CRITICAL PEDAGOGY

How Can Asian American Studies Benefit from Computational Sociology?

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Abstract. This exploratory paper addresses the question, "How can Asian American studies benefit from computational sociology?" I answer this question with the following four points.

1) Educators who understand and/or utilize computational sociology will be current with social science methodology, and thus well-positioned to research and teach both innovatively and preemptively. 2) Creating and using large data sets will allow AAS to scale systematically, particularly in the efforts to discover and recover. 3) Students who can conceptualize or use computational sociology will gain more portable human capital. 4) Increasing computational power and more sophisticated software will bridge AAS not only with computational sociology, but also with complexity science and artificial intelligence/generative artificial intelligence, and thus advance AAS to unprecedented horizons. The article concludes with limitations, caveats, and areas of future research, particularly via complexity science, to keep Asian American studies both relevant and innovative.

A few years ago, I resumed teaching Asians in America as I was unable to teach this course from the academic years of 2016–17 through 2023–24. This timeframe was a bit tumultuous for a variety of reasons, and I will briefly discuss two events that intersected with Asian American studies (AAS), the death of

George Floyd (1973–2020) and COVID-19. An aphorism attributed to Samuel Clemens postulates that although history may not repeat itself, it rhymes. The public murder of George Floyd sparked riots in Minneapolis and fostered a global movement. Further, perennial invisible causes and visible symptoms seemed to rhyme with the 1965 Watts and 1992 South Central riots. All three riots entailed a history of police brutality and a Black male as a flashpoint, Marquette Frye in 1965, Rodney King in 1992, and George Floyd in 2020. And all three timeframes entailed Asian Americans or Asians in America, directly and or indirectly.

In 1965, immigration reform prioritized high-skilled labor and family members of U.S. citizens while rescinding the 1924 immigration policies which favored northern and western over southern and eastern Europeans and precluded Asian inflows (except Filipinos who were classified as U.S. nationals). The impact that the 1965 policy had on Asian inflows is well-known today, as noted by Douglas Massey, "The one effect that the 1965 Act did have was to remove the ban on Asian entry and thereby unleash an unprecedented and entirely unexpected flow of immigrants from Korea, Taiwan, China, the Philippines, and other Asian countries."[1] Most social phenomena entail some interplay between structure, agency, and contingency.[2] Perhaps a bit eerily, one year after 1965, as America continued to transition from an industrial to a post-industrial means of production, Asian inflows would coincide with the emergence of the model minority myth.[3] 1966 was also the year that the Black Panther Party for Self Defense was established.

If Asians were suddenly used by the media as an exemplar foil shortly after the 1965 Watts riots, Koreans in South Central Los Angeles were conflated with root problems in 1992. I can still recall my aunts and uncles who were self-employed in the Los Angeles vicinity whose narratives did not match some of the exaggerated Black-Korean-tension simulacrums that were disseminated through various media outlets. One of the more egregious instances was exemplified in Ice Cube's "Black Korea," which was filled with racial tropes, stereotypes, and misinformation regarding Korean merchants.[4] The 1992 riots occurred about one year after the release of "Black Korea," and it seemed that some media outlets continued to scapegoat Asian Americans, particularly Korean Americans, who had nothing to do with a history of redlining, segregation, deindustrialization, and police brutality. Korean merchants were caught in a labor vortex regarding changes in the means of production, as well as nuances of racialized and gendered capitalism. Consistent with what is taught in AAS, U.S. imperialism has been predicated on the extraction of land and labor from visible others, and Asian lands and labor continue to be a part of today's globalized capitalism.[5] Thus, Ableman and Lie framed the 1992 Los Angeles riots in contexts of global capitalism and labor,[6] as well as explicating how entrepreneurial middlemen

minorities, notably Koreans, were "caught in the middle."[7] Unfortunately, such structural arguments were lost in public conversations.

In 2020, even though one of the officers who was charged in Floyd's death was an Asian American of Hmong ethnicity, to the best of my knowledge, there was no respective Hmong or Asian American backlash. Thus, these three riots illustrate paradoxical perceptions. Historically, Asians can simultaneously be an invisible minority and a yellow peril or imagined as part of the Third World Liberation Front (TWLF), notably the Asian American Political Alliance (AAPA), as well as the model minority. Without the coinage of "African American" and "Black Power" and the respective Black protests, who knows how much longer (if ever) the phrases "Asian American" and "Yellow Power" would have emerged.

It may be a bit coincidental that with the rise of Black, Yellow, and other prepended "Power" movements in the 1960s as well as other pan-racial coalitions such as the TWLF, that in 1965, both the Immigration Naturalization Act was passed, and "The Negro Family: The Case for National Action," which is commonly referred to as the Moynihan Report,[8] was published. Perhaps with some irony, the policy and the Moynihan Report, which were both intended to rectify and or explicate racial injustices, may have helped to exacerbate stereotypes. The former may have obfuscated structural elements such as selection bias, and the latter may have become weaponized to reify racial and ethnic differences.

Some critics have charged that the Moynihan Report was both ethnocentric and patriarchal. Perhaps what is lost in these critiques is Moynihan's argument that historical discrimination and violence against Black persons, combined with deindustrialization, disproportionately diminished life-chances for Black families. A major tenet was that unemployment fractured families whereby single-parent homes became associated with the feminization of poverty. Two years after the Moynihan Report was published, the Kerner Report, under President Lyndon B. Johnson's advisement to counter poverty, also noted the prevalence of racism in diminishing life-chances for Black Americans.[9] Finally, a fiftieth anniversary follow-up to the Kerner Report noted that the plight for Black persons had not changed.[10] What was (not) happening?

In part, Moynihan may have been vindicated by Melissa Kearney's *The Two-Parent Privilege*.[11] As an economist, Kearny argued without equivocation, that children who are raised in married households outperform children from single-parent homes (divorced, never-married, or cohabiting). Of course, correlation is not causation, but one may infer that past and present discriminations, structural dislocations, and racialized and gendered capitalism have detrimentally impacted Black households. Further, the war on poverty in the 1960s may have been supplanted with both America's war in Vietnam and the post-1965 Asian inflows. Therefore, discussions about Asian Americans should include how

Asian *immigrants* and *immigration processes* are obviated under *Asian* American nomenclature. This is why sociologists posit that "structure trumps culture."[12] Unfortunately, some Asians have internalized and reified Asian achievements, as demonstrated by the following titles, *Battle Hymn of the Tiger Mother* and *Top of the Class: How Asian Parents Raise High Achievers—and How You Can Too*.[13]

Finally, a juxtaposition of the supposed Black-Korean conflicts that were exaggerated during the 1992 riots in comparison with the actual policing tactics was reversed in 2020. In fact, the Department of Justice released a scathing report of the Minneapolis Police Department (MPD) in 2023, noting:

> Specifically, the Justice Department finds that the MPD:
>
> Uses excessive force, including unjustified deadly force and unreasonable use of tasers;
>
> Unlawfully discriminates against Black people and Native American people in its enforcement activities, including the use of force following stops....[14]

Although Asians were not collectively associated with Floyd's death, the same could not be said regarding COVID-19.

