice and ignorance. If my comment upon these criticisms shall seem to be diffuse and perhaps repetitious, my apology is that—alas!—I am compelled to write by voice, not by pen, and to revise the proofs by ear, not by eye—a somewhat difficult task.

Some of my critics have called my scheme "visionary." If it

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THE NORTH AMERICAN REVIEW.

be so I can at least plead that it is a vision I have cherished long, thought upon deeply and followed persistently. Twelve years ago I submitted the idea to President Low of Columbia, when it was declined. I have ever since continued to perfect and organize the scheme in my mind, until it is now accepted. In examining the criticisms and misgivings I have endeavored to do so without prejudice, anxious only to find the truth. I admit that the difficulties are many, but after weighing them all impartially I am more firmly convinced than ever of the ultimate success of the idea. Before the century closes schools of journalism will be generally accepted as a feature of specialized higher education, like schools of law or of medicine.

And now for our critics and objectors:

MUST A JOURNALIST BE "BORN?"

They object, the critics and cavillers, that a "newspaper man" must depend solely upon natural aptitude, or, in the common phrase, that he must be "born, not made."

Perhaps the critics can name some great editor, born full-winged like Mercury, the messenger of the gods? I know of none. The only position that occurs to me which a man in our Republic can successfully fill by the simple fact of birth is that of an idiot. Is there any other position for which a man does not demand and receive training—training at home, training in schools and colleges, training by master craftsmen, or training through bitter experience—through the burns that make the child dread the fire, through blunders costly to the aspirant?

This last is the process by which the profession of journalism at present obtains its recruits. It works by natural selection and the survival of the fittest, and its failures are strewn along the wayside.

The "born editor" who has succeeded greatly without special preparation is simply a man with unusual ability and aptitude for his chosen profession, with great power of concentration and sustained effort. He is one who loves his work and puts his whole heart and mind into it. He is in the strictest sense an educated man, but he has merely substituted self-education for education by others, making up for any deficiencies in his training by the unreserved sacrifice of strength, energy and pleasure. Even in his case might it not be an advantage to have a system of instruction that

In data analysis we find the “...hallmarks of stimulating science: intellectual adventure, demanding calls upon insight, and **a need to find out ‘how things really are’ by investigation and the confrontation of insights with experience.**”



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An ode to reporter's notebooks

F

FIRST PERSON

By Philip Eil

MAY 9, 2018



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ON TWITTER



SHARE
ON FACEBOOK

TEN YEARS AGO THIS MONTH, I became a reporter.

In April of 2008, I was a 23-year-old recent college grad working at a soul-stifling corporate marketing job and feeling increasingly terrified of a life filled with spreadsheets, menial tasks, khakis, and meetings with unclear purposes. Since enrolling in a night class on creative nonfiction a few months earlier, though, I had begun to see a different path. And by May, I had abandoned my cubicle, driven across the country, and started an internship at the alt-weekly, the *San Francisco Bay*

"[T]he reporter's notebook is the low-tech device I use to capture the sights, smells, sounds, feelings, tastes, and other impressions of the world. **To report is to be alert and alive in a particular time and place...**"

AI in the News...

VICE

Conservatives Are Panicking About AI Bias, Think ChatGPT Has Gone 'Woke'

All AI systems carry biases, and ChatGPT allegedly being "woke" is far from the most dangerous one.

By Matthew Gault

January 11, 2023, 9:00am

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JOHN LUND / GETTY

GOLF

PRO SHOP NEWS INSTRUCTION GEAR TRAVEL & LIFESTYLE LEADERSBOARDS VIDEOS & PODCASTS

I talked golf with viral chatbot ChatGPT. The results blew my mind

BY ALAN RASTALO | JANUARY 18, 2023

hi there, are you a golfer?

No, I am not a golfer.

would you like to learn how to play golf?

Yes, I would like to learn how to play golf.

what's stopping you?

I don't have access to a golf course or golf equipment. Additionally, I need knowledge

difficult golf course in the world?

The most difficult golf course in the world is widely considered to be the Par 3 Cape Kidnappers in New Zealand. This course features narrow fairways, deep bunkers, deep ravines, and long carry distances. The wind also plays a major factor, making the course even more challenging.

interesting, I wasn't aware cape kidnappers even had a par 3 course

Yes, Cape Kidnappers is home to a par 3 course which has been dubbed as the most difficult golf course in the world. Many golfers have attempted the course and have

Bloomberg

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Technology + Work Shift

ChatGPT Will Be the Calculator for Writing, Top Economist Says

■ Stanford professor says AI could reduce mindless, rote work
■ Predicts new technology will "augment our ability to write"



