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Creating Software to Enhance Admissions Diversity

By Eric Hoover

Admissions deans have long described their work as a blend of art and science. Juan E. Gilbert has designed a tool to enhance the latter. Call it the diversity algorithm.

The story began 10 years ago, when the U.S. Supreme Court ruled on the landmark admissions cases at the University of Michigan. After the decisions came down, Mr. Gilbert turned on CNN. Two commentators with opposing views of affirmative action were claiming victory. Both had it wrong, he thought.

"They were saying race, gender, and national origin was the issue," says Mr. Gilbert, chairman of Clemson University's human-centered computing division. "But the issue has to do with capacity—there are more qualified applicants than available slots, so you're going to turn away someone who's qualified."

THE INNOVATOR: Juan E. Gilbert, Clemson U.
THE BIG IDEA: Admissions offices can build more-diverse student populations by using sophisticated software.

That someone might be white or black, a legacy or a first-generation student, a Spanish major or an engineering major. In a realm of scarce seats, the system is never going to be entirely fair to everyone. Still, Mr. Gilbert, 44, believes the selection process could become more transparent—and consistent.

How might colleges enroll diverse classes without giving preferential treatment to any students? How might admissions officers minimize subjectivity, and, in turn, guard against charges of
unfairness? The answers, he argues, lie in a more sophisticated means of comparing applicants.

Not long after the Michigan decisions, Mr. Gilbert wrote data-mining software called Applications Quest, which automates the nuanced evaluation of applications known as "holistic review," a fixture at selective colleges. The program allows users to assign equal weight to various attributes, such as an applicant's race, gender, geographic location, and intended major.

The software was designed to remove the variability in outcomes (if asked to repeat its process, an admissions committee wouldn't necessarily choose all the same applicants again). "This program would give you a holistic review that's 100-percent reproducible, with no bias," Mr. Gilbert says. And the why behind a particular acceptance, he says, would be measurable.

Applications Quest compares each applicant with every other applicant in the pool. This is done by measuring the similarities—and differences—among all applications on a 100-point percentage scale (two identical applications would be 100 percent the same, 0 percent different). These quantitative measurements produce clusters of similar applications. "These clusters represent holistic, diverse applicant pools and can facilitate holistic review," Mr. Gilbert wrote in a 2008 article published in the Journal of College Admission. "By selecting applications from each cluster, holistic diversity can be optimized."

Mr. Gilbert's definition of "holistic diversity" goes beyond race and ethnicity. In a forthcoming journal article he co-wrote, he describes holistic diversity as "multifaceted variation among applicants, where the goal is to increase minority representation across a number of attributes, where 'minority' refers to the values within an attribute." Men, prospective physics majors, low-income students, and first-generation applicants all might be underrepresented in a given applicant pool.

The article, now under peer review, summarizes the experimental use of Applications Quest at an unnamed major research university. The institution, identified as "Experiment University," ran a batch of freshman applications through the software. After the applications were grouped into clusters, the program recommended
the application that was most unique within each cluster. "The application still exemplifies the characteristics of its particular clusters," the authors explain, "but what makes the application different is the variation of all the application's attributes based on the holistic comparison of all other applications."

In the end, the program recommended a class that was more diverse, broadly speaking, than the admissions committee had selected, with similar academic credentials. The committee took about five weeks to reach its decisions; the software delivered results in 10 minutes. By using the program, the paper concludes, colleges "can increase holistic diversity without disenfranchising any specific group."

Susan Allen has seen the program firsthand. She is director of operations in the enrollment-services division at Auburn University, where Mr. Gilbert previously taught. He helped her experiment with the software. One year, the program recommended 276 academically qualified applicants, about two-thirds of whom her staff had already decided to admit; the other third was to be denied.

When Ms. Allen took a closer look at the 90 or so students the computer had picked but Auburn had not, she said, "Wow, we missed those." That group included many minority students, legacies, out-of-state applicants, and applicants interested in underenrolled programs.

"We had probably eliminated them based on academics, but they were not bad students," she says.

After considering those students' other qualities, Ms. Allen says, she and her colleagues decided to admit about a quarter of them. Auburn isn't using the software now, however. Ms. Allen says she wouldn't feel comfortable running the complex program without Mr. Gilbert around to guide her.

Elsewhere, some deans who have read about the software are skeptical. After all, many colleges already have sophisticated databases. "It's difficult to see if, operationally, this will be a revolutionary change," says Robert Springall, dean of admissions at Bucknell University. And not everyone buys the idea that colleges could—or should—squeeze subjectivity out of evaluations.
About 20 colleges have invited Mr. Gilbert to demonstrate his software. At each campus, he says, admissions officers were impressed. (A patent is pending on the program.)

So far, he says, only Clemson's school of nursing uses it to evaluate applicants.