In the U.S., China and Asian Americans were being scapegoated during the global pandemic. I wondered if anyone else was wondering why Asians in America began to rhyme with yellow peril. As I began to map out the reading assignments for my Asians in America course, a primary textbook that I had previously used seemed outdated as it was published in 2006.[15] Upon contacting the editor and inquiring if there were any forthcoming revised editions, I was notified that the textbook had run its course. Adding to my grief due to the COVID-19 anti-Asian backlash were the mass shootings at several spas in Atlanta (March 2021), which would be followed with mass shootings during the Lunar New Year festivities in Monterey Park, California, *and* mushroom farms in Half Moon Bay, California (January 2023).[16]

In some ways, the media's portrayal of these events, particularly the shootings in Atlanta, seemed to rhyme socio-historically with the Page Act (1875), Chinese Exclusion Act (1882–83), National Origins Quota Act (1924 [1921]), Executive Order 9066, as well as an avalanche of sociological and AAS motifs such as yellow peril, perpetual foreigner, subtractive acculturation, anomie, dragon lady, taxi dance halls, and the precariousness flip-flopping between the model minority thesis and stereotype promise contra stereotype threat.

Of course there are many more stanzas to this "Asian-American rhyme," and history has shown how quickly Asians can experience social phase transitions whereby some humans (Asians) are treated differently from other humans (white persons) via reified mechanisms.[17] In the words of Jemar Tisby, "Racism never goes away, it just adapts."[18] As a sociologist who draws from traditional methods such as ethnographies and descriptives statistics as well as nonlinear concepts and complexity science,[19] I continued to fret over the paucity of current sociology textbooks for and by Asian Americans. For the record, I spent two-plus years of my life writing a sociology textbook to highlight the six Asian groups that make up around 85 percent of all Asians in the U.S. While my life was consumed with this textbook and as I was trying to integrate seemingly disparate disciplines, questions emerged. Accordingly, for this article, I will address a very broad question: "How can Asian American studies benefit from computational sociology (CS)?"

In answering this question, leaning towards a critical pedagogy, I will argue the following:

1. Educators who understand and or utilize CS will be current with social science methods, and thus well-positioned to research and teach both innovatively and preemptively.
2. Creating and using large data sets will allow AAS to scale systematically, particularly in the efforts to discover and recover.
3. Students who can conceptualize or use CS will gain more portable human capital.
4. Increasing computational power and more sophisticated software will bridge AAS not only with CS, but also with complexity science and AI/GAI, and thus advance AAS to unprecedented horizons.

1) Educators Who Understand and/or Utilize CS Will Be Current with Social Science Methods, and Thus Well-Positioned to Research and Teach Both Innovatively and Preemptively

Although Census categories are generally stable, they are not completely static. Regarding denotative definitions of "Asian," I point my students to an interactive site.[20] Most of us are probably aware that the 2020 Census incorporated people from Central Asia who used to be classified as "white" in the Asian rubric. Given the dynamic nature of denotative and connotative defini-

tions, as well as the variegated contexts of departure and reception for Asians in America, research methods must also adapt accordingly. Ironically, sociologists may have become laggards in their own discipline. No, I am not referring to the development of a social gospel and the origins of American sociology. I am referring to social networks or social network analysis (SNA) and CS, which can help AAS to be well-positioned to continue to research and teach innovatively and preemptively.

Regarding SNA, I direct the readers to Georg Simmel's conceptualization of social structures, as he envisioned how a relationship between two actors (a dyad) could change with the addition of a third node (triad).[21] An early insight was that there is an inverse relationship between a structure's stability and intimacy; the more people there are, the more stable the group becomes at the expense of their intimacy. These insights would form the basis of network analysis. Today's SNA is incredibly complex and could not be possible without a second irony, computing.

William Bainbridge claimed, "Arguably, sociology was the first science to take advantage of modern computing. For the 1890 US census, Herman Hollerith developed information processing technology that was used for decades and led to the formation of the IBM Corporation."[22] Although SNA and "modern computing" emerged from sociology, sociologists generally have not kept pace with mathematicians, physicists, and computer scientists. For example, Brian Castellani and Frederic William Hafferty argued that "most sociologists"

- Have little to no training in agent-based modeling.
- Are not able to engage in or converse about neural networking.
- Lack the skills necessary to employ the tools of data mining.
- Cannot converse in computational or discrete mathematics, let alone make use of such techniques as cellular automata.
- Do not know how to employ the tools of dynamical systems theory, either in the form of fractal geometry or chaos theory.
- Cannot converse in the rich vocabulary and language of complexity science.
- Do not know how to use or critique the new science of networks.
- Are on the margins of the major journals, conference and funding streams devoted to the study of formal organizations as complex systems.
- And, finally, do not have the necessary techniques for studying the large, multidimensional, electronic databases that are now readily available on the internet for study.[23]

Perhaps readers are wondering, what does this excerpt have to do with computational sociology? SNA and computations burgeoned from sociology, are overlapping methods, and sociologists were left behind when technology advanced. However, there have been some sociological efforts to make a return at the turn of the twenty-first century.[24] Today, Simmel's conceptualization of dyads and triads as well as modern computing in sociology are components of computational sociology, computational social science (CSS), and complexity science. So, what exactly is CS?

Computational Sociology

According to Stephen Wolfram, "Computational thinking is a process in which you creatively apply a problem-solving cycle to ideas, challenges and opportunities you encounter to develop and test solutions."[25] I ask rhetorically, are there motifs in AAS that rhyme, whereby disparate data must be collated, analyzed, and interpreted? And is it possible to create algorithms to streamline this process to create "solutions"? In the early 1990s, many researchers believed so, as a nexus between technology and data fostered a prepending of "computational" to a plethora of disciplines, one of which was CS.[26] In a recent Google search with the query, "is there a definition of computational sociology?" under "AI Overview," the following definition was provided: "Computational sociology is a branch of sociology that utilizes computationally intensive methods to analyze and model social phenomena, focusing on understanding social agents, their interactions, and the effect of these interactions on social aggregates." This AI definition demonstrates how far CS has progressed. In fact, it was thirty years ago when Norman Hummon and Thomas Fararo may have been the first to use the phrase "computational sociology" with respect to data, algorithms, and computer simulations.[27] For this paper, CS will be defined as "the ability to ascertain social structures or patterns via algorithms and technology."[28]

Not only sociologists but social scientists in general, are trying to employ computational methodology. Computational social science may have been first defined in 2009, as "a field … that leverages the capacity to collect and analyze data at a scale that may reveal patterns of individual and group behaviors."[29] In 2020, Lazer et al. noted that CSS was in its earlier stages.[30] In 2022, at least two Sage journals published special editions that were devoted to computational thinking, *Big Data & Society* and *Sociological Methods & Research*. Part of the excitement in CSS is the ability to intersect social theory, data, and computational technology, which allows the social sciences to move beyond traditional statistical methods and survey data. However, reminiscent of the claims of Castellani and Hafferty, according to Yoshimichi Sato and Hiroko Takisawa,

"Computational social science has not fully shown its power in sociology."[31] This claim was made in 2024.

