Ethics of Accountability
in the Future of the Criminal Justice System:

The use of Artificial Intelligence in Pretrial Bail Determinations & Assessment of Police Officer Misconduct

Final Report

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"*The concerns we address today may very well be alleviated in the future. It is incumbent upon the criminal justice system to recognize that in the coming months and years, additional research data will become available. Different and better tools may be developed. As data change[s], our use of evidence-based tools will have to change as well. The justice system must keep up with the research* ***and continuously assess the use of these tools***."

State of Wisconsin v. Eric L. Loomis, 371 Wis. 2d 235, at 242 (2016).[1]

I. Introduction

We stand at the intersection of many fascinating historical moments. Covid-19 has transformed every aspect of daily life across the globe. The murder of George Perry Floyd, Jr. in Minneapolis on May 25, 2020 catalyzed criminal justice reform and racial justice efforts across the country and throughout the world. The U.S. Congress is conducting extensive investigations and hearings related to enacting regulatory legislation on the use of data analysis, artificial intelligence (AI), and technologically-based "misinformation campaigns" that have proven to hold drastic implications for multifarious aspects of our national and international social systems, including privacy, corporate monopoly and, as we have already witnessed, invasive influences within election systems. A deeper issue involved in these discussions is that these algorithms have already exhibited their ability to exercise subtle, yet powerful, influence upon our most personal behavioral and cognitive patterns with a directorial effect upon our actions and decision-making.[2] Despite the profundity of these consequences, the speed at which algorithms are colonizing our everyday lives is far outpacing legislative and governmental oversight, which raises many important questions about practitioner ethics in practice. [3]

This project has explored the space between these co-occurring socio-political phenomenon – the application of AI within the criminal justice system in detention rates, bail determinations, police use of force, and internal affairs investigations with a geographical focus upon Montgomery County, MD. At the heart of each of these topics lie a discussion about ethics, bias, systems of inequality, legislative and corporate responsibility, and determinations of accountability. Ironically, AI is also being utilized to address all of these questions. Thus, it is important that data scientists designing, coding, applying, and monitoring data and AI programs have an active awareness of these considerations when initiating programs that will be used in societal systems that have drastic consequences for multitudes of human lives. Governments have a responsibility to monitor the use of these programs to assess whether the programs are actually contributing to systemic improvements and to acknowledge, explore, and minimize bias and injustice that will

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[1] Greenstein, M.N. (February 03, 2020). AI and a Judge's Ethical Obligations. American Bar Assoc. https://www.americanbar.org/groups/judicial/publications/judges_journal/2020/winter/ai-and-judges-ethical-obligations/ [Bold Emphasis Added].

[2] Anderson, J. & Rainie, L. (December 10, 2018). Artificial Intelligence and the Future of Humans. Pew Research Center. https://www.pewresearch.org/internet/2018/12/10/artificial-intelligence-and-the-future-of-humans/

[3] Kelly, M. (Apr. 27, 2021). Congress is way behind on algorithmic misinformation. The Verge. https://www.theverge.com/2021/4/27/22406054/facebook-twitter-google-youtube-algorithm-transparency-regulation-misinformation-disinformation

inevitably be produced by algorithms designed by humans, rather than providing public relations-rich sound pieces espousing misleading, data-poor absolute faith in the objectivity of machines.[4] In addition to policy and legislation, every individual can contribute to countering the omnipresent culture of hyper-efficiency and maximized output that has tilted the scales away from intentional, ethical, high-quality, and even intelligent practice and management in our daily procedures throughout our various industries.[5] As U.S. Supreme Court Justice John Roberts once stated, the most difficult but most important task we can undertake is to sit and reflect. "Acquiring more information is less important than thinking about the information you have."[6] Regardless of the degree with to which one may agree with that statement, it is crucial that we collectively engage in these important debates with meaningful dialogue investigating the available data, rather than perpetuate superficial discussions ruled by concerns of marketing and maximized profit.[7] The reality is that enforcement of mandated checks and balances upon the AI industry will not be accomplished until regulatory legislation is enacted, in the meantime this is a plea to all individuals, particularly management and executive leaders in industry and government actors applying AI to social systems that drastically impact human lives, to improve the quality of ethical practices and increase human-cost awareness within their workplace cultures.

