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Machine Bias

There's software used across the country to predict future criminals. And it's biased against blacks.

by Julia Angwin, Jeff Larson, Surya Mattu and Lauren Kirchner, ProPublica

May 23, 2016

ON A SPRING AFTERNOON IN 2014, Brisha Borden was running late to pick up her god-sister from school when she spotted an unlocked kid's blue Huffy bicycle and a silver Razor scooter. Borden and a friend grabbed the bike and scooter and tried to ride them down the street in the Fort Lauderdale suburb of Coral Springs.

Just as the 18-year-old girls were realizing they were too big for the tiny conveyances — which belonged to a 6-year-old boy — a woman came running after them saying, "That's my kid's stuff." Borden and her friend immediately dropped the bike and scooter and walked away.

But it was too late — a neighbor who witnessed the heist had already called the police. Borden and her friend were arrested and charged with burglary and petty theft for the items, which were valued at a total of \$80.

Compare their crime with a similar one:
The previous summer, 41-year-old Vernon
Prater was picked up for shoplifting \$86.35

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Prater was the more seasoned criminal. He had already been convicted of armed robbery and attempted armed robbery, for which he served five years in prison, in addition to another armed robbery charge. Borden had a record, too, but it was for misdemeanors committed when she was a juvenile.

Yet something odd happened when Borden and Prater were booked into jail: A computer program spat out a score predicting the likelihood of each committing a future crime. Borden — who is black — was rated a high risk. Prater — who is white — was rated a low risk.

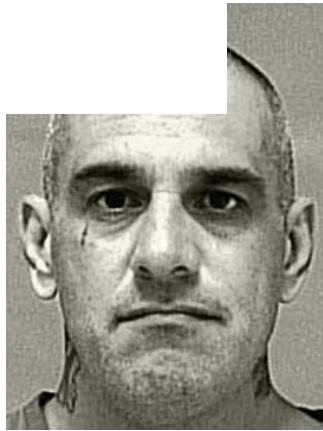
Two years later, we know the computer algorithm got it exactly backward. Borden has not been charged with any new crimes. Prater is serving an eight-year prison term for subsequently breaking into a warehouse and stealing thousands of dollars' worth of electronics.

Scores like this — known as risk assessments — are increasingly common in courtrooms across the nation. They are used to inform decisions about who can be set free at every stage of the criminal justice system, from assigning bond amounts — as is the case in Fort Lauderdale — to even more fundamental decisions about defendants' freedom. In Arizona, Colorado, Delaware, Kentucky, Louisiana, Oklahoma, Virginia, Washington and Wisconsin, the results of such assessments are given to judges during criminal sentencing.

Rating a defendant's risk of future crime is often done in conjunction with an evaluation of a defendant's rehabilitation needs. The Justice Department's National Institute of Corrections now encourages the use of such combined assessments at every stage of the criminal justice process. And a landmark sentencing reform bill currently pending in Congress would mandate the use of such assessments in federal prisons.

Two Petty Theft Arrests

In 2014, then U.S. Attorney General Eric Holder warned that the risk scores might be injecting bias into the courts. He called for the U.S. Sentencing Commission to study their use. "Although these measures were crafted with the best of intentions, I am



VERNON PRATER



BRISHA BORDEN

RISK: 3

RISK: 8

Borden was rated high risk for future crime after she and a friend took a kid's bike and scooter that were sitting outside. She did not reoffend.

than 7,000 people arrested in Broward County, Florida, in 2013 and 2014 and checked to see how many were charged with new crimes over the next two years, the same benchmark used by the creators of the algorithm.

The score proved remarkably unreliable in forecasting violent crime: Only 20 percent of the people predicted to commit violent crimes actually went on to do so.

When a full range of crimes were taken into account — including misdemeanors such as driving with an expired license — the algorithm was somewhat more accurate than a coin flip. Of those deemed likely to re-offend, 61 percent were arrested for any subsequent crimes within two years.

We also turned up significant racial disparities, just as Holder feared. In forecasting who would re-offend, the algorithm made mistakes with black and white defendants at roughly the same rate but in very different ways.

- The formula was particularly likely to falsely flag black defendants as future criminals, wrongly labeling them this way at almost twice the rate as white defendants.
- White defendants were mislabeled as low risk more often than black defendants.

Could this disparity be explained by defendants' prior crimes or the type of crimes they were arrested for? No. We ran a statistical test that isolated the effect of race from criminal history and recidivism, as well as from defendants' age and gender. Black defendants were still 77 percent more likely to be pegged as at higher risk of committing a future violent crime and 45 percent more likely to be predicted to commit a future crime of any kind. (Read our analysis.)

concerned that they inadvertently exacerbate unwarranted and unjust disparities that are already far too common in our criminal justice system and in our society.”

The sentencing commission did not, however, launch a study of risk scores. So ProPublica did, as part of a larger examination of the powerful, largely hidden effect of algorithms in American life.

We obtained the risk scores assigned to more than 7,000 people arrested in Broward County, Florida, in 2013 and 2014 and checked to see how many were charged with new crimes over the next two years, the same benchmark used by the creators of the algorithm.

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used to create the Florida risk scores is a product of a for-profit company disputes our analysis.

In a letter, it criticized ProPublica's methodology and defended the accuracy of its test: "Northpointe does not agree that the results of your analysis, or the claims being made based upon that analysis, are correct or that they accurately reflect the outcomes from the application of the model."

Northpointe's software is among the most widely used assessment tools in the country. The company does not publicly disclose the calculations used to arrive at defendants' risk scores, so it is not possible for either defendants or the public to see what might be driving the disparity. (On Sunday, Northpointe gave ProPublica the basics of its future-crime formula — which includes factors such as education levels, and whether a defendant has a job. It did not share the specific calculations, which it said are proprietary.)

Northpointe's core product is a set of scores derived from 137 questions that are either answered by defendants or pulled from criminal records. Race is not one of the questions. The survey asks defendants such things as: "Was one of your parents ever sent to jail or prison?" "How many of your friends/acquaintances are taking drugs illegally?" and "How often did you get in fights while at school?" The questionnaire also asks people to agree or disagree with statements such as "A hungry person has a right to steal" and "If people make me angry or lose my temper, I can be dangerous."