Although a gap exists between computer scientists and sociologists, this gap must be bridged, if sociology and the social sciences and AAS are to advance.[32] Consider one of the earliest examples of computational social science from Thomas Schelling, who demonstrated through computer simulations, that iterations of very small levels of prejudice would produce large-scale patterns of segregation; hence the title of his classic, *Micromotives and Macrobehavior*.[33] Although Schelling was an economist, his agent-based models (ABM) were utilized conceptually by sociologists.[34] In fact, for years, CS and CSS were synonymous with ABM. Today, CSS entails social theory, large data sets, and algorithms.[35] Unfortunately, the use of real data and computational methods is disproportionately over-represented by those in the STEM fields, not the social sciences.[36] Why is closing this gap important for AAS? If we can scale our data analysis and differentiate signal from noise to make more accurate inferences, then AAS personnel will research and teach innovatively. Such scholarship and pedagogy may also foster better activism, which has been a long-standing tradition in AAS. Without falling into a naïve trap under modernity, in believing that knowledge equals progress, always, as educators we nonetheless have a passion to research and teach (well) and believe that knowledge can benefit society; knowledge is necessary but not necessarily sufficient. Such thinking was not lost in my home state of Illinois.

Being Well-Positioned to Research and Teach Innovatively and Preemptively

Although other states have passed similar laws, to the best of my knowledge, Illinois and New Jersey are the only two states that have passed the TEAACH (Teaching Equitable Asian American History) Act. According to an official press release:

> Governor JB Pritzker signed HB 376, the Teaching Equitable Asian American History Act, into law, making Illinois the first state in the nation to require a unit of Asian American history be taught in public schools. The monumental measure will ensure every high school graduate in Illinois will learn about Asian American history as well as the rich contributions and traditions of the Asian American and Pacific Islander community.[37]

One may wonder, under what contexts was this act passed? Consider the sentiments of the two governors who adopted the TEAACH Act, J. B. Pritzker and Phil Murphy, (emphasis mine):

> Falsely blamed for the global spread of the virus, the AAPI community has been subjected to violent attacks over and over. ... *Education is our best tool and strategy, which is why we have both recently signed legislation requiring AAPI history be taught in our state's public schools*.[38]

What if we could combine critical pedagogy with requisite innovative methodologies, to foster preemptive strategies? What if we can create better knowledge and our own counterfactual statements to mitigate harm against Asians in America?

I am not trying to reignite an Oppression Olympics, but I merely express my sentiments from my social locations and bifurcated consciousness.[39] How many times have I been perceived as a model minority, an invisible minority, or a yellow peril? Sometimes, I have felt like Schrodinger's Cat or someone who fell into a wormhole, experiencing these microaggressions as part of a collective Asian American memory. At times, I have experienced these three microaggressions simultaneously, like a triple point phase transition. And there have also been times when I was so discombobulated, due to the level of ignorance from others who enacted "benevolent assimilation," that my iatrogenic experiences left me feeling like a quantum bit. Thus, I was not surprised by Deepa Shivaram's sentiments regarding the TEAACH Act:

> The Teaching Equitable Asian American History (TEAACH) Act comes at a time when growing numbers of Asian Americans have become the targets of hate crimes in the midst of the COVID-19 pandemic. Asian Americans are facing hate incidents at a higher rate than ever reported before, and the Democratic governor [Pritzker] says teaching students about Asian American history will help combat false stereotypes.[40]

In my courses, I define stereotypes as gross exaggerations that are not factual; based on statistical odds, they are false. In contrast, generalizations are data-based statements that are more likely to be true, than false. Thus, claiming that Asians are overrepresented in some of the elite colleges and universities are generalizations, not stereotypes. Further, to claim that some people of color

are overrepresented in carceral systems, is also a generalization, based on data. However, to claim that these outcomes are predicated on inherent racial or ethnic traits reifies these generalizations. Hopefully, nuances help us to differentiate between generalizations, stereotypes, and reifications, especially for Asian students who feel dissonance in their courses.

According to Dorothy Smith, a fault line occurs when the lived experiences of women do not cohere with what is written of them in texts.[41] Fault lines are obviously not exclusively predicated on gender. Thus, one of the benefits of AAS is that it has utility for Asians, people of color, and white persons—everyone. Combined with CS, AAS can continue to be current with social science methodology and reduce fault lines that are perpetuated in miseducation systems—i.e., the model minority myth and COVID scapegoating. We can also ascertain structural patterns—rhymes—regarding flashpoints such as the riots in 1965, 1992, and 2020. And for those who are more often the perpetrators than the victims, as noted by Mark Charles and Soong-Chan Rah, perhaps they may be able to mollify their perpetrator-induced traumatic stress.[42] These examples illustrate how AAS can benefit everyone.

I still laugh at and grasp Rodney King's exasperations when he made a public announcement on TV, "Can't we all just get along?" Perhaps we can have more honest conversations that differentiate between reconciliation and conciliation. This is why I believe that CS is so important. Consider the critical comments from a report that was published in May 2023, by Stop AAPI Hate, titled "Righting Wrongs,"

> Some government agencies enforcing civil rights laws collect and publish data regarding complaints of discrimination by race and ethnicity. This data is piecemeal, covering a limited range of issues and geographies, not disaggregated to reflect disparities within diverse constituencies like Asian Americans and Pacific Islanders, and likely underreported.[43]

Stop AAPI Hate notes that in their efforts to document hate crimes against AAPI persons as well as to act preemptively, the government's inability to collate data effectively has hindered their endeavors. Interestingly, "Stop AAPI Hate was founded when community leaders from AAPI Equity Alliance, Chinese for Affirmative Action, and the Department of Asian American Studies at San Francisco State University recognized the need to document the rise of COVID-19-related anti-Asian racism in the early stages of the global pandemic."[44] Although the Japanese Americans Citizens League (JACL) may be the oldest Asian American advocacy group regarding Asian American civil rights in the U.S.,[45] Stop AAPI

Hate appears to have a historical nexus with the TWLF and AAPA, with respect to the AAS Department at San Francisco State University. Anti-Asian bias is unfortunately something that must perennially be incorporated in AAS, the social sciences, and sociology; racism always adapts. Furthermore, since the inception of AAS, we have always needed CS to research and teach both innovatively and preemptively, and the time to close the gap with what "most sociologists" cannot do is long overdue. In the next section I suggest that AAS use CS to scale systematically, and I will provide two examples of how this can be done.