The project is separated into three inquiries investigating the following questions:

1. Have AI algorithms used in bail determinations reduced the pretrial detention rates?
2. Have AI algorithms and risk assessment tools reduced bias in pretrial bail amounts?
3. Can AI algorithms improve accountability for police misconduct?

II. Dataset Overview[8]

To maintain the local nucleus of the project, all of the datasets are sourced from dataMontgomery with the exception of one dataset that contains information not provided by Montgomery County. That dataset is provided by CT data, the Connecticut government open-sourced database. The CT dataset provides recorded bail amounts for defendants ranging from 1980 to present along with demographic information and types of crimes alleged. The dataset was created in 2016 and much of the data prior to that date appears to be lacking in thoroughness of entries. The majority of the datasets utilized from dataMontgomery temporally aligns, also falling within the 2016 to present date ranges.

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[4] Blackwell, A.F. (2019). Objective functions: (In)humanity and inequity in artificial intelligence. HAU: Journal of Ethnographic Theory, 9(1). doi: https://doi.org/10.1086/703871

[5] For an excellent discussion of this topic, see Martin, R.L. (Jan-Feb 2019). The High Price of Efficiency. Harvard Business Review, pp. 42-55. https://hbr.org/2019/01/the-high-price-of-efficiency. See also Mintzberg, H. (14 Jul. 2017). What could possibly be wrong with "efficiency"? Plenty. Henry Mintzberg. https://mintzberg.org/blog/what-could-possibly-be-wrong-with-efficiency-plenty; Haque, U. (Mar. 01, 2016). Our Economy Is Obsessed with Efficiency and Terrible at Everything Else. Harvard Business Review. https://hbr.org/2016/03/our-economy-is-obsessed-with-efficiency-and-terrible-at-everything-else

[6] Greenstein, M.N. (February 03, 2020). AI and a Judge's Ethical Obligations. para. 7, American Bar Assoc. https://www.americanbar.org/groups/judicial/publications/judges_journal/2020/winter/ai-and-judges-ethical-obligations/

[7] Chadwick, P. (Oct. 28, 2018). To regulate AI we need new laws, not just a code of ethics. The Guardian. https://www.theguardian.com/commentisfree/2018/oct/28/regulate-ai-new-laws-code-of-ethics-technology-power

[8] Data analysis of all datasets using Python, as well as supporting .csv files and API links, are available here: https://github.com/jcj217-mc/Data_205_Final_Project

A. Pre-trial Detention Rates

The following datasets were analyzed to assess pretrial bail and detention practices:

1. **Correctional Facility Average Daily Population (2015-2020)**.[9] This dataset contains average daily population counts for people participating in various pre-trial services or detained in a Montgomery County correctional facility.
2. **Crime Year to Date (2019 to present)**.[10] This dataset contains arrestee information including the type of offense, number of alleged victims, various location variables and date/time of incident. No demographic information of the alleged perpetrators, complainants or officers is included.
3. **Central Processing Unit (CPU) Processing/Booking of Arrestees (2018-Present)**.[11] This dataset contains monthly counts of persons processed at the Central Processing Unit at the Montgomery County Detention Services, where persons are processed immediately after arrest. It includes counts on how many people are released, released with a bond or detained post-arrest and counts on arrests that occur with or without warrants.

B. Pretrial Bail Amounts

1. **Accused Pre-Trial Inmates in Correctional Facilities (2016-2021)**.[12] This dataset from the CT data contains demographic information and bond amount information for arrestees in Connecticut with data from the 1980s to present.

C. Police Internal Affairs Allegations

1. **Internal Affairs Allegations (2015 – Present).[13]** The dataset contains allegations against officers submitted to the Internal Affairs Division. Information includes whether complaint was from an internal/external source, what the basis of the complaint is, and if completed, what the investigation finding was.
2. **Internal Affairs Discrimination Cases (2015-Present).[14]** This dataset contains complaints of discrimination and/or harassment filed against officers with the Internal Affairs Division. Internal or external source of the complaint and investigation findings were included, if completed.

III. Use of AI in the Montgomery County Criminal Justice System

AI is currently being used in nearly half of all counties in Maryland to assist judges' bail determinations.[15] Yet, there is no public data available on the input training sources of the

[9] The dataset is available at: https://data.montgomerycountymd.gov/Public-Safety/Correctional-Facility-Average-Daily-Population/gknn-vrfa.