The OpenAI website ChatGPT. Photographer: Gabby Jones/Bloomberg

By Philip Aldrick

January 18, 2023 at 11:26 AM EST

Axios Miami

Latest stories Membership Jobs

Miami real estate agents experiment with ChatGPT

Martin Vassolo

f t in a



DAVOS, SWITZERLAND

ALERT yahoo/finance 2:01 / 6:44

WILL.I.AM: I think ChatGPT is awesome. DAVOS LIVES THROUGH EDUCATION

WORLD ECONOMIC FORUM Davos VQ cc x r



Davos 2023: ChatGPT 'a great co-pilot for creatives,' will.i.am says

 **Alexandra Garfinkle · Senior Reporter**
Thu, January 19, 2023 at 8:25 AM EST · 2 min read

Playground - OpenAI API

beta.openai.com/playground

Overview Documentation Examples Playground

Help Columbia University

Playground

Load a preset... Save View code Share ...

Maximum length 797

Stop sequences Enter sequence and press Tab

Top P 1

Frequency penalty 0

Presence penalty 0

Best of 1

Inject start text

Inject restart text

Show probabilities

Here is a paragraph summarizing the latest monkeypox statistics for New York state:
As of July 13 2022, a total of 359 confirmed orthopoxvirus/monkeypox cases - a designation established by the Centers for Disease Control and Prevention (CDC) - have been identified with 336 in New York City, 12 in Westchester County, 4 in Suffolk County, 2 in Nassau County, 1 in Sullivan County, 1 in Chemung County, 1 in Rockland County, 1 in Erie County, and 1 in St. Lawrence County.

Create a CSV where each row contains information on a place, recording bot the place and the case count.
Place, Case Count

Submit

140 Off

Playground - OpenAI API

beta.openai.com/playground

Overview Documentation Examples Playground

Help Columbia University

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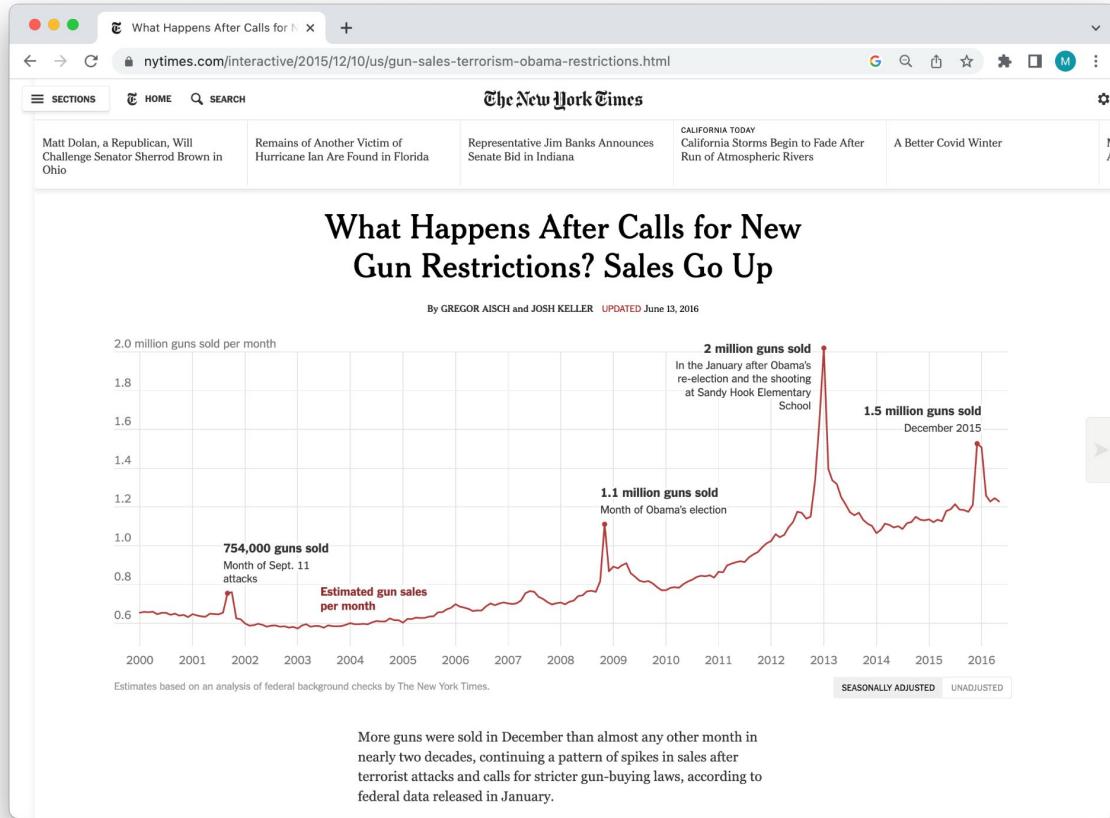
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Create a CSV where each row contains information on a place, recording bot the place and the case count.
Place, Case Count
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Westchester County, 12
Suffolk County, 4
Nassau County, 2
Sullivan County, 1
Chemung County, 1
Rockland County, 1
Erie County, 1
St. Lawrence County, 1