2) Creating and Using Large Data Sets Will Allow AAS to Scale Systematically, Particularly in the Efforts to Discover and Recover

The first American public sociologist,[46] W.E.B. Du Bois (1868–1963), noted that those in power have not used history well. Although Du Bois argued that the histories of Black people have been erased, misrepresented, and basically weaponized,[47] curriculum violence is experienced by all minority groups. Regarding Asian Americans, sanitizing the U.S. military's genocidal acts and the colonization of the Philippines come to mind.[48] Other examples of Du Bois's critiques can be found with respect to America (growing opium poppies in Turkey) and England (growing opium poppies in India) during the First and Second Opium Wars in the mid-1800s. Not only did America and Britain force China to buy their opium, but under systems of racialized and gendered capitalism,[49] Chinese laborers who entered the U.S. and contributed to the building of America's infrastructure, particularly in California, were labeled with variegations of "yellow peril." They were also erased, literally, from the iconic photo that was taken upon the completion of the Transcontinental Railroad.

Malcolm X, who had a profound impact on one of the greatest Asian American activists, Yuri Kochiyama, lamented how histories were "whitened" to benefit those who wielded power: "Book after book showed me how the white man had brought upon the world's black, brown, red, and yellow peoples every variety of the sufferings of exploitation."[50] Similar epiphanies should be experienced by each generation of Asian Americans. This is especially important when we consider the boomerang hypothesis; young children identify with their parents' race or ethnicity, by their teen years they try to "become White persons," and later in life, especially for college students, they try to return to their racial and or ethnic identities. It is also not uncommon for people of color who have tried to assimilate—in vain—to experience subtractive acculturation.[51] That is, acculturation at the expense of enculturation may lead to diminished life-chances. Hence, the process of discovery and recovery can be very liberating as it was for Malcolm X, Yuri Kochiyama, and countless pioneers who established AAS.

Asian Americans who have tried to develop their racial consciousness may recall the sense of liberation in reading, for the first time, some of the earliest "textbooks" that were used in the AAS curriculum. I can never forget reading *Roots* and *Counterpoint*,[52] from cover to cover, for the very first time. These works were created by organic intellectuals in response to cultural oppression. Asian Americans who shape their own epistemologies are heeding Paulo Freire's clarion to create a "pedagogy of the oppressed, a pedagogy which must be forged with, not for, the oppressed (whether individuals or peoples) in the incessant struggle to regain their humanity."[53] If Marx argued that humanity (species-being) was actualized through creative physical production, then in line with critical theory, Freire would argue that Asians must create their own epistemologies "to regain their humanity." As postulated earlier, if "structure trumps culture"[54] and ontology precedes epistemology, then one could argue that Asian Americans must be amongst the educational power nodes.

I know that I was fortunate to have purchased clean copies of *Roots* and *Counterpoint* in my efforts to discover and recover, both personally and professionally. I am grateful that I read these works as a sociologist. Sociology courses do not capriciously cover topics in race, class, and gender and it is not coincidental that these three social markers have become the foci of intersectionality.[55] We did not pick these social markers, these markers "picked us" and created social systems and asymmetrical life-chances. Consider the following rhetorical questions: Why was the Burlingame Treaty modified? Why was the Gentlemen's Agreement Act followed with restrictive land laws and national origins quotas? Why was the Treaty of Amity and Commerce (also referred to as the Shufeldt Treaty) created under contexts of Manifest Destiny? What was benevolent about President McKinley's "benevolent assimilation" policies? Why were some Asians who were under British rule debarred and or denaturalized? Why did the confusion with respect to de jure and de facto rules for Amerasians last for decades? These rhetorical questions illustrate how the six largest Asian *groups* in the U.S. all have experienced some form of the Noel hypothesis; the rhetorical questions pertain to Chinese, Japanese, Korean, Filipino, Indian, and Vietnamese inflows, respectively. According to the Noel hypothesis, social contact under conditions of asymmetrical relations may lead to unfavorable outcomes; competition is a catch-twenty-two for minorities if they out- or under-perform their white counterparts.[56]

AAS literature is replete with the supposed contrast between the Oriental (East) and the Occidental (West). Edward Said defined Orientalism as "a style of thought based upon an ontological and epistemological distinction between 'the Orient' and (most of the time) 'the Occident.'"[57] This form of othering and the Noel hypothesis were evident at the dawn of the twenty-first century. The

first American to be killed due to 9/11 backlash was Balbir Singh Sodhi. Several years later, subprime mortgages and related financial derivatives helped erase trillions of dollars of wealth. Oddly, countless culpable banks and financial institutions were given an opportunity to settle out of court with the Department of Justice. There was only one bank in the U.S. that was prosecuted for the cardiac arrest of 2008: Abacus, a Chinese American family-owned bank that had been servicing New York's Chinatown.[58]

In the spirit of discovery and recovery, perhaps each generation of Asian American organic intellectuals should pay attention to Kehinde Andrews's exhortation: "We urgently need to destroy the myth that the West was founded on the three great revolutions of science, industry and politics. Instead, we need to trace how genocide, slavery and colonialism are the key foundation stones upon which the West was built."[59] In light of AAS, I would also add that we grasp Lenin's critiques of postindustrial capitalism,[60] particularly finance capital, as today's First and Second World nations continue to demonstrate power over the Third World via imperialism. Domestically, associating Asians with 9/11 and the 2008 financial crisis continues a cadence of historical rhymes, as a dusky and yellow peril, respectively. Given that the Census has redefined "Asian" for post-1965 inflows, notably in 1980 (the largest six groups were incorporated), 2000 (biracial categories were debuted), and 2020 (Central Asia was included), a methodological challenge pertains not only to systematic collation and analysis, but scale. (As I work on revising this article, my news feeds remind me that some Asians—those from India and Central and Southeast Asia—are being deported.)

While Asians in America were experiencing harm and reminders of harm during the pandemic, as noted by Lauren Aratani in "Coughing While Asian: Living in Fear as Racism Feeds off Coronavirus Panic,"[61] they were also creating data bases and movements to counter anti-Asian hate.[62] It became increasingly evident that Asians were experiencing backlash objectively and subjectively. Unfortunately, microaggressions have been corelated with deleterious health outcomes for both victims *and* perpetrators.[63] The TEAACH Act is limited in scope and CS may help scale AAS throughout our educational systems. If the U.S. Department of Education and DEI initiatives continue to become curtailed, and Illinois and New Jersey remain the only states in which public schools have adopted the TEAACH Act, it is even more critical that colleges and universities adopt CS in their AAS curriculum.