The appeal of risk scores is obvious: The United States locks up far more people than any other country, a disproportionate number of them black. For more than two centuries, the key decisions in the legal process, from pretrial release to sentencing to parole, have been in the hands of human beings guided by their instincts and personal biases.

If computers could accurately predict which defendants were likely to commit new crimes, the criminal justice system could be fairer and more selective about who is incarcerated and for how long. The trick, of course, is to make sure the computer gets it right. If it's wrong in one direction, a dangerous criminal could go free. If it's wrong in another direction, it could result in someone unfairly receiving a harsher sentence or waiting longer for parole than is appropriate.

The first time Paul Zilly heard of his score — and realized how much was riding on it — was during his sentencing hearing on Feb. 15, 2013, in court in Barron County, Wisconsin. Zilly had been convicted of stealing a push lawnmower and some tools. The prosecutor recommended a year in county jail and follow-up supervision that could help Zilly with "staying on the right path." His lawyer agreed to a plea deal.

But Judge James Babler had seen Zilly's scores. Northpointe's software had rated Zilly as a high risk for future violent crime and a medium risk for general recidivism. "When I look

ssment,” Babler said in court, “it is about as bad as it could . . .”

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Judge Babler overturned the plea deal that had been agreed on by the prosecution and defense and imposed two years in state prison and three years of supervision.

CRIMINOLOGISTS HAVE LONG TRIED to predict which criminals are more dangerous before deciding whether they should be released. Race, nationality and skin color were often used in making such predictions until about the 1970s, when it became politically unacceptable, according to a survey of risk assessment tools by Columbia University law professor Bernard Harcourt.

In the 1980s, as a crime wave engulfed the nation, lawmakers made it much harder for judges and parole boards to exercise discretion in making such decisions. States and the federal government began instituting mandatory sentences and, in some cases, abolished parole, making it less important to evaluate individual offenders.

But as states struggle to pay for swelling prison and jail populations, forecasting criminal risk has made a comeback.

Dozens of risk assessments are being used across the nation — some created by for-profit companies such as Northpointe and others by nonprofit organizations. (One tool being used in states including Kentucky and Arizona, called the Public Safety Assessment, was developed by the Laura and John Arnold Foundation, which also is a funder of ProPublica.)

There have been few independent studies of these criminal risk assessments. In 2013, researchers Sarah Desmarais and Jay Singh examined 19 different risk methodologies used in the United States and found that “in most cases, validity had only been examined in one or two studies” and that “frequently, those investigations were completed by the same people who developed the instrument.”

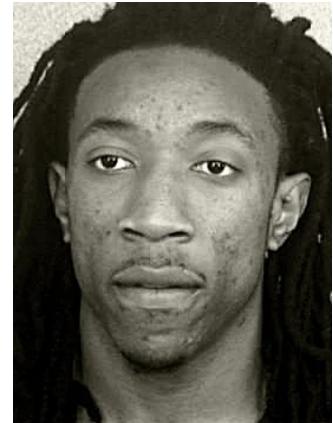
Their analysis of the research through 2012 found that the tools “were moderate at best in terms of predictive validity,” Desmarais said in an interview. And she could not find any

Two Drug Possession Arrests



DYLAN FUGETT

RISK: 3



BERNARD PARKER

RISK: 10

Fugett was rated low risk after being arrested with cocaine and marijuana. He was arrested three times on drug charges after that.

of studies conducted in the United States that examined racial bias. “The data do not exist,” she said.

Since then, there have been some attempts to explore racial disparities in risk scores. One 2016 study examined the validity of a risk assessment tool, not Northpointe’s, used to make probation decisions for about 35,000 federal convicts. The researchers, Jennifer Skeem at University of California, Berkeley, and Christopher T. Lowenkamp from the Administrative Office of the U.S. Courts, found that blacks did get a higher average score but concluded the differences were not attributable to bias.

The increasing use of risk scores is controversial and has garnered media coverage, including articles by the Associated Press, and the Marshall Project and FiveThirtyEight last year.

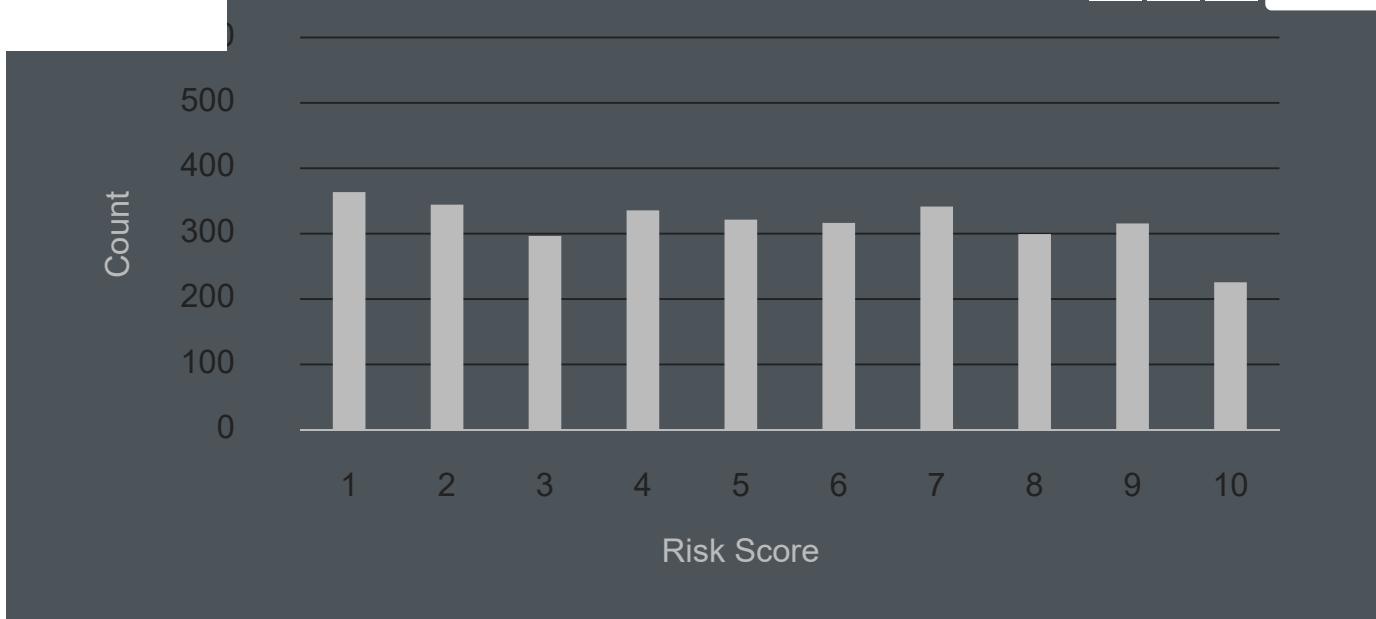
Most modern risk tools were originally designed to provide judges with insight into the types of treatment that an individual might need — from drug treatment to mental health counseling.