Submit

140 Off





<https://www.nytimes.com/interactive/2015/12/10/us/gun-sales-terrorism-obama-restrictions.html>

BuzzFeedNews/nics-firearm-b... +

github.com/BuzzFeedNews/nics-firearm-background-checks

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Watch 25 Fork 123 Star 153

< Code Issues Pull requests 1 Actions Security Insights

master 3 branches 78 tags Go to file Add file Code About

jsvine Add December 2022 data and charts ab5a521 2 weeks ago 137 commits

| charts | Add December 2022 data and charts | 2 weeks ago |
|------------------|--|--------------|
| data | Add December 2022 data and charts | 2 weeks ago |
| pdfs | Add December 2022 data and charts | 2 weeks ago |
| scripts | Adjust script re. pandas FutureWarning | 6 months ago |
| .gitignore | Add venv/ to .gitignore | last month |
| LICENSE.txt | Initial commit | 7 years ago |
| Makefile | Update URL for NICS PDF. | 6 years ago |
| README.md | Add December 2022 data and charts | 2 weeks ago |
| requirements.txt | Update pinned versions in requirements.txt | 6 months ago |

README.md

FBI NICS Firearm Background Check Data

The data in this repository comes from the [FBI's National Instant Criminal Background Check System](#).

Mandated by the Brady Handgun Violence Prevention Act of 1993 and launched by the FBI on November 30, 1998, NICS is used by Federal Firearms Licensees (FFLs) to instantly determine whether a prospective buyer

About

Monthly data from the FBI's National Instant Criminal Background Check System, converted from PDF to CSV.

Readme MIT license 153 stars 25 watching 123 forks

Releases 78 tags

Packages No packages published

Contributors 2

jsvine Jeremy Singer-Vine dependabot[bot]

<https://github.com/BuzzFeedNews/nics-firearm-background-checks>

[fbi.gov/news/press-releases/press-releases/fbi-releases-2021-crime-in-the-nation-statistics](https://www.fbi.gov/news/press-releases/press-releases/fbi-releases-2021-crime-in-the-nation-statistics)

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FBI

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Washington, D.C.
FBI National Press Office
(202) 324-3691

October 5, 2022

FBI Releases 2021 Crime in the Nation Statistics

Today, the FBI released detailed data on over 11 million criminal offenses reported to the Uniform Crime Reporting (UCR) Program's National Incident-Based Reporting System (NIBRS) in 2021 via *NIBRS, 2021; NIBRS Estimates, 2021; The Transition to the National Incident-Based Reporting System (NIBRS): A Comparison of 2020 and 2021 NIBRS Estimates; and Crime in the United States (CIUS), 2021*.

For years, the FBI's UCR Program has provided annual snapshots of crime in the nation. This year, users will notice a difference in the data because it was exclusively collected via NIBRS in 2021. Both the *NIBRS, 2021* and *CIUS, 2021* releases are based solely on these NIBRS submissions.

Establishing NIBRS as the national standard for crime data provides the opportunity to know more about, and better understand, various facets of crime in our nation. NIBRS provides an avenue for the UCR Program to estimate the amount of arson committed each year, estimates on drug offenses by drug type, and victimization estimates. NIBRS also provides estimates on victim and arrestee demographics, including age, sex, and race.

In anticipation of UCR's evolution to NIBRS, the FBI collaborated with the [Bureau of Justice Statistics \(BJS\)](#) to develop comprehensive methodologies to bring a NIBRS estimation process to fruition and establish 2021 as the first year in which all crime estimates can be based



Estimates Will Help Fill in Crime Statistics Gap

When the annual Crime in the United States data is released this fall, it will look different from previous releases.

What's the story?

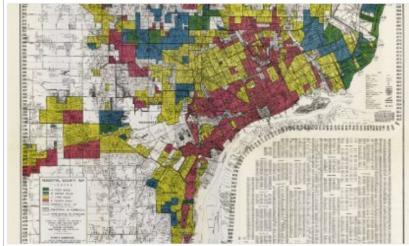
Computational Journalism

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INTRODUCTIONS!

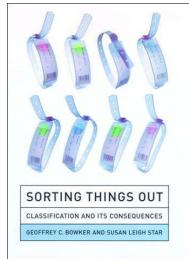


Chapter 2 of Data Feminism by Catherine D'Ignazio and Lauren Klein
<https://data-feminism.mitpress.mit.edu/>



2. Collect, Analyze, Imagine, Teach

Principle #2 of Data Feminism is to Challenge Power. Data feminism commits to challenging unequal power structures and working toward justice.