Theoretically, data (in any format) can be utilized via computational sociology to advance AAS. (I will address the possibilities of technology, AI and GAI, in the last section of this paper.) Perhaps an ideal panacea would be the use of algorithms to glean and analyze *all* data, even accounting for randomness to predict future behavior, like Google's PageRank and our online searches.[64] It

seems that in the past twenty years or so, there have been rapid advancements in both software and hardware, as well as breakthroughs in quantum computing. However, given that technology has a history of being monetized and weaponized against minorities,[65] Asian Americans would not want to experience a technological iteration of COINTELPRO and Richard Aoki. Nonetheless, I will provide two concrete examples of how AAS can benefit from CS in the next section. These examples were chosen not because they serve as a panacea regarding institutionalized fault lines that are replete throughout academia. However, since AAS is heavily predicated on histories, I will discuss how CS can be useful with respect to first, historical documents and second, book acknowledgments. The former entails historical records, history proper, and the latter, how we create and "acknowledge" our histories.

Historical Documents and Computational Sociology

Many years ago, I wondered why and how Protestantism burgeoned in Korea, especially in comparison to other Asian countries. I was particularly interested in the first American resident Protestant missionary, Horace N. Allen (1858–1932), who resided in Korea from 1884 to 1905, as well as how America's presence in Korea (and Hawaii) may have shaped the contexts of departure and reception for future Korean Americans. There are numerous memorials in South Korea regarding his legacy, such as his burial site at the Yanghwajin Foreign Missionary Cemetery and vestiges of his work throughout Yonsei University. Two of the more critical assessments of Allen's tenure in Korea were leveled by Wayne Patterson, who focused on Allen's role to fill structural holes between the Hawaiian Sugar Planters' Association and illegal Korean labor, and Fred Harrington, who delineated Allen's role as an unscrupulous missionary-turned-diplomat for nationalistic and personal gain.[66] Throughout America's expansionism in the 1800s, clearly Allen was not the only American or Western actor to fill structural holes in Korea, nor were all Western actors corrupt. However, Allen epitomized what C. W. Mills referred to as the power elite.[67] That is, when the business, military, and government sectors employ quid pro quo, these entities essentially form one network and evince power beyond the realms of ordinary people. As Korea was caught in a global vortex of Western expansionism, the former Hermit Kingdom was inundated with American businessmen, missionaries, and government officials. Allen, under unique contexts of America's expansionism became a power node in Korea. In addition to the Allen MSS, there are troves of historical documents in various languages that could be analyzed via CS. Theoretically, all primary sources could be scanned, translated, and standardized into a common language for analysis.

Perusing historical documents was important to me, not merely as a sociologist who also earned a degree in historical theology, but also because my father went to Yonsei University for college and medical school. My father recounted how he would see Allen's name throughout campus, and my parents—born in 1941 and 1946—regularly shared their vivid memories of the Korean War (1950–1953), which has never officially ended. The more I perused the Allen MSS as well as other primary documents, the more dissonance I experienced with my public education experiences that extolled the virtues of American democracy, meritocracy, and capitalism, without being tempered with critical pedagogy. Upon perusing various historical documents, I returned to one of the original underpinnings of sociology, social networks and SNA, and eventually CS.

I realized that most letters in the Allen MSS[68] included the sender (usually Allen), the recipient(s), and the date (year). This information could be entered into Excel, as in the example below.

H.N. Allen	Kim Yong Sik	1886
H.N. Allen	Kim Yong Sik	1886
H.N. Allen	Dawson	1886
H.N. Allen	F.F. Ellinwood	1886
H.N. Allen	Francis B. Loomis	1886
H.N. Allen	Farnham	1886
H.N. Allen	Farnham	1886
H.N. Allen	Peng	1886
H.N. Allen	W.B. Scranton	1886
H.N. Allen	J. B. Rourk	1886
H.N. Allen	F.F. Ellinwood	1886
H.N. Allen	T. Rice	1886
H.N. Allen	F.F. Ellinwood	1886

Figure 1. A snippet from an Excel file, constructed from the Horace N. Allen MSS.

Readers are sure to point out that analyzing historical documents via SNA has been attempted for decades. In fact, in 1992, an entire edition of *Semeia* was devoted to "Social Networks in Early Christian Environment: Issues and Methods for Social History," which was followed with other efforts.[69] Given the somewhat inchoate work that had been done with SNA and historical documents, I began to wonder, what if a sociogram could be constructed to visualize the communication diachronically? (A sociogram entails the visual aspects of a network, not the metrics per se, nor is it social network *analysis*, proper.) What if multiple databases were accessible, and data could be manipulated either manually or through a GUI interface? Would it be possible to create a dynamic model which also showed

nodal attributes such as social markers or institutional affiliations? It dawned on me that all primary documents like the Allen MSS could be used to create a "real-time" network regarding how Christianity—or Western imperialism—spread throughout the Hermit Kingdom; one who sends a letter is an outdegree and the recipient is an indegree. If the locations of the sender and recipient were known, then a "real-time" network could also incorporate topography.

Obviously, as mentioned earlier in this paper, SNA is not new. Although Georg Simmel showed how individuals could form a social structure, to my knowledge, SNA does not account for an actor's intersectionality via dynamic models. This is something that CS could do, which would be an extension of the classic computer simulations, such as Thomas Schelling's ABM. If one of the problems with surveys is that individuals become abstracted from their social structures, then one of the problems with SNA is that it tends to create a static structure. By using computational sociology, one could integrate both nodal attributes and dynamic structures; I believe that this fusion would be an innovative approach in sociology and AAS. CS could move this scholarship forward with scale and scope. Accordingly, I have spent years trying to learn the concepts of SNA and CS as well as dabbling with programs such as NodeXL and the Wolfram Language, so I know that this is both possible as well as daunting.[70] I am confident that this will be accomplished in my lifetime, and I am even more confident, not by me. In fact, such a project may require a team of researchers.

Why does this matter for AAS? This is not to denigrate prior historiographical research or AAS, but as a sociologist who is always thinking of data and inferences, the more complete the data can be—while differentiating signal from noise—the better. I do not know how many American missionary files exist, or how many official and unofficial correspondences exist between U.S. personnel, businesses, and others who have filled structural holes as power nodes. But I have had enough hands-on experience with the Allen MSS, as well as other primary sources, to realize that such a project could be scaled systematically.[71] Further, as AAS recovers and discovers our pasts through primary sources, what if we were also able to detect patterns in academic literatures? What if in addition to analyzing historical documents, other records regarding how we create and interpret our histories, could be analyzed? What other rhymes would we find? Would these rhymes "sync" like many other phenomena in the natural and social worlds?[72] Perhaps another area of research for CS to advance AAS entails book acknowledgements.

Book Acknowledgments and Computational Sociology

Bibliometric and citation studies are rather common and may have roots that go back to the 1950s regarding Eugene Garfield's inception of the Science Citation Index (SCI).[73] Although these fields are currently inundated with algorithms and technology (a nuance of CSS), less common is determining relationships or the social structures of the actors and institutions. Further, many academic relationships are opaque, as Diana Crane noted years ago regarding her work on "invisible colleges."[74] Her research continues to be relevant today regarding asymmetrical relationships of power, hidden curriculums, and critical pedagogies.