“What it tells the judge is that if I put you on probation, I’m going to need to give you a lot of services or you’re probably going to fail,” said Edward Latessa, a University of Cincinnati professor who is the author of a risk assessment tool that is used in Ohio and several other states.

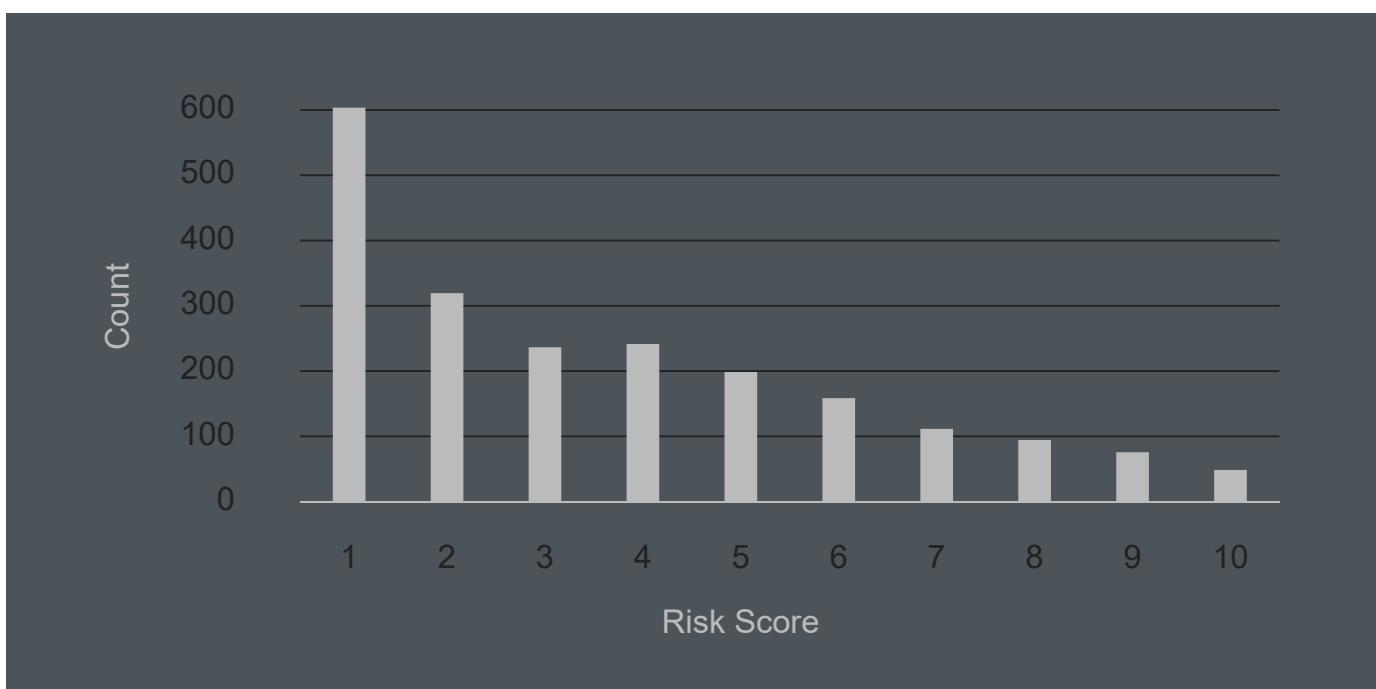
But being judged ineligible for alternative treatment — particularly during a sentencing hearing — can translate into incarceration. Defendants rarely have an opportunity to challenge their assessments. The results are usually shared with the defendant’s attorney, but the calculations that transformed the underlying data into a score are rarely revealed.

“Risk assessments should be impermissible unless both parties get to see all the data that go into them,” said Christopher Slobogin, director of the criminal justice program at Vanderbilt Law School. “It should be an open, full-court adversarial proceeding.”

Black Defendants’ Risk Scores



White Defendants' Risk Scores



These charts show that scores for white defendants were skewed toward lower-risk categories. Scores for black defendants were not. (Source: ProPublica analysis of data from Broward County, Fla.)

Proponents of risk scores argue they can be used to reduce the rate of incarceration. In 2002, Virginia became one of the first states to begin using a risk assessment tool in the sentencing of nonviolent felony offenders statewide. In 2014, Virginia judges using the tool sent nearly half of those defendants to alternatives to prison, according to a state sentencing commission report. Since 2005, the state's prison population growth has slowed to 5 percent from a rate of 31 percent the previous decade.

In some jurisdictions, such as Napa County, California, the probation department uses risk assessments to suggest to the judge an appropriate probation or treatment plan for

ng sentenced. Napa County Superior Court Judge Mark Boessenecker said he found the recommendations helpful. “We have a dearth of good treatment programs, so filling a slot in a program with someone who doesn’t need it is foolish,” he said.

However, Boessenecker, who trains other judges around the state in evidence-based sentencing, cautions his colleagues that the score doesn’t necessarily reveal whether a person is dangerous or if they should go to prison.

“A guy who has molested a small child every day for a year could still come out as a low risk because he probably has a job,” Boessenecker said. “Meanwhile, a drunk guy will look high risk because he’s homeless. These risk factors don’t tell you whether the guy ought to go to prison or not; the risk factors tell you more about what the probation conditions ought to be.”

Sometimes, the scores make little sense even to defendants.

James Rivelli, a 54-year old Hollywood, Florida, man, was arrested two years ago for shoplifting seven boxes of Crest Whitestrips from a CVS drugstore. Despite a criminal record that included aggravated assault, multiple thefts and felony drug trafficking, the Northpointe algorithm classified him as being at a low risk of reoffending.

“I am surprised it is so low,” Rivelli said when told by a reporter he had been rated a 3 out of a possible 10. “I spent five years in state prison in Massachusetts. But I guess they don’t count that here in Broward County.” In fact, criminal records from across the nation are supposed to be included in risk assessments.