[10] The dataset is available at: https://data.montgomerycountymd.gov/Public-Safety/Crime-Year-To-Date-2019/39y2-cdbh.

[11] The dataset is available at: https://data.montgomerycountymd.gov/Public-Safety/Central-Processing-Unit-CPU-Processing-Booking-of-/sari-cs3z.

[12] The dataset is available at: https://data.ct.gov/Public-Safety/Accused-Pre-Trial-Inmates-in-Correctional-Faciliti/b674-jy6w.

[13] The dataset is available at: https://data.montgomerycountymd.gov/Public-Safety/Internal-Affairs-Allegations/usip-62e2.

[14] The dataset is available at: https://data.montgomerycountymd.gov/Public-Safety/MCPD-Internal-Affairs-Discrimination-Cases/tkbe-6sx5.

[15] Roberts, A. & Eckert, N. (Jan. 3, 2019). Maryland Courts Begin Using Artificial Intelligence in Bail Decisions. Maryland Reporter (via Capital News Service), para. 6.

algorithms utilized, nor is any data publicly available on assessment and data relating to monitoring or validating the "risk score" outputs and metrics. This is discussed further in section IV.D.

IV. Data Findings and Insights

A. Pre-trial Detention Rates

The Director of Montgomery County's Department of Correction and Rehabilitation claimed a 30% decline in the pretrial detention population after implementing the bail algorithm.[16] However, the CPU Dataset shows that from 2016 to 2020 there was a 29.27% decrease in total arrests, which could account for the 30% decline the Director attributed to implementation of the algorithm.[17] Further, the percentage rate of people arrested who are then detained has increased.[18] The percentage rate of persons detained immediately after arrest has increased from 25% in 2017 to 40% in 2020 and 2021.[19] From 2016 to 2021, the overall percentage of defendants detained has increased and the overall percentage of defendants in pretrial services has decreased.[20] This is the opposite of what was expected with the algorithm implementation. While, as expected, the number of people who are in pre-probation have increased however overall pretrial services have decreased due to the drastic decrease in the number of defendants in alternative community services and intervention programs for substance abusers.[21] The increased detention rates are not explained by changes in violent versus non-violent crimes. Alleged violent crime arrests have remained steady at approximately 10% of arrests.[22] Further, bail rates would not explain the increased detention rates because bail rates have been steadily declining since 2015.[23]

In sum, the argument that the pretrial bail algorithm in Montgomery County has resulted in, or caused a reduction in the number of people detained pretrial is not supported by the available data in Montgomery County. As we all know, correlation does not imply causation. In fact, the data suggests that percentage rates of persons detained pretrial have actually increased over the past few years. Further, while pretrial probation rates have increased, alternative community services and intervention programs for substance abusers have drastically decreased. More comprehensive investigation, collection, and validation of bail and pretrial data are needed to determine exactly how implementation of AI algorithms have affected pretrial detention total numbers and percentage rates in Montgomery County.

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https://marylandreporter.com/2019/01/03/maryland-courts-begin-using-artificial-intelligence-in-bail-decisions/

[16] Roberts, A. & Eckert, N. (Jan. 3, 2019). Maryland Courts Begin Using Artificial Intelligence in Bail Decisions. Maryland Reporter (via Capital News Service), para. 6.
https://marylandreporter.com/2019/01/03/maryland-courts-begin-using-artificial-intelligence-in-bail-decisions/

[17] Refer to Graphs on PowerPoint slide 13.

[18] Refer to Graph on PowerPoint slide 14.

[19] Refer to Graph on PowerPoint slide 17.

[20] Refer to table on PowerPoint slide 15.

[21] Refer to Graph on PowerPoint slide 16.

[22] Refer to Graph on PowerPoint slide 18.

[23] Refer to Graph on PowerPoint slide 19.