Some college officials may be awaiting the outcome of the latest Supreme Court cases on the issue of race in admissions. A decision is expected this spring or summer in a legal challenge to a race-conscious admissions policy at the University of Texas at Austin. The court recently also agreed to weigh the constitutionality of a voter-passed ban in Michigan on the use of racial or ethnic preferences in admissions at public colleges.

Mr. Gilbert argues that his program would help insulate colleges from legal challenges: "I keep telling them, the institution that does this broadly will be seen as an innovator, and will attract a very diverse group to their school."

Gives new worry to the expression "There's an app for that." Seems like a slippery slope towards anthropometry or others veiled forms of scientific racism. Additionally, it would seem as if the computer would become the moral agent here. I can only begin to imagine the sorts of hacking that this will now invite.

I am glad I am 58 and I am glad I am not an american. So a computer app will now exclude you.
from university if your sex-race-ethnicity or whatever is wrong. It will all be done by computer so it is OK? That means every university using the algorithm will exclude you, which means you will not be able to get in anywhere. Making it consistent makes it certain you will not slip through. By its very nature race/sex/ethnicity data is subjective and open to corruption apart from the moral depravity of excluding academically qualified people from education for non-merit reasons. There is also a GINGOUT (Garbage IN/Garbage OUT) problem. I will give a personal example. When I was a post-doc in the US I put down Australian as my racial/ethnic origin. It was perfectly honest and true and I am actually of indefinite racial origin. But no, that was unacceptable. At both universities where I worked in my response was crossed out and I was reclassified as Asian/Pacific Islander without my say-so. I was then minority faculty. I rather enjoyed filling out the surveys about how oppressed and isolated I felt. Yes, I sometimes did feel oppressed and isolated and yes, I was sometimes abused because of my ethnic origin. No-one came round to do a race/sex/ethnicity check on me, besides I could have told them anything I liked if I had been asked and no-one could prove me wrong.

My reaction to this is simple. If I was 18y old american and I was rejected by a university because my race/sex/ethnicity was wrong I would apply to a university in Canada, Australia or New Zealand and while a student or at graduation apply for residency and citizenship. Take a cold, hard look at the world top 100 university list. Notice how many are in Canada or Australia. Note that they have merit-based admission systems and race/sex/ethnicity issues that count against you in the US do not apply. Your chances of getting in are good. You will be admitted on academic merit and academic merit alone and you will get residency or citizenship easily.

Uncle Sam does not want you. God Save the Queen!

Considering university fees in the US it would probably work out cheaper to.

(Edited by author 5 hours ago)

— jhartvu 23 hours ago in reply to raymond_j_ritchie

How many Black Canadians do you know?

— raymond_j_ritchie 5 hours ago in reply to jhartvu

There are not many but they are there, particularly in the eastern maritime provinces. Who cares about actual numbers anyway: it is the treatment you get that is important. Not many Black Canadians are interested in moving to the US. Also you do not know your history. Before the Civil War where did the Underground Railroad go to? It went to Canada mate. Why?

— ulyssesmsu 23 hours ago

Why do schools need to create, or “enhance,” diversity? Only in an upside-down PC world is diversity a primary goal, rather than a secondary result.

— labronx 5 hours ago

When will we get beyond pandering to the racism vs. reverse racism communities?

A GPA of 3.80 is NOT better than a GPA of 3.79

And most students today present with a certain cutoff GPA.

So just decide on your cutoff and that becomes the criteria for general acceptance.
After that, a university has the right to engineer an equitable society. Even though I, as a straight, white, male, might be statistically disadvantaged by that.. SO WHAT? We have a diverse society and it will only function if advantages are extended with diversity in mind. That’s the way it is. White people still have an advantage in gaming the system and in access to technology. So I see no reason we cannot address that, through quotas, to ensure equity. Otherwise, we could have a disadvantaged sub-culture that self-identifies by race, giving it a cohesiveness. And that is not good. So it’s time we stop arguing about whether quotas are good or bad. They are good once an applicant meets minimum standard.

Besides, there are many more options for schools and I certainly do not need a school for "connections". I'll make my own connections on Facebook, thank you very much. And I will use the internet to learn, when I have a professor who cannot teach.

Are we really going to engineer admissions policies on a GPA difference of 0.01? (Besides, today most HS GPA's exceed 4.0 anyway in a world where we have successfully left all children behind -- oops! sorry -- left no child behind; confused myself there for a moment.)

Actually, my parenthetical got me to thinking... I mean, not much innovation going on in these essays, so I have to do something on my break. OK, this is going to sound a little "Emily Litella"-ish from S.N.L (Gilda Radner), but... NCLB. That L. Do you ever wonder if the Bush team was trying to send a subliminal message? No Child Left? Nah, Nevermind.