Less than a year later, he was charged with two felony counts for shoplifting about \$1,000 worth of tools from Home Depot. He said his crimes were fueled by drug addiction and that he is now sober.



“I’m surprised [my risk score] is so low. I spent five years in state prison in Massachusetts.” (Josh Ritchie for ProPublica)

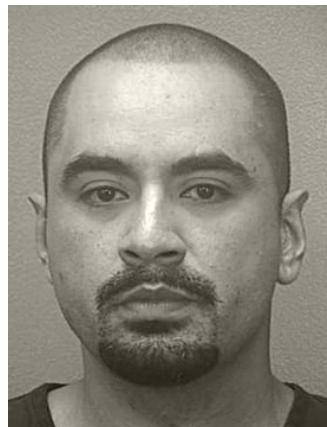
E WAS FOUNDED in 1989 by Tim Brennan, then a professor at the University of Colorado, and Dave Wells, who was running a corrections program in Traverse City, Michigan.

Wells had built a prisoner classification system for his jail. “It was a beautiful piece of work,” Brennan said in an interview conducted before ProPublica had completed its analysis. Brennan and Wells shared a love for what Brennan called “quantitative taxonomy” — the measurement of personality traits such as intelligence, extroversion and introversion. The two decided to build a risk assessment score for the corrections industry.

Brennan wanted to improve on a leading risk assessment score, the LSI, or Level of Service Inventory, which had been developed in Canada. “I found a fair amount of weakness in the LSI,” Brennan said. He wanted a tool that addressed the major theories about the causes of crime.

Brennan and Wells named their product the Correctional Offender Management Profiling for Alternative Sanctions, or COMPAS. It assesses not just risk but also nearly two dozen so-called “criminogenic needs” that relate to the major theories of criminality, including “criminal personality,” “social isolation,” “substance abuse” and “residence/stability.” Defendants are ranked low, medium or high risk in each category.

Two DUI Arrests



GREGORY LUGO



MALLORY WILLIAMS

RISK: 1

RISK: 6

Lugo crashed his Lincoln Navigator into a Toyota Camry while drunk. He was rated as a low risk of reoffending despite the fact that it was at least his fourth DUI.

A spokeswoman for the New York state division of criminal justice services said the study did not examine race because it only sought to test whether the tool had been properly calibrated to fit New York’s probation population. She also said judges in nearly all New York counties are given defendants’ Northpointe assessments during sentencing.

As often happens with risk assessment tools, many jurisdictions have adopted Northpointe’s software before rigorously testing whether it works. New York State, for instance, started using the tool to assess people on probation in a pilot project in 2001 and rolled it out to the rest of the state’s probation departments — except New York City — by 2010. The state didn’t publish a comprehensive statistical evaluation of the tool until 2012. The study of more than 16,000 probationers found the tool was 71 percent accurate, but it did not evaluate racial differences.

A spokeswoman for the New York state

Ian and two colleagues published a validation study that found the risk of recidivism score had an accuracy rate of 68 percent in a sample of 2,328 people. Their study also found that the score was slightly less predictive for black men than white men — 67 percent versus 69 percent. It did not examine racial disparities beyond that, including whether some groups were more likely to be wrongly labeled higher risk.

Brennan said it is difficult to construct a score that doesn't include items that can be correlated with race — such as poverty, joblessness and social marginalization. "If those are omitted from your risk assessment, accuracy goes down," he said.

In 2011, Brennan and Wells sold Northpointe to Toronto-based conglomerate Constellation Software for an undisclosed sum.

Wisconsin has been among the most eager and expansive users of Northpointe's risk assessment tool in sentencing decisions. In 2012, the Wisconsin Department of Corrections launched the use of the software throughout the state. It is used at each step in the prison system, from sentencing to parole.

In a 2012 presentation, corrections official Jared Hoy described the system as a "giant correctional pinball machine" in which correctional officers could use the scores at every "decision point."

Wisconsin has not yet completed a statistical validation study of the tool and has not said when one might be released. State corrections officials declined repeated requests to comment for this article.

Some Wisconsin counties use other risk assessment tools at arrest to determine if a defendant is too risky for pretrial release. Once a defendant is convicted of a felony anywhere in the state, the Department of Corrections attaches Northpointe's assessment to the confidential presentence report given to judges, according to Hoy's presentation.

In theory, judges are not supposed to give longer sentences to defendants with higher risk scores. Rather, they are supposed to use the tests primarily to determine which defendants are eligible for probation or treatment programs.

Prediction Fails Differently for Black Defendants

	WHITE	AFRICAN AMERICAN
Labeled Higher Risk, But Didn't Re-Offend	23.5%	44.9%
Labeled Lower Risk, Yet Did Re-Offend	47.7%	28.0%

's assessment tool correctly predicts recidivism 61 percent of the time. But blacks l...
d a higher risk but not actually re-offend. It makes the opposite mistake among whites. They are more likely to be labeled lower risk but go on to commit other crimes. (Source: ProPublica analysis of data from Broward County, Fla.)

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But judges have cited scores in their sentencing decisions. In August 2013, Judge Scott Horne in La Crosse County, Wisconsin, declared that defendant Eric Loomis had been “identified, through the COMPAS assessment, as an individual who is at high risk to the community.” The judge then imposed a sentence of eight years and six months in prison.

Loomis, who was charged with driving a stolen vehicle and fleeing from police, is challenging the use of the score at sentencing as a violation of his due process rights. The state has defended Horne’s use of the score with the argument that judges can consider the score in addition to other factors. It has also stopped including scores in presentencing reports until the state Supreme Court decides the case.

“The risk score alone should not determine the sentence of an offender,” Wisconsin Assistant Attorney General Christine Remington said last month during state Supreme Court arguments in the Loomis case. “We don’t want courts to say, this person in front of me is a 10 on COMPAS as far as risk, and therefore I’m going to give him the maximum sentence.”

That is almost exactly what happened to Zilly, the 48-year-old construction worker sent to prison for stealing a push lawnmower and some tools he intended to sell for parts. Zilly has long struggled with a meth habit. In 2012, he had been working toward recovery with the help of a Christian pastor when he relapsed and committed the thefts.

After Zilly was scored as a high risk for violent recidivism and sent to prison, a public defender appealed the sentence and called the score’s creator, Brennan, as a witness.