One area that is relatively unexplored is book acknowledgments, and perhaps as good as place as any to begin such an inquiry entails books that have won awards. In sociology there is an eponymous book award in honor of C. W. Mills and his legacy; one of his classics is *The Sociological Imagination*.[75] The Mills Award is given annually by the Society for the Study of Social Problems in Pursuit of Social Justice and a list of the past winners can be found on their website; all of the winners researched a particular structural ill and demonstrated a sociological imagination.[76] Basically, utilizing a sociological imagination entails the ability to see when personal problems are really structural ills. Asian Americans may utilize a sociological imagination regarding microaggressions that may seem as benign as being asked, *where are you from* to being "complimented," *you speak good English*. At the other extreme of these subtleties are blatant slurs or physical harm. Examples of utilizing a sociological imagination that were presented in this paper were the 1992 riots, 9/11, Abacus, and COVID-19 backlash. The respective anti-Asian infractions are not "personal" but systemic. Could rhymes also be found in book awards?

My interest in the Mills Award, book acknowledgments, and social structures brought me to the 2019 Wolfram Summer School.[77] I realized that *any data* I had been entering – and asking countless research assistants to enter – into Excel was in the form of matrices. Below is a partial snippet of how data was entered into Excel, for the first winner of the C. W. Mills Award in 1964.

Year	Book Title	Author	Academic Acknowle	Authors' Institutio	Author UG	Author PhD	Publisher
1964	Delinquency an	David Matz	Aaron Cicourel	UC, Berkeley	Princeton U	Princeton Unive	John Wiley & Sons, Inc
1964	Delinquency an	David Matz	Albert Cohen	UC, Berkeley	Princeton U	Princeton Unive	John Wiley & Sons, Inc
1964	Delinquency an	David Matz	Carl Werthman	UC, Berkeley	Princeton U	Princeton Unive	John Wiley & Sons, Inc
1964	Delinquency an	David Matz	Dean Levi	UC, Berkeley	Princeton U	Princeton Unive	John Wiley & Sons, Inc
1964	Delinquency an	David Matz	Donald Cressey	UC, Berkeley	Princeton U	Princeton Unive	John Wiley & Sons, Inc
1964	Delinquency an	David Matz	Edwin Lemert	UC, Berkeley	Princeton U	Princeton Unive	John Wiley & Sons, Inc
1964	Delinquency an	David Matz	Erving Goffman	UC, Berkeley	Princeton U	Princeton Unive	John Wiley & Sons, Inc
1964	Delinquency an	David Matz	Francis Allen	UC, Berkeley	Princeton U	Princeton Unive	John Wiley & Sons, Inc
1964	Delinquency an	David Matz	Gresham Sykes	UC, Berkeley	Princeton U	Princeton Unive	John Wiley & Sons, Inc
1964	Delinquency an	David Matz	Hans Zeisel	UC, Berkeley	Princeton U	Princeton Unive	John Wiley & Sons, Inc
1964	Delinquency an	David Matz	Irving Piliavin	UC, Berkeley	Princeton U	Princeton Unive	John Wiley & Sons, Inc
1964	Delinquency an	David Matz	James F. Short, Jr.	UC, Berkeley	Princeton U	Princeton Unive	John Wiley & Sons, Inc
1964	Delinquency an	David Matz	Jerome Skolnick	UC, Berkeley	Princeton U	Princeton Unive	John Wiley & Sons, Inc
1964	Delinquency an	David Matz	Marvin B. Scott	UC, Berkeley	Princeton U	Princeton Unive	John Wiley & Sons, Inc
1964	Delinquency an	David Matz	Melvin Tumin	UC, Berkeley	Princeton U	Princeton Unive	John Wiley & Sons, Inc
1964	Delinquency an	David Matz	Philip Selznick	UC, Berkeley	Princeton U	Princeton Unive	John Wiley & Sons, Inc
1964	Delinquency an	David Matz	Ruth Kornhauser	UC, Berkeley	Princeton U	Princeton Unive	John Wiley & Sons, Inc
1964	Delinquency an	David Matz	Sally Davis	UC, Berkeley	Princeton U	Princeton Unive	John Wiley & Sons, Inc
1964	Delinquency an	David Matz	Sheldon Messinger	UC, Berkeley	Princeton U	Princeton Unive	John Wiley & Sons, Inc
1964	Delinquency an	David Matz	William Peterson	UC, Berkeley	Princeton U	Princeton Unive	John Wiley & Sons, Inc

Figure 2. A partial snippet of the 1964 C. W. Mills Award winner and the eight columns of data that was used for analysis.

The column headings are: "Year," "Book Title," "Author," "Academic Acknowledgements," "Authors' Institution @ Publication," "Author UG," "Author PhD," and "Publisher."

A truncated snippet of all the raw data for all the winners from 1964–2017 in Mathematica looks like:

Figure 3. A truncated snippet of the entire data set of the C. W. Mills winners, 1964–2017.

The actual output was delimited, as the entire data set has over 2,581 rows. The snippet shows that there is one large set of data with nested subsets.

When I analyzed all of the acknowledgments of the Mills Award winners from 1964 to 2017, in addition to ascertaining basic SNA metrics, it became evident that there were no books on Asian Americans nor any Asian American authors.[78] I am not sure if this was because Asian Americans were perceived simultaneously

as a model minority and invisible minority or, if this omission was a result of some other factor. Ironically, one of the more damning findings with respect to who wins the Mills Award was that there may be a utilization of social capital at best regarding nodes and institutions, and social reproduction and closure, at worst. Broadly speaking, social capital can be conceived of as the fungibility of social relationships for some type of gain.[79] Euphemistically, social capital posits that "it's not what you know, it's who you know." Social capital, in addition to other forms of capital (such as human and cultural) and social markers, may lead to social reproduction, or social closure whereby organizations do not allow for upward social mobility as they intentionally maintain the status quo.

Despite the selection biases that shape Asian inflows, as well as the immigrant stock's achievements via social reproduction, as a group, the term "bamboo ceiling" seems appropriate for Asian Americans and the C. W. Mills Award.[80] In fact, I am not sure that there was a winning book that could be used in AAS. Based on the data, I could infer that the Mills Award recipients were not Asian, that going to an elite school for graduate school was more important than where one received their undergraduate degree, and that getting published by the University of California Press increased the odds of winning. All the elite institutions that were overrepresented (based on where the winning author completed their undergraduate degree and doctorate) also have Asian student overrepresentation in their undergraduate and graduate programs, and of course, there are excellent Asian American scholars who have written about Asian American issues. One would never know this based on the Mills Award.

Considering my explorations, I also wondered if analogous SNA patterns would be found when analyzing acknowledgments from other book awards. Although we all have anecdotes regarding opportunities and constraints, there are troves of data that have yet to be interfaced with CS. Theoretically, one could extract, clean, and analyze endless data from book acknowledgments and then ascertain not only who is winning awards, but *why*. Or who is not winning and why? Such a project could be done for the Book Awards that are given by the Association for Asian American Studies. This could explicate and illustrate how invisible colleges persist between faculty and students. In sum, having provided an overview of CS as well as providing two examples of how AAS can scale systematically to foster discovery and recovery, I want to pivot and discuss how CS can benefit students in the next section, in contexts of critical pedagogy and AAS.