B. Bias in Pre-trial Bail Amounts

Again, because neither Montgomery County nor Maryland provide an open dataset on bail amounts I utilized a comprehensive dataset from Connecticut with bail amounts, demographic information, and type of crime alleged, among other variables for the time period of 1980 to present.[24] The Connecticut data dataset exposed the median bail amount as $100,000. The mean bail amount was $247,739. Only 6% of bails are less than $5,000 and 75% of bails are over $33,500. The CT dataset made clear that there are disparate average bail amounts based on race and gender of the defendant.[25] The racial disparities remain consistent regardless of gender and whether the alleged crime was violent or non-violent.[26] Racial Disparities remained throughout the time period covering implementation of algorithms and risk assessment tools.[27] The data showed disparities based on race increasing along with bail amount. For example, for bails under $1000 there were negligible differences in bail amounts based on race, however with each incremental increase the disparities became apparent. Bails over $100,000 showed nearly a 20% disparity between black and latinx population bail amounts and bail amounts for the white population.[28] The racial discrepancies remained and, even grew, in recent years.[29]

Evaluating the data for statistical significance based on racial group classification, the Kruskal-Wallis Test was used in the place of an ANOVA test, since the bond amount variable in the dataset was not normally distributed. The five million plus entry dataset was organized by racial classification and then random samples were taken with n=5000 each. The statistical test was then run on the conjoined random-sample based dataset. The resulting p-value was 0.0003; hence, we reject the null hypothesis. Median bond amounts have statistically significant differences based on racial group classification.[30]

In sum, the data makes clear that the use of AI Algorithms and Pretrial Risk Assessment Tools have not resulted in a reduction of bias and racial discrepancies in bail amounts. Montgomery County provides no dataset to examine bail amounts locally.

C. Police Internal Affairs Allegations & Accountability Rates

The dataMontgomery datasets on Police Internal Affairs (IA) Investigations were less comprehensive than the other crime focused datasets. But the overall dataset shows that IA investigations have dramatically decreased since 2015. It is not clear whether this dataset reflects all of the investigations handled by the IA department or if the datasets contain incomplete information. However, the IA investigations into complaints of discrimination and harassment have been steadily increasing since 2013.[31] Regarding accountability, corrective action was taken in 17% of all IA complaints, whereas discrimination and harassment cases resulted in corrective action in only 2% of cases.[32] In the evaluation of cases regarding use of force complaints and abuse of authority

[24] The dataset was created in 2016 and the information post-2016 was much more comprehensive than years prior to 2016.
25 Refer to Graph on PowerPoint slide 22.
[26] Refer to Graphs on PowerPoint slide 23.
[27] Refer to Graph on PowerPoint slide 24.
[28] Refer to tables on PowerPoint slide 25.
[29] Refer to tables on PowerPoint slide 26.
[30] Refer to PowerPoint slide 27.
[31] Refer to Graphs on PowerPoint slide 32.
[32] Refer to Graphs on PowerPoint slide 33.

allegations, it was found that corrective action was taken in 0 out of 43 use of force allegations and only 3 out of 30 abuse of authority IA allegations.[33] These proportions delineating when corrective action was taken were consistent regardless of whether the complainant was internal or external to the police department.[34] The available data suggests that in Montgomery County: First, there is a lack of accountability for police officer misconduct. Second, there is little to no accountability in cases of alleged police discrimination, harassment, abuse of authority, and use of force. Third, we have no available data on what *types* of corrective action were taken, when they were. Finally, there appear to be many cases that result in "administrative closure" and many open cases that are four and five years old, if not more. While not covered in the scope of this report, the data suggests that many IA complaints simply are put to rest through bureaucratic patience, remaining open and unprocessed until they have been forgotten about and then are administratively closed. The IA process should be investigated further to determine if this is actually occurring *en masse*, as the data suggests.

V. Use of AI in the Criminal Justice System: the Importance of Metrics & Validation

Despite the fact that AI is currently being used in nearly half of all counties in Maryland to assist judges' bail determinations,[35] there is no public data available on the input training sources of the algorithms utilized, nor is there any data publicly available on assessment and data relating to the "risk score" outputs. After numerous searches for any publicly available data nationwide on the use, outputs, or training information of AI for bail determinations, there were none that the author found available. To the contrary, public officials were found to have minimized and dismissed the need for such evaluative data. In one Maryland County the acting director of the corrections division was asked whether the county tracks metrics that could substantiate claims that the tool provides fair and accurate scores across different demographics. The official's response was very concerning: "We do not discriminate, and I do not feel the assessment tool does at all … We don't measure it. We just know its fair."[36]

Data science experts recommend regular validation of any AI applications, at least once per year.[37] Neural network and deep learning programs include elements that can easily track and record the validation and accuracy metrics for each program, which can be produced for more extensive validation reviews. Nonetheless, "Montgomery County is now

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[33] Refer to Graphs on PowerPoint slide 35.