Brennan testified that he didn’t design his software to be used in sentencing. “I wanted to stay away from the courts,” Brennan said, explaining that his focus was on reducing crime rather than punishment. “But as time went on I started realizing that so many decisions are made, you know, in the courts. So I gradually softened on whether this could be used in the courts or not.”



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"Not that I'm innocent, but I just believe people do change." (Stephen Maturen for ProPublica)

Still, Brennan testified, "I don't like the idea myself of COMPAS being the sole evidence that a decision would be based upon."

After Brennan's testimony, Judge Babler reduced Zilly's sentence, from two years in prison to 18 months. "Had I not had the COMPAS, I believe it would likely be that I would have given one year, six months," the judge said at an appeals hearing on Nov. 14, 2013.

Zilly said the score didn't take into account all the changes he was making in his life — his conversion to Christianity, his struggle to quit using drugs and his efforts to be more available for his son. "Not that I'm innocent, but I just believe people do change."

FLORIDA'S BROWARD COUNTY, where Brisha Borden stole the Huffy bike and was scored as high risk, does not use risk assessments in sentencing. "We don't think the [risk assessment] factors have any bearing on a sentence," said David Scharf, executive director of community programs for the Broward County Sheriff's Office in Fort Lauderdale.

Broward County has, however, adopted the score in pretrial hearings, in the hope of addressing jail overcrowding. A court-appointed monitor has overseen Broward County's jails since 1994 as a result of the settlement of a lawsuit brought by inmates in the 1970s.

In 2008, the sheriff's office decided that instead of building another jail, it would begin using Northpointe's risk scores to help identify which defendants were low risk enough to be released on bail pending trial. Since then, nearly everyone arrested in Broward has been scored soon after being booked. (People charged with murder and other capital crimes are not scored because they are not eligible for pretrial release.)

The scores are provided to the judges who decide which defendants can be released from jail. "My feeling is that if they don't need them to be in jail, let's get them out of there," Scharf said.

Scharf said the county chose Northpointe's software over other tools because it was easy to use and produced "simple yet effective charts and graphs for judicial review." He said the system costs about \$22,000 a year.

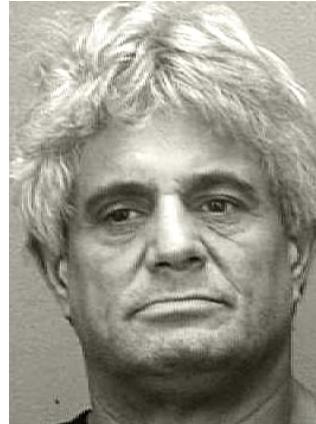
In 2010, researchers at Florida State University examined the use of Northpointe's system in Broward County over a 12-month period and concluded that its predictive accuracy was "equivalent" in assessing defendants of different races. Like others, they did not examine whether different races were classified differently as low or high risk.

Scharf said the county would review ProPublica's findings. "We'll really look at them up close," he said.

Broward County Judge John Hurley, who oversees most of the pretrial release hearings, said the scores were helpful when he was a new judge, but now that he has experience he prefers to rely on his own judgment. "I haven't relied on COMPAS in a couple years," he said.

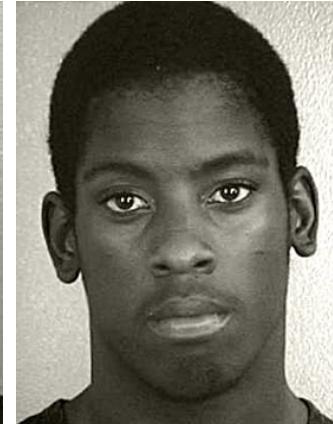
Hurley said he relies on factors including a person's prior criminal record, the type of crime committed, ties to the community, and their history of failing to appear at court proceedings.

Two Shoplifting Arrests



JAMES RIVELLI

RISK: 3



ROBERT CANNON

RISK: 6

After Rivelli stole from a CVS and was caught with heroin in his car, he was rated a low risk. He later shoplifted \$1,000 worth of tools from a Home Depot.

Analysis reveals that higher Northpointe scores are slightly correlated with longer sentences and higher rates of incarceration in Broward County. But there are many reasons that could be true other than judges being swayed by the scores — people with higher risk scores may also be poorer and have difficulty paying bond, for example.

Most crimes are presented to the judge with a recommended bond amount, but he or she can adjust the amount. Hurley said he often releases first-time or low-level offenders without any bond at all.

However, in the case of Borden and her friend Sade Jones, the teenage girls who stole a kid's bike and scooter, Hurley raised the bond amount for each girl from the recommended \$0 to \$1,000 each.

Hurley said he has no recollection of the case and cannot recall if the scores influenced his decision.



Sade Jones, who had never been arrested before, was rated a medium risk. (Josh Ritchie for ProPublica)

The girls spent two nights in jail before being released on bond.

"We literally sat there and cried" the whole time they were in jail, Jones recalled. The girls were kept in the same cell. Otherwise, Jones said, "I would have gone crazy." Borden

ted requests to comment for this article.

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Jones, who had never been arrested before, was rated a medium risk. She completed probation and got the felony burglary charge reduced to misdemeanor trespassing, but she has still struggled to find work.

"I went to McDonald's and a dollar store, and they all said no because of my background," she said. "It's all kind of difficult and unnecessary."



Julia Angwin is a senior reporter at ProPublica. From 2000 to 2013, she was a reporter at The Wall Street Journal, where she led a privacy investigative team that was a finalist for a Pulitzer Prize in Explanatory Reporting in 2011 and won a Gerald Loeb Award in 2010.



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7 years ago

Due process requires that in criminal proceedings the accused be able to confront and cross examine the witnesses against him. How does one cross examine a computer algorithm that judges are required to use? I hope the constitutional challenges come soon.

32

[Share >](#)**J****JL** → FastClock

7 years ago

Depends on what you mean by "required to use". All sentencing risk assessment being used right now are advisory - meaning that they do not commit a judge to a course of action based on the score. A similar challenge was brought up in VA and failed because judges have a right to ignore the risk assessments scores completely.

0

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→ JL

7 years ago

And it's only used during sentencing right? It's one thing to challenge your accuser, but once you're found guilty it seems like the rules change.