Chapter 1 of *Sorting Things Out* by
Geoffrey C. Bowker and Susan Leigh Star

Some Tricks of the Trade in Analyzing Classification

<https://direct.mit.edu/books/book/4738/Sorting-Things-OutClassification-and-Its>

YOUR READINGS





Ubiquity

In general, the trick is to question every apparently natural easiness in the world around us and look for the work involved in making it easy.

Materiality and Texture

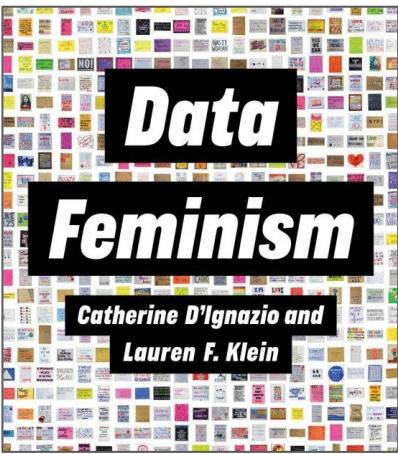
A good operations researcher could describe how and whether things would work together, often purposefully blurring the physical and conventional boundaries in making the analysis. But what is missing is a sense of the landscape of work as experienced by those within it. It gives no sense of something as important as the texture of an organization: Is it smooth or rough? Bare or knotty? What is needed is a sense of the topography of all of the arrangements: Are they colliding, coextensive, gappy, or orthogonal One way to get at these questions is to take quite literally the kinds of metaphors that people use when describing their experience of organizations, bureaucracies and information systems...

The Past

There is no way of ever getting access to the past except through classification systems of one sort or another... Take the apparently unproblematic statement: "In 1640, the English revolution occurred; this led to a twenty-year period in which the English had no monarchy." The classifications involved here, all problematic, include...

Politics

There are two processes associated with these politics: arriving at categories and standards, and, along the way, deciding what will be visible or invisible within the system.



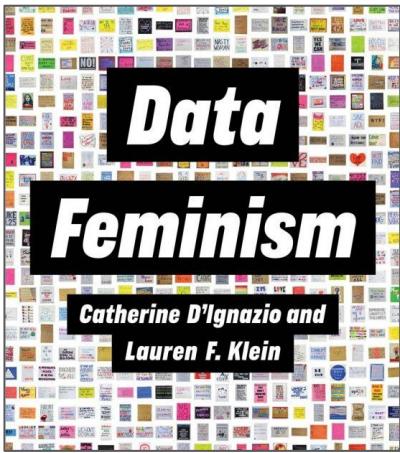
Analyze and Expose

This is one of the challenges of using data about people as an input into a system: the data are never “raw.” Data are always the product of unequal social relations—relations affected by centuries of history. As computer scientist Ben Green states, “Although most people talk about machine learning’s ability to predict the future, what it really does is predict the past” ... But machine learning algorithms don’t just predict the past; they also reflect current social inequities.

The field of journalism has long prided itself on “speaking truth to power.” But today, the location of that power has shifted from people and corporations to the datasets and models that they create and employ. These datasets and models require new methods of interrogation

Table 2.1: From data ethics to data justice

| Concepts That Secure Power | Concepts That Challenge Power |
|---|--|
| Because they locate the source of the problem in individuals or technical systems | Because they acknowledge structural power differentials and work toward dismantling them |
| Ethics | Justice |
| Bias | Oppression |
| Fairness | Equity |
| Accountability | Co-liberation |
| Transparency | Reflexivity |
| Understanding algorithms | Understanding history, culture, and context |



Action

Taking action can itself take many forms, and in this chapter we offer four starting points:

1. Collect: Compiling counterdata—in the face of missing data or institutional neglect—offers a powerful starting point...
2. Analyze: Challenging power often requires demonstrating inequitable outcomes across groups, and new computational methods are being developed to audit opaque algorithms and hold institutions accountable.
3. Imagine: We cannot only focus on inequitable outcomes, because then we will never get to the root cause of injustice. In order to truly dismantle power, we have to imagine our end point not as “fairness,” but as co-liberation.
4. Teach: The identities of data scientists matter, so how might we engage and empower newcomers to the field in order to shift the demographics and cultivate the next generation of data feminists?

Computational Journalism

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NEWSROOM PRESENTATIONS!

| Time | Newsroom |
|-----------|----------------------|
| 7:35-7:45 | Associated Press |
| 7:45-7:55 | The Baltimore Banner |
| 7:55-8:05 | The Marshall Project |
| 8:05-8:15 | Post and Courier |
| 8:15-8:25 | WNYC/Gothamist |
| 8:25-8:35 | Detroit Free Press |
| 8:35-8:45 | MuckRock/Derek |