3) Students Who Can Conceptualize or Use CS Will Gain More Portable Human Capital

For almost two decades, I have been teaching at a private Christian liberal arts college. In an effort the make student learning more efficient, as with all efficiencies, there have been unintended consequences. For example, following some curriculum changes, it appears that many students are "tag hunting." Let me explain and perhaps if you are an educator, you have experienced this too. To ensure that students receive a Christian liberal arts education, some courses are required, and others are designated with a "core competency." There is a total of ten core competencies that students must fulfill, and faculty members must request which of their courses are tagged accordingly. Put another way, there are ten tags that students must collect to meet their graduation requirements. For example, my Asians in America course is tagged with DUS (Diversity in the United States). Based on the professor's prerogative, with bureaucratic oversight, one assignment per metric may be used to assess what percent of the students met a core competency requirement. What could go wrong, I know.

I have been at my institution long enough to remember when students took courses based on their interests as well as risk aversion to lower grades. Now, it seems that students are seeking classes for the tags, especially classes with multiple tags, perhaps at the expense of curiosity and creativity. Thus, if someone took a DUS course and utilized rational choice theory—maximized their benefits and minimized their costs—they may avoid Asians in America altogether if they already earned their DUS tag. And they may avoid professors who have higher standards and flock to courses that dole out higher grades with minimal effort. Why work harder when you can get the same tag (and higher grade) with less work? While students who attend Illinois public schools may be required to learn about Asians via the TEAACH Act, at my college, they can avoid pedagogy about the fastest growing racial group in the U.S.,[81] and get a DUS tag. This is a bit unfortunate, since my course may be the only one that covers the experiences of the six Asian American sub-groups at our institution; our department is also the only department that offers anything related to AAS, via an Asian American studies minor in sociology.[82]

Thus, while fewer students at my school are being exposed to AAS, perhaps even fewer are engaging with an intersection of AAS and CS. Students may be facing a double whammy. Earlier, I mentioned some methods that "most sociologists" cannot do. Unfortunately, data are increasingly becoming the new gold mines. Today's students are entering labor markets with more prospective employers who desire their workers to understand if not execute the collection and curation of data. Buzzwords such as AI, GAI, data centers, robotics, FSD, and

qubits are no longer science fiction but are yesterday's realities. Just as there may be a specious divide between AS and AAS, hard differentiations between the liberal arts and STEM fields may also be a false dichotomy. An interdisciplinary framework is especially important considering how globalization fosters a bidirectional flow of labor and capital. By no means do I mean to denigrate the liberal arts; I am arguing for a "both and" rather than an "either or." AAS should integrate CS in some manner to benefit our students and CS may be a way to attract STEM-oriented students to think about AAS. For example, one of my students (an "ABC") in Intro was a bit confused how Asians could be simultaneously perceived as the model minority and a yellow peril. Sociological explanations, proper, did not seem to help. After I asked him what his major was (mathematics), I replied "Schrödinger's cat." He and another student (white female) both nodded their heads to tell me they got my point. When I asked if there were any STEM majors in the room, some hands went up. I said the treatment of Asians in America may be synonymous with concepts such as "triple point," "positive feedback," and "non-linear dynamics and chaos." They also gave me nonverbal cues that they understood the sociological point, and I realized I was nuancing historical rhymes.

In teaching AAS-related motifs, I also hope that CS will also become part of my students' human capital. Occasionally, I explicate how I try to move from concept to execution with software platforms; currently I am dabbling with Mathematica (also known as the Wolfram Language [WL]). Over the years, quite a few students have become intrigued with CS in general, and how the WL works, in particular. There have been a few students who also wanted to learn how to use Mathematica, and until our school rescinded the funds to cover the annual subscription fee, it was available to all students, and I was able to "teach" a handful of my research assistants. I use the word "teach" very loosely as "introduced "or "redirected" may be more accurate. A textbook, *An Elementary Guide to the Wolfram Language*, is available online for free and there are countless tutorials for anyone who is interested in learning another "language."[83] As noted by Achim Edelmann et al., "Another set of challenges concerns access to training in computational social science. Coding in open-source software, embedding field experiments in online platforms, and dealing with unconventional data structures are not part of regular training within most sociology departments."[84] If you find this statement to be true for you, I highly recommend experimenting with the WL.

One of my more precocious research assistants enjoyed the WL so much that we spent hours upon hours comparing different functions we created. She became so proficient, that she applied for and was accepted to attend the annual Wolfram Summer School (WSS).[85] She said it was a life-changing experi-

ence and encouraged me to apply the following year. The application process is straightforward. Basically, once you get past a screening process, you must show competency in the WL by solving as many problems as you can. Then you must articulate a problem and how would you use the WL to come up with a solution. In addition to my heavy teaching load, countless hours of mentoring and counseling students, ministry duties with churches, and most importantly, trying to be a husband and father especially as I cherished the remaining years with my daughters before they went off to college, I carved out time to learn the WL, and miraculously or erroneously I also had the privilege of being selected to attend the WSS in 2019.[86] My research proposal focused on the C. W. Mills Award. To be honest, the coding was so complex, that I still do not understand all the algorithmic syntax. Wolfram *Language*. Conceptually, I knew that I could use CS for my project, and I knew what I wanted the algorithms to do, but I did not have enough "literacy." Although I tried to come up with some of the functions and had a mountain of data and questions, some of the official Wolfram personnel—notably Jessie and Bob—were the main contributors to writing the algorithms that were needed for my project. I guess the WL can be added to the list of what "most sociologists" cannot do.

Daunted and humbled, I continue to introduce my students to the WL as a tool to actualize CS. Whether or not students are able to code basic functions, by grasping the WL and CS, they will have skills to conceptualize problems and solutions and thus have the "language" to be a part of a team or to lead a team. Considering shrinking budgets and enrollments in some of our academic institutions, and challenges to promoting issues of diversity, teaching CS with AAS, organically, will only add to the students' portable human capital. I believe that students who can connect Asian American history and historiography with CS will be better equipped with portable skills in our increasingly shrinking and expanding worlds. Sure, CS allows students to continue to recover and discover in the spirit of the TWLF and AAPA, and to create their own histories well beyond the TEAACH Act. However, human capital also has material payoffs. One Asian American sociology major who engaged in her journey of discovery and recovery, notably in sociology courses that were eventually tagged as DUS, learned how to code on her own and was able to grasp how CS was practical. In fact, she tweaked her LinkedIn profile to such an extent that she was receiving job offers from companies whose algorithms reached out to her. Today, she is a senior program manager at a "Magnificent Seven" company. Finally, as I work on (revising) this article, the WL has already added an AI function into their platform. One no longer needs to code, per se, but can direct the platform to execute a solution and the code will follow. (I will explore this function during the upcoming summer.) This is not surprising regarding today's landscape of AI

and GAI, and I would not be surprised if AI software becomes a norm for our students, thus taking CS and potentially AAS, to another level. As teenagers are already using ChatGPT for their homework,[87] I want to conclude this paper with some possibilities for AAS and CS and beyond.