0

[Share >](#)**Lars Carlson**

7 years ago

Isn't the very concept of 'predictive law enforcement' both entirely unconstitutional and utterly immoral? Who is allowing this? What kind of Orwellian nightmare is 'law enforcement' foisting on us? Here's some 'predictive law-enforcement' for you: investigate every single cop on the force and every single taxpayer making more than \$500k a year. You'll find crime there with no problem, no problem at all.

24

[Share >](#)**poor_richard2**

→ Lars Carlson

7 years ago edited

The "for-profit" prison industry generally pressures Republican legislatures to write these laws. It's far more profitable than slave plantations, and removes Democratic voters en masse from voter registration rolls.

13

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**Jm**

poor_richard2

7 years ago

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Not only are Democrats complicit in this with Republicans, but Bill Clinton himself largely opened the floodgates for the modern prison industry. All of them should be fed to sharks in the ocean, at least then some good would come from their remaining existence.

5 o Share >

**DPsonbra**

poor_richard2

7 years ago

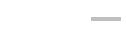


I've pretty much always likened how we treat our prisoners to the "new slavery." But, it's cool! The Kardashians are on the air, so we don't have to think about these things!

2 o Share >

R

This comment is awaiting moderation. Show comment.

**Jm**

richstacy



7 years ago

Left and right are BOTH wrong. You have been brainwashed and are fighting against yourself. WAKE UP.

1 o Share >

**Larry Strong**

Lars Carlson



7 years ago

Welcome to the Minority Report. And yes, the police are often the biggest criminals of all.

8 1 Share >

**Nixak*77***

Larry Strong



7 years ago edited

My Brief Assessment of this 'Unbiased' 'Minority 'pre-crime' Report'-

This so-called 'unbiased' [Oh really?] Assessment report, as a computer based 'predictor' of the likelihood that an offender may offend again, asks 137 questions- which IMO could / should be cut-down to just 1/2 or even 1/3 of that. A number of questions are thinly disguised racially biased, & many are quite redundant [IE: it asks about gang affiliation at-least 3 or 4 different Xs]. In fact many or most [or even all] of some entire sections are questionable at best: IE: Under Family Criminality: Asks if you were raised by both parents or NOT, or if you're adopted or raised in foster care [obviously this is biased vs Black people], then if your parents &/or even siblings were ever arrested, & then asks again if they were ever convicted [= redundant].

Then there's the sections on Work / Hire-ability, & Education- obviously

since Blacks' unemployment rate has for decades been 2Xs that of whites, this is biased vs Blacks. Then it even asks even if you do work, does your [lack of] Education & Skills set only allow you to at-best get minimum

[see more](#)

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M

MikeCody

→ Lars Carlson

7 years ago



Every decision made concerning bail, probation, or parole is an example of predictive law enforcement. In theory, these tools reduce the ability of the decision makers to decide based on the fact that the defendant is the County Commissioner's nephew. Like any computer based scoring system, the algorithms need tuning over time as statistical analysis finds flaws.

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jakee308

→ Lars Carlson

7 years ago



Well they're not actually predicting crime as much as they're predicting whether someone is likely to commit a crime again.

And there are studies that show some people will continue to commit crimes no matter how much or how often they get incarcerated.

But yes, this is the first step on a path to predict who will be a criminal and who will not. They've got some pilot programs going in Great Britain doing just that. The Brits actually like to lock people up more than the US but they don't lock them up for as long so it doesn't show up as much. Plus they're a smaller country so the raw numbers are lower.

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Nigel Tolley

→ jakee308

7 years ago



Not sure where you get that idea.

The UK, like most places, has realised that prison is the last resort. You go to prison and your life is affected forever - you get hooked on drugs, you lose your house, it destroys the futures of your kids.

Hence prison is a last resort.

Also, magistrates can only go up to 3 years (might still be 2) in prison, maximum. They have to pass the case up the tree to a professional judge in more serious cases.

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N

This comment is awaiting moderation. Show comment.



Nigel Tolley

→ notgivingname2amachine





7 years ago

No, it isn't perfect. The UK government passes bad laws, same as any other.
But a lot fewer die with random violence.

o Share >



Avata This comment was deleted.

**Nigel Tolley**

Guest

7 years ago

It may not be perfect, but consider that I know precisely one person who has been murdered, and the murder rate here is 1.0 per 100,000, vs 3.8 per 100,000 in the USA.
As for reported violence? If you never see violence, you remember it. If it is everyday, you forget the majority.

But enough statistics, have an "anecdote".

I work a "high risk" job. One I feel pretty sure would've got me into a lot of violence in the USA - indeed, I know that warrants are largely served by SWAT in the US now. In the course of ~10 years doing warrant entries, breaking in to thousands of homes and businesses a year, without anything more than a bit of paper, a Warrant Officer (unarmed, not even a stab vest) & an engineer (for the gas or electric meter), I have experienced violence. We've had a few "close calls" - a guy with guns, a few with axes, etc., many drug farms (nearly all grow houses), & yes, I've been assaulted. I've been assaulted twice.

Twice. In total, over thousands of jobs where *we literally bang on your door until you answer*, and if you don't, I pick the locks and we let ourselves in. And if you are inside, we tell you we have a warrant and refuse to leave.

We call the police if we feel we need to, I think 3 times in one week is the most, & we sometimes do 8 jobs a day.

So no. Actual "what an American would call violence" violent crime is tiny over here. And our murder rate is a quarter yours.

4 o Share >

**Barry**

7 years ago

Wow. Unbelievable that an inaccurate computer algorithm attempting to predict future crime should be allowed to even be seen by a judge. This is unconstitutional.

Criminals should be punished for what they did, not what they might do.

8 o Share >

**Nixak*77***

→ Barry

7 years ago edited

'Failed' Polygraphs are NOT allowed as evidence against a defendant, for this very reason. Though They supposedly have a 80% 'success' rate of predicting if someone's Lying- That means they have a 20% FAILURE Rate [false positives / false negatives or undetermined] = Well below the legal standard of ' Guilt Beyond a Reasonable Doubt'!

As such this so-called 'unbiased' 'Minority {pre-crime} Report' which is even MORE UNRELIABLE than polygraphs are, should have also NEVER been allowed in court-effectively used as 'evidence' against defendants!!!

