

ETHICS OF ARTIFICIAL INTELLIGENCE RECRUITMENT SYSTEMS  
AT THE UNITED STATES SECRET SERVICE

by  
Jim H. Ong

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## **Abstract**

The White House seeks to modernize the federal hiring process with artificial intelligence capabilities. But studies have repeatedly shown, time and again, that artificial intelligence technologies express discrimination against women and people of color.

This paper examines the history and background of artificial intelligence in recruitment, then offers a policy solution to protect job applicants hired through artificial intelligence systems at the United States Secret Service.

Advisor: Paul Weinstein

*To the humanizing machines*

## **Acknowledgments**

I thank my family for all of the love and support they have given to me. Also, thank you, Eggie, my precious canine companion, for your emotional support. You are the multiplier of joy and the divider of my sorrows. You deserve every chicken jerky in the world. And I owe this paper to you, Michael Kramer, for your friendship and support over the years. I thank my mentors, Professor Paul Von Blum, George Johnston, Dr. Bhupatkar, and Dr. Kaneda for opening up avenues to my career growth and guiding me with a moral compass. A special thanks to Mr. Wroth, Abel Torres, and Chief Stakes for your exceptional leadership. You have taught me that leadership is exercised by trust and confidence, and I gave it my best thanks to you. Lastly, I dedicate this paper to Mr. Weinstein and every educator who enabled me to grow academically. Every accomplishment and success of mine—I owe it all to those around me.

## Table of Contents

I.	Action Forcing Event.....	1
II.	Statement of the Problem.....	2
III.	History/Background.....	8
IV.	Policy Proposal.....	16
	Overview.....	16
	Goal.....	16
	Authorization.....	16
	Requirements.....	16
	Implementation.....	19
	Figure 1. RAISE Development and Implementation Process Map.....	20
	Timeline.....	21
	Cost.....	21
V.	Policy Analysis.....	22
	Effectiveness and Technical Feasibility.....	22
	Efficiency and Legality.....	26
	Administrative Feasibility.....	29
	Social Feasibility.....	29
VI.	Political Analysis.....	30
VII.	Recommendation.....	38
	Curriculum Vitae.....	40

# MEMORANDUM

TO: Randolph D. Alles

FROM: Jim H. Ong

RE: ETHICS OF ARTIFICIAL INTELLIGENCE RECRUITMENT SYSTEMS

DATE: April 20, 2019

## ACTION-FORCING EVENT

In recent months, members of Congress expressed concerns to the Equal Employment Opportunity Commission regarding the growing use of facial recognition and artificial intelligence systems in the recruitment market.<sup>1</sup> Meanwhile, The White House continues to move ahead with efforts to streamline the federal hiring and security clearance process by leveraging artificial intelligence technologies.<sup>2 3</sup> But a growing number of research studies have shown that artificial intelligence and machine learning techniques express bias against women and minorities, and legal theories interpret algorithmic techniques as risk factors to the adverse impact that may unintentionally harm protected members of our society.<sup>4 5 6</sup>

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<sup>1</sup> Gershgorn, Dave. "Senators Are Asking Whether Artificial Intelligence Could Violate US Civil Rights Laws." *QUARTZ*, September 21, 2018. Accessed February 4, 2019. <https://qz.com/1398491/senators-are-asking-whether-artificial-intelligence-could-violate-us-civil-rights-laws>.

<sup>2</sup> United States of America. The White House. Office of Management and Budget. The President's Management Agenda. Washington, D.C., 2018. Accessed February 4, 2019. <https://www.whitehouse.gov/omb/management/pma>.

<sup>3</sup> United States of America. The White House. Office of Management and Budget. Analytical Perspectives. Washington, D.C., 2018. February 2018. Accessed February 4, 2019. [https://www.whitehouse.gov/wp-content/uploads/2018/02/ap\\_7\\_strengthening-fy2019.pdf](https://www.whitehouse.gov/wp-content/uploads/2018/02/ap_7_strengthening-fy2019.pdf).

<sup>4</sup> Caliskan, Aylin, Joanna J. Bryson, and Arvind Narayanan. "Semantics Derived Automatically from Language Corpora Contain Human-like Biases." *Science* 356, no. 6334, 183-86. April 14, 2017. Accessed February 3, 2019. doi:10.1126/science.aal4230.

<sup>5</sup> McKenzie Raub, Bots, Bias and Big Data: Artificial Intelligence, Algorithmic Bias and Disparate Impact Liability in Hiring Practices, 71 Ark. L. Rev. 529 (2018).

<sup>6</sup> Barocas, Solon, and Andrew D. Selbst. "Big Data's Disparate Impact." *California Law Review* 104, no. 671 (September 30, 2016): 671-732. Accessed February 4, 2019. doi:<http://dx.doi.org/10.15779/Z38BG31>.

## STATEMENT OF THE PROBLEM

The agenda set forth by The White House has created a moral dilemma in federal hiring. While artificial intelligence and machine learning systems have the potential to increase efficiencies in hiring processes, there is mounting evidence that artificial intelligence systems amplify existing human biases. The goal of The White House agenda is to expedite the hiring and security clearance process,<sup>7</sup> but the trade-off is the increased threat of civil rights against minorities and the likelihood of civil litigations.

Virtually every Fortune 500 company uses artificial intelligence systems to evaluate job applicants.<sup>8 9</sup> These automated systems use computer-based techniques like facial recognition, sentimental analysis, and natural language processing. While proponents of artificial intelligence hiring systems claim improved efficiency and reduced human error as benefits,<sup>10 11</sup> research studies have repeatedly shown that artificial intelligence systems express discrimination based on race and gender. In 2018, for example, computer scientists at the Massachusetts Institute of Technology examined gender classification tools offered by IBM, Microsoft, and Face++. The study found that every company's

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<sup>7</sup> In 2018 President's Management Agenda (PMA), the Trump administration outlined "a long-term vision for modernizing the Federal Government in key areas that will improve the ability of agencies." The modernization plan aims to remove "structural issues" so that government agencies can foster better and faster decision-making processes and, ultimately, serve the American people. The 2018 PMA defines 14 Cross-Agency Priority (CAP) goals, which federal institutions "must collaborate to effect change and report progress in a manner the public can easily track." Of the 14 CAP goals, adopting the latest technologies in Human Capital Management and the Security Clearance process make up two parts.

<sup>8</sup> Schellmann, Hike, and Jason Bellini. "Artificial Intelligence: The Robots Are Now Hiring – Moving Upstream." *The Wall Street Journal*, September 20, 2018. Accessed February 17, 2019. <https://www.wsj.com/articles/artificial-intelligence-the-robots-are-now-hiring-moving-upstream-1537435820>.

<sup>9</sup> Hallman, Jessie. "IST researchers to examine bias in AI recruiting, hiring tools." *Penn State News*, October 25, 2018. Accessed February 17, 2019. <https://news.psu.edu/story/544024/2018/10/25/research/ist-researchers-examine-bias-ai-recruiting-hiring-tools>.

<sup>10</sup> HireVue. "HireVue - Hiring Intelligence | Assessment & Video Interview Software." HireVue Video Interviewing Platform. Accessed February 17, 2019. <https://www.hirevue.com