[34] Refer to coding In the IA and IA Discrimination datasets at https://github.com/jcj217-mc/Data_205_Final_Project/blob/main/Data205_Project_IA.ipynb and https://github.com/jcj217-mc/Data_205_Final_Project/blob/main/Data205Project_IA_Discrimination.ipynb

[35] Roberts, A. & Eckert, N. (Jan. 3, 2019). Maryland Courts Begin Using Artificial Intelligence in Bail Decisions. Maryland Reporter (via Capital News Service), para. 6. https://marylandreporter.com/2019/01/03/maryland-courts-begin-using-artificial-intelligence-in-bail-decisions/

[36] Roberts, A. & Eckert, N. (Jan. 3, 2019). Maryland Courts Begin Using Artificial Intelligence in Bail Decisions. Maryland Reporter (via Capital News Service), para. 48. https://marylandreporter.com/2019/01/03/maryland-courts-begin-using-artificial-intelligence-in-bail-decisions/

[37] Roberts, A. & Eckert, N. (Jan. 3, 2019). Maryland Courts Begin Using Artificial Intelligence in Bail Decisions. Maryland Reporter (via Capital News Service), para. 54-67. https://marylandreporter.com/2019/01/03/maryland-courts-begin-using-artificial-intelligence-in-bail-decisions/

in the middle of revalidating their tool for the first time since developing it 10 years ago."[38] Validation is important to determine whether the tools are actually reducing systemic biases and inequality that proponents have claimed AI algorithms counteract. In other jurisdictions where such validation has actually occurred the findings have been consistent and clear that the algorithms currently utilized in bail determinations do **not** reduce systematic biases and inequalities. To the contrary, researchers have found that "the tools are often built on data that reflects racial and ethnic disparities in policing, charging, and judicial decisions."[39] Previous advocates of algorithmic-based bail determinations have renounced their support once the data invalidated the system's effectiveness at reducing bias.[40] In July 2019, 27 prominent academics from MIT, Harvard, Princeton, NYU, UC Berkeley and Columbia signed an open statement of concern regarding the use of actuarial risk assessments as a means of lowering jail populations.[41] The letter, which should be read as part of due diligence efforts by any government utilizing such algorithms, describes that:

> "[a]ctuarial pretrial risk assessments suffer from serious technical flaws that undermine their accuracy, validity and effectiveness. They do not accurately measure the risks that judges are required by law to consider. … This data is neither a reliable nor a neutral measure of underlying criminal activity. … Risk assessments that incorporate this distorted data will produce distorted results. These problems cannot be resolved with technical fixes. We strongly recommend turning to other reforms."[42]

Based on this letter and other illuminating research on the actual impact of these algorithms, in 2020, California voters rejected Proposition 25, which would have been the first state to entirely replace the current cash bail system with an algorithmic determination of pre-trial detention or release.[43]

Proponents promote algorithms producing risk scores as a "hail-Mary effort" to fix overburdened jails and prisons.[44] Many working within corrections systems acknowledge

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[38] Roberts, A. & Eckert, N. (Jan. 3, 2019). Maryland Courts Begin Using Artificial Intelligence in Bail Decisions. Maryland Reporter (via Capital News Service), para. 60. https://marylandreporter.com/2019/01/03/maryland-courts-begin-using-artificial-intelligence-in-bail-decisions/

[39] Simonite, T. (Feb. 19, 2020). Algorithms Were Supposed to Fix the Bail System. They Haven't. Wired, para. 8. https://www.wired.com/story/algorithms-supposed-fix-bail-system-they-havent/

[40] Simonite, T. (Feb. 19, 2020). Algorithms Were Supposed to Fix the Bail System. They Haven't. Wired. https://www.wired.com/story/algorithms-supposed-fix-bail-system-they-havent/

[41] Minow, M., Zittrain, J. & Bowers, J. (Jul. 17, 2019). Technical Flaws of Pretrial Risk Assessments Raise Grave Concerns. Berkman Klein Center for Internet & Society at Harvard University. https://cyber.harvard.edu/story/2019-07/technical-flaws-pretrial-risk-assessments-raise-grave-concerns