2 o Share >

K**Kal E**

→ Barry

7 years ago edited

If you are tasked with determining whether or not someone is allowed to be released under bail, or forced to wait in jail until the case comes up, and you are asked to consider risk of flight (i.e., skipping town) or re-offending, what would you take into consideration? As you go through that thought process, imagine programming a machine to do the same and take the same variables into deciding-that's it. That's the boogey man that most people reacting with worry don't understand. It's actually not that scary or complicated.

o o Share >

**Barry**

→ Kal E

7 years ago

What is scary is that the results of this program have been shown to be inaccurate and racially biased (even after controlling for different rates of crimes between certain races).

3 o Share >

K**Kal E**

→ Barry

7 years ago

Even scarier is when 10,000 judges across the country make decisions where no one can see their "algorithm" and bias- and we just let them continue to perpetuate injustice. I prefer an algorithm that everyone can see, study, and work to fix. It's easier to fix and test the algorithm than to train and hope judges don't bring bias into decision-making.

o o Share >

**David Pittelli**

→ Kal E

7 years ago

OK, it may generally make sense to penalize people for their own past bad behavior. But should we increase someone's penalty because his dad went to prison when he was a child?

K**Kal E** → David Pittelli

7 years ago

It depends. First, we would need to establish, through rigorous research, that there is causation between those two variables. Assuming that there is, and that adding that variable to our model increases its predictive strength, then we can consider it on ethical grounds and decide if it should be added to the model. Regardless, it should be a matter a public policy and entirely open (no proprietary secret models); not a willy-nilly free market for predictive models with every city/county/state deciding what to do on their own, with no federal oversight/controls- which is what we have now.

o o Share >



Avata This comment was deleted.

**Barry** → Guest

7 years ago edited

That is perfectly OK. Turning that decision making over to a computer that proves inaccurate is not OK. The criteria for applying past crimes to punishment should be simple and transparent.

4 o Share >

**shinobi42**

7 years ago edited

I have been working as a statistician for 10 years, which is relevant when I say that predictive models are always wrong. They are even more wrong when it comes to predicting human behavior.

Surprisingly, this model seems to be doing pretty well on an overall level. 70% for a consumer model would be amazing. The problem is, this isn't a consumer model, this is a model that is impacting the lives of individuals. And it is wrong, analysts know it is going to be wrong some percentage of the time.

I have some general ideas how the strong racial bias could have happened from a modeling perspective. Often there are hidden relationships in the data that are difficult to see, which is why the concept of "Correlation does not imply Causation" is so critical to all modeling endeavors.

For instance the percentage of the black population with family members in prison is higher than the non black population. It is likely that race SHOULD have been considered in order to control for the pre existing racial bias in our current system. There are many other possible reasons for the model to behave this way.

But the reasons behind this racial bias are not the point. This is a model that the modelers should never have built, in my opinion. Or at the very least it should never have been deployed this way. Handing a simplistic analysis like this off to non analysts without a very strong sense of its error and overall limitations is just a set up for failure.

Some times the question is not "Can we predict this?" But "Should we?"

7 o Share >



Nixak*77* ➔ shinobi42

7 years ago edited

— ━

If you actually look at the questionnaire on which this {non}'Predictive' {mis}'Analysis' is based, you'll see it's quite redundant as well as biased [IE: asks about gang affiliation at-least 3Xs - 4Xs]. It has whole sections where IMO much/most if not ALL the questions are of dubious relevance [IE: one section asks mainly about boredom]. IMO the sections asking about family ties [were / are you raised in a 2 Parent home], employment & education status, & if one lives in a hi-crime area- are all [blatantly] Biased against Black people [= 'clever' ways of 'determining' if someone's most likely Black without actually asking the question outright].

Thus IMO this questionnaire is at-least 2Xs - 3Xs too long- it's that redundant, biased &/or dubiously relevant [see my above comment where I go into more detail about this].

1 o Share >



RCA ➔ shinobi42

7 years ago edited

— ━

And the alternative is what? Release every person unless we are 100% certain they will re-offend? Lock everyone up? Lean heavily on flawed human intuition, which is often less accurate and more biased than measures like this?

o 2 Share >



shinobi42 ➔ RCA

7 years ago

— ━

Build a system that is designed to reduce recidivism, (Especially through drug rehab and occupational programs) and also use punishments that fit the crime committed?

1 o Share >



RCA ➔ shinobi42

7 years ago edited

— ━

And in the real world we still need to exercise some sort of judgement about who we release, under what conditions, etc. Which side do we err on?

Clearly no system is perfect, but some are better than others. Even if you are willing to accept (much) higher crime rates in your community to reduce incarceration, the reality is that many people are not willing to make these choices. You cannot simply will them away. Given this reality it seems to me that there are good welfare enhancing arguments for accepting a model like

this, even knowing that they are imperfect (both type I and type II errors), because they are the least bad choice that we have. You know what they say about making the perfect the enemy of the good.....

o o Share >



shinobi42

→ RCA

7 years ago

— ↗

I personally think that making one person's life harder because a flawed computer model said they are a certain way, is always wrong. These aren't just statistics, they are actual people.

I certainly think criminals should still be punished and incarcerated, but I think the entire system as a whole needs further reform. That is not my area of expertise.

3 o Share >



Nixak*77*

→ RCA

7 years ago

— ↗

FYI: This 'Minority {pre-crime} Report' seems to be used by judges to justify sentencing people to extra-time [or NOT], NOT by parole review boards &/or judges to decide if those already doing time may / should be eligible for early release.

o o Share >

RCA

→ Nixak*77*

7 years ago edited

— ↗

I know but the issues are very similar. The algorithm isn't doing anything that judges and other humans haven't been doing for ages using their own heuristics and the like (keep in mind that this is only being used as a guide)

Incidentally, propublica's claims of bias here are unfounded. I know two people that independently analyzed it and I saw their work-- no sign of bias (if properly analyzed) and the prediction actually looks quite good in the sample propublica provided (obviously quite predictive, linear trend between risk and probability of offending, no sign of b/w bias, etc). I doubt the median judge would outperform on his own.

o 1 Share >



Nixak*77*

→ RCA

7 years ago edited

— ↗

FYI: I looked at this 137 questionnaire myself & IMO it has multiple instances of NOT only [NOT so hidden] biases, redundancies & even dubiously relevant questions, but that's so even for some of its entire sections!! As such IMO this questionnaire is at-least 2Xs to 3Xs too long [See my 1st

comment(s) above].

o o Share >

R

RCA → Nixak*77*

7 years ago edited

I haven't spent much time looking at the questionnaire, but the actual risk scores generated by the algorithm show no signs of bias against blacks. In fact, at any given recidivism risk score blacks are at least as likely to reoffend (often more likely though these diffs aren't usually significant). If the questionnaire is as "biased" as you claim, how do you explain that?