4) Increasing Computational Power and More Sophisticated Software Will Bridge AAS Not Only with CS, but Also with Complexity Science and AI/GAI, and Thus Advance AAS to Unprecedented Horizons

The ability to teach AAS effectively requires more than a presentation of facts. Critical pedagogy must incorporate contexts and one example of contextualizing data entails "emergence," a term which is used in both sociology and complexity science. In sociology, George Mead's concept of emergence theorizes how meaning develops between two individuals.[88] With respect to complexity science, emergence refers to how group behavior can be synchronous without centralized coordination, sometimes referred to as swam behavior to depict the movement of bees, fish, dolphins, and traffic jams.[89] Most educators can recall those "moments" during a lecture, when they sensed a cognitive rhythmic entrainment and joy in their students' discovery and recovery. Sometimes a nexus was formed between an educator and an individual student, and sometimes the magic was felt with the entire class. These moments usually center on a "fact," which can be presented with theory and or data. Years ago, C. W. Mills cautioned his readers of two extremes which were both iatrogenic for social scientists, theory without data (grand theory) and data without theory (abstracted empiricism).[90] Accordingly, AAS should entail a combination of "critical pedagogy and activist scholarship," which balances theory and data, with the development of organic intellectuals in mind. I want to conclude this article by discussing some possibilities for future research.

Facts and pedagogies will always have biases because all humans are biased. The issue then becomes, are we aware of our biases and able to temper them? It is erroneous to think that computational-*anything* is value-free because it is based on algorithms. Unfortunately, errors made by a single person can be scaled with technology. For example, in my exploration of the Mills award, was I discovering patterns related to "invisible colleges" or was I projecting my biases into my findings? Since we all have biases, these must be tempered or they will be magnified via CS. Similar criticisms have been noted in Safiya Noble's *Algorithms of Oppression: How Search Engines Reinforce Racism*, and Cathy O'Neil's *Weapons of Math Destruction: How Big Data Increases Inequality and Threatens Democracy*.[91] Perhaps if more Americans had grasped what these data scientists had warned regarding the potential hazards of monetizing large data sets and replacing

human interactions with proxies, understood what Jennifer Doudna, who won the Nobel Prize in Chemistry in 2020, had accomplished regarding CRISPR and mRNA[92], and heeded the epidemiological warnings of COVID by persons such as Zeynep Tufekci,[93] much of the anti-Asian COVID-19 backlash could have been mitigated. Perhaps you noticed that all these data scientists and scientists are women. Virginia Woolf and Charlotte Perkins Gilman's arguments about one hundred years ago for women are also applicable for AAS, we need requisite resources to create our own epistemologies.[94] Unfortunately, too many of the policymakers and or societal influencers were white men who lacked cultural competency with respect to intersectionality. It appears that we continue to make errors whereby we can predict irrational behavior.[95] More rhymes.

Earlier in the paper, I quoted William Bainbridge.[96] According to Edwin Black, IBM punched cards were used to surveil and track Jewish persons to scale genocide, hence the title, *IBM and the Holocaust: The Strategic Alliance Between Nazi Germany and America's Most Powerful Corporation*.[97] Perhaps such evil could be called computational genocide. One Jewish person who had to flee Nazi persecution was Benoit B. Mandelbrot, who is recognized by many as the person to have discovered fractal geometry. In his autobiography, he recounts how he moved from Poland as a child to France and eventually became a mathematician. Upon working at (wait for it) IBM, he used the computational technology to discover fractal geometry which is a subset of CS and complexity science.

Regarding fractals, the interplay of structure, agency, and contingency poses some conundrums. Further, Mandelbrot may have used IBM technology to compute and visualize fractals as we know it today, but he was not the first to have discovered this mathematical wonder. Another mathematician, Ron Eglash, evinces that various African cultures have long utilized fractals in various aspects of their cultural practices. A myopic presentation of Mandelbrot's discovery of fractals is part of a longstanding redefining of narratives—erasure and misrepresentation—which promotes West-to-East diffusionism and reifies "Occidentalism" contra "Orientalism." Another example of such ethnocentrism could entail "academic" conversations of capitalism via Karl Marx and Adam Smith while precluding Ibn Khaldun's *Prolegomena*.[98]

If historiography is written by the victors, then the merging of CS and AAS will be written by those who write the algorithms. Thus, the one who oversees the codes, such as the WL, becomes a power node in critical pedagogy. And pedagogy as power will be scaled via technological advancements. Hopefully, CS can have a role in identifying future problems and providing solutions in AAS. Earlier in this paper, I mentioned a report by Stop AAPI Hate, titled "Righting Wrongs." I want to highlight a section that depicts a challenge in AAS and where CS (perhaps AI/GAI) can add value:

> Research in the last three decades makes visible some, though not all, of the longstanding discrimination experienced by Asian Americans. After the racially motivated murders of Vincent Chin, Jim Loo, Navroze Mody, Hung Truong, and others in the 1980s, the independent and bipartisan U.S. Commission on Civil Rights held a series of three roundtables with Asian Americans and conducted a subsequent investigation that culminated in the 1992 report Civil Rights Issues Facing Asian Americans in the 1990s.[99]

The report further claims that the AAPI community speaks over one hundred different languages and at 74 percent, the first generation are the most likely among any other ethnic group to speak a language other than English at home. AI is already using large language models in multiple languages via text and audio formats. The hardware is already shifting from binary to quantum bit processing and software such as Palantir, which is a leading AI platform that is used in the government and private sectors, is also finding inroads into academic research.[100] In perusing the use cases, agencies such as the NIH and CDC have been using Palantir and the research seems to be skewed with the health and medical fields. Absence is notable for, you guessed it, sociologists. And just like IBM, which was used to monetize genocide as well as (re)discover fractals in various forms, AI platforms like Palantir can also be used by the military to kill with efficiency or save lives via preventative measures. Finally, even though CS and AAS have yet to merge to provide fruitful endeavors, at times I wonder if CS is sufficient and if there is room for something more expansive, such as complexity science.[101] According to Mauricio Salgado and Nigel Gilbert, "Computational sociology (or social simulation) is an outstanding method for modelling and building explanations of social processes, based on ideas about the emergence of complex behaviour from simple activities. … This property is known as 'self-organisation.'"[102]

Perhaps in the spirit of AAS, in discovering, recovering, and remembering some of our roots that go back to the TWLF and AAPA, future generations will also self-organize and implement CS into our critical pedagogies.

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