[42] Barabas, C. et al. (July 2019). Technical Flaws of Pretrial Risk Assessments Raise Grave Concerns. https://tinyurl.com/bailopenletter

[43] Metz, R. & Andrew, S. (Oct. 31, 2020). In California, voters must choose between cash bail and algorithms. CNN Business. https://www.cnn.com/2020/10/31/tech/prop-25-cash-bail-algorithm-california/index.html; Johnson.K. (Nov. 4, 2020). Californians reject prop 25 push to replace cash bail with algorithms. The Machine. https://venturebeat.com/2020/11/04/californians-reject-prop-25-push-to-replace-cash-bail-with-algorithms/

[44] Hao, K. (Jan. 21, 2019). AI is sending people to jail – and getting it wrong. MIT Technology Review, para. 11. https://www.technologyreview.com/2019/01/21/137783/algorithms-criminal-justice-ai/

that mental health and substance abuse issues that could be treated in the community are now treated in prisons. Today, the largest mental health institution in the US is the prison system.[45] The supplemental argument of reduced bias is also made, relying upon a deeply rooted assumption that the algorithms are somehow more objective than humans.[46] These assumptions are continuations of elemental jurisprudential assumptions of objectivity and the historical use of risk assessment tools in criminal law for decades, both of which have been demonstrated as inaccurate.[47] Reliance upon these notions of objectivity, such as was stated by the previously quoted acting Director of Corrections Division, are pernicious, inaccurate, and hold the potential to result in extreme harm to some of the most vulnerable human lives in our society.[48] Instead of confronting these assumptions, including the disproven argument that higher jail population results in greater public safety,[49] we are denying the data and resisting the drastic changes in policy and practice required to overcome our systemic problems. Consider these national statistics:

- Percent of people in city and county jails being held pretrial: **74%** +
- Median bail bond for a felony: **$10,000** +
- Average yearly income of a man who can't afford bail: **$16,000.** For women: **$11,000** +
- Percent of women who can't afford bail who have minor children: **66%** +
- Percent of pretrial population that is Black: **43%** +
- Share of jail population growth since 1983 caused by pretrial detention: **63%** +
- Annual national cost of pretrial detention: **$13.6 billion** +[50]
- Percent of **drop** in national crime over the past 20 years: **40%**[51]

Every individual who contributes to the pretrial bail system or criminal justice system, including governmental actors and data scientists writing the algorithms would benefit from undergoing the exercise of imagining yourself being arrested and accused of a crime (keeping in mind the presumption of innocence, which is espoused as a bedrock of our criminal justice system) and then held pretrial for up to 18 months. Would you lose your

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[45] Al-Rousan, T., Rubenstein,L., Sieleni, B., Deol, H. & Wallace, R.B. (2017). "Inside the nation's largest mental health institution: a prevalence study in a state prison system." BMC Public Health *17 (1)*: 342. doi:10.1186/s12889-017-4257-0. http:// dx.doi.org/10.1186/s12889-017-4257-0.

[46] Hao, K. (Jan. 21, 2019). AI is sending people to jail – and getting it wrong. MIT Technology Review. https://www.technologyreview.com/2019/01/21/137783/algorithms-criminal-justice-ai/

[47] Note (Feb. 9, 2018). Bail Reform and Risk Assessment: The Cautionary Tale of Federal Sentencing. 131 Harvard Law Review 1125. https://harvardlawreview.org/2018/02/bail-reform-and-risk-assessment-the-cautionary-tale-of-federal-sentencing/; Smith, A.B. & Blumberg, A.S. (Sept. 1967). The Problem of Objectivity in Judicial Decision-Making. Social Forces 46(1) pp. 96-105. https://doi.org/10.2307/2575326

[48] Pretrial Detention. Prison Policy Initiative. https://www.prisonpolicy.org/research/pretrial_detention/

[49] Herring, T. (Nov. 17, 2020). Releasing people pretrial doesn't harm public safety. Prison Policy Initiative. https://www.prisonpolicy.org/blog/2020/11/17/pretrial-releases/; Fleming, R. (Nov. 18, 2020). New report finds that reducing overpopulation in jails doesn't hurt public safety. AlterNet. https://www.alternet.org/2020/11/overpopulation-in-jails/

[50] Pretrial Detention. Prison Policy Initiative. https://www.prisonpolicy.org/research/pretrial_detention/ (refer to locally provided links with "+" icon).

[51] Price, S. (Feb 3, 2016). The Problem with Overpopulation in Prisons. Breaking Down Prison Reform. https://sites.psu.edu/ciblog16/2016/02/03/the-problem-with-overpopulation-in-prisons/;

job, house, car, and health insurance? How would you interact with your children? What impact would it have upon your family? How would you re-emerge and re-build your life afterwards? What experience might you have while detained and how would that impact your social, emotional and economic wellbeing? How will you be impacted if a pandemic outbreak such as COVID or tuberculosis occurred while you were detained in an overpopulated facility (as most are)?[52] If you are relatively economically secure in your own life, imagine how your answer to all of those questions would change if you lived under the poverty line and were subject to societal discriminations. These are real people's lives we are talking about and that reality must be kept central to any efforts contributing to the detention of humans.

The research exposes that Montgomery County has <u>not</u> been adequately and regularly validating their algorithm and risk assessment tools for accuracy and bias reduction. As we all know, from the great data science adage: "junk in = junk out". Validation is protection against both. Montgomery County representatives working in the Criminal Justice System must be better educated about the importance of assessment tool metrics and validation. A lesson on counteracting dehumanization in applied mechanisms, procedure and culture is also recommended.

VI. Overall Project Conclusions

A. Behavioral accountability systems should be applied equally in the Criminal Justice System, and with the least possible amount of bias, across both civilian and law enforcement populations.

According to the data, accountability systems in Montgomery County are currently unequally applied and biased – with and without the application of current AI algorithms.

B. When algorithms are used, especially in historically unequal and biased systems, regular (and preferably legislatively required) thorough evaluation and validation of algorithm metrics is crucial.

According to the research, the algorithms used in Montgomery County are not currently being adequately assessed and validated.

VII. Recommendations

A. <u>For Montgomery County Government</u>

Datasets:

1. Provide transparency by creating a bail dataset similar to the CT dataset, including demographic information, so biases in practices and results can be accurately measured.
2. Provide information in the Correctional Facility Average Daily Population dataset of the number of persons detained pretrial versus post-conviction, as well as demographic information.
3. Provide more comprehensive information regarding Internal Affairs Investigations, including more specific information regarding what kind of

[52] Hooks, G. & Sawyer, W. (Dec. 2020). Mass Incarceration, COVID-19, and Community Spread. Prison Policy Initiative. https://www.prisonpolicy.org/reports/covidspread.html

corrective action was taken and demographic information of complainant and accused. Also, evaluate the IA dataset for overlapping entries.
4. Record detailed data regarding implementation of MD's 2021 police reform acts in Montgomery County and make it available to the public – it is an opportunity for MD and Montgomery County to continue to be a national leader on this topic.
5. Create a dataset with incidences of police use of force.

Policy and Practice:

1. Sponsor legislation that all AI software must be validated at least annually and assessed for bias trends and outcome accuracy. Avoid the culture of: "We don't measure it. We just know it's fair" (for *all* algorithms utilized by the County).
2. Research applications of AI software to assess police behaviors and communication to identify patterns of misconduct.
3. Initiate Education of Montgomery County Criminal Justice Staff on the importance of risk assessment tool validation reviews.

B. <u>For Data Scientists</u>

1. Data Scientists can actively educate ourselves about the actual human consequences of our programming. It is easy to sit in a room and code without having a sense of the actual human impact of our coding (similar to the act of writing codifying legislation) – we must be intentional about it.
2. Data Scientists can intentionally counteract patterns of dehumanization and systemic inequality that may be present in the history, structure, and/or substance of training model data.
3. Data Scientists can incorporate ethics into actual practices despite pressures to maximize efficiency.
4. Data Scientists can incorporate user-friendly monitoring, assessment and validation tools for our algorithms to increase the likelihood of metrics reviews and re-assessments in practical day-to-day applications by governmental and private industry clients.

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"You have to teach your algorithm what it can do and what it cannot do because, otherwise, there is a risk that the algorithms will learn the tricks of the old cartels."
— *Margrethe Vestager*