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Nixak*77* → RCA

7 years ago edited

This article has given several detailed cases of comparatively similar cases for Black vs white 'offenders', which clearly shows some degree of racial bias. I don't know how many actual cases this Propublica investigative team checked into [I think they gave links to their full assessments of cases, as they did the actual questionnaire], but I looked at this questionnaire myself, & I stand by my assessment which I go over more fully in my 1st comment(s) above.

o o Share >

R

This comment is awaiting moderation. Show comment.



Nixak*77* → RCA

7 years ago edited

Bottom Line: After reading this questionnaire if I were the lawyer for a Black defendant, I'd advise my Black Client to refuse to answer this questionnaire the same way lawyers usually advise their clients against testifying against / incriminating themselves in court & against taking lie-detector tests- which at an 80% success rate is apparently significantly more 'reliable' than this biased 'Minority {pre-crime} Report'.

In fact IMO the NAACP & ACLU should challenge the validity of using this questionnaire in court, using the illegality of using failed lie-detector tests as 'evidence' vs defendants in court as a precedence, along w this questionnaire's apparent racial biases. IMO it's amazing you think this test that's just 62% - 63% accurate [per you] is somehow 'good' enough- when almost every official test one takes, a 62% score is a 'D minus'!! Especially considering that failed lie-detector tests [w an 80% accuracy rate] can NOT be used against defendants in court, even though

[o](#) [o Share >](#)**R****RCA** → Nixak*77*

7 years ago

I take it that you are neither a statistician nor a lawyer.

[o](#) [1 Share >](#)**Nixak*77*** → RCA

7 years ago edited

Well if you must know- I know enough Math to understand basic stats concepts, & know enough about basic law to understand the legality / constitutionality of this biased 'Minority {pre-crime} Report' questionnaire should be contested, & 'defendants' should have the legal right to refuse to take it.

[o](#) [o Share >](#)**Ronald Bruce Robinson**

7 years ago

Because of racist enforcement of laws AND the creation of laws that target black populations - going all the way back to the 19th Century "Black codes" - Black people have been criminalized and therefore overwhelmingly overpopulated in the baseline figures used to make statistical analyses of crime. This then creates a feedback loop where Black people are increasingly targeted, arrested, and imprisoned. In other words, it becomes a self-fulfilling prophesy that enables racist whites to blame Black people and hide their racism behind statistics.

[22](#) [6 Share >](#)**ThereIveSaidIt** → Ronald Bruce Robinson

7 years ago

Black people are 6 times as likely as whites to be murdered. That figure is based on a simple count of murder victims and is not skewed by any "racial bias" either in the statistical process or by the law courts. The trouble with you leftist is that you cannot even acknowledge the real problems which are destroying black America, because anyone who even so much as mentions this stuff is immediately branded a racist.

[4](#) [1 Share >](#)**Daniel. Foster**

→ ThereIveSaidIt

7 years ago

It is the lack of sheer economic opportunities available for all Americans that is not being addressed by those who just remind us the Dire implications of So Called Black on Black crimes.

Criminal Activision at All Levels are merely symptoms of A consistent Lack of Economic Development and Capital investment in Human Development which is whofully, or Absent in Major Urban Centers which

Accidentally are homes to large minority populations.

Law Enforcement and Prisons are only one Aspect of the Solution but we will be fooling ourselves if we don't address the fundamental lack of opportunities, in vestments and sheer attitudes towards minority populations across the country.

2 0 Share >

Richstacy ➔ ThereIveSaidIt

7 years ago

And almost all of those murders are committed by young black men. Black on black violent crime is at epidemic levels. And the Director of the FBI noted only yesterday that the murder rate has gone up 60% in many large American cities, probably due to the fact that the police are now afraid to do their jobs.

0 1 Share >



vintermann ➔ Ronald Bruce Robinson

7 years ago

Interestingly enough, if ProPublica have done their stats homework correctly here (and that is an if - it's not easy), then what they've found is evidence of this. If the profiling software doesn't look explicitly at race, but returns predictions that are disfavorable to blacks - well, another way of saying the same thing is that their test shows blacks do better than their circumstances suggest. So if they included race as an explicit factor in their model, not only would it be more predictive, it would be better for blacks as well...

There are some big ifs about that, though. Frankly, I have my doubts. Also, even if this happy result holds up for this particular variable (race), I think that we should oppose it on general principle. You should not be judged for those of your characteristics you obviously have no power over.

The correct approach is to make the models so that they are actively blinded to the protected characteristics - so that if you look at the variables, your guess about the subject's race or gender would be no better than random. This is possible in this day and age. Northpointe's techniques are simplistic by today's standards (and probably their own time's).

And yes, predictive accuracy might suffer - but that's the price we pay for equality. In the long term, I think we are also better off with it.

2 1 Share >



Ashley Graham ➔ vintermann

7 years ago

I work with similar assessments and the biggest issue I see is that they are done wrong. I wonder what training these departments have had and if there is any process that they are conducted properly.

Also, what's the accuracy rate for professional judgement? These assessments are more accurate.

[o](#) [o Share >](#)**vintermann**

↗ Ashley Graham

[—](#)

7 years ago

The advantage of using a generic statistical learning algorithm is that you KNOW what information goes in. It may not learn very effectively from the information fed to it, but you know that the outcome is based on that information, and nothing else.

With a professional assessment, you can never be certain that the judgement isn't influenced by what the evaluator had for breakfast this morning. Literally, even. There's even a classic study of Israeli parole boards which showed they were more generous when they'd just had lunch.

I have argued for a while that we should be more excited about "artificial objectivity" than artificial intelligence. An AI doesn't have to be very smart to be useful, as long as it's general purpose enough to not have built-in biases.

[o](#) [o Share >](#)**Pjjht19239**

↗ Ronald Bruce Robinson

[—](#)

7 years ago

I do believe you are right about statistics. The media should be forbidden to use them because they are so easy to manipulate into whatever narrative you want. But, you make it appear that all those neighborhoods that decent people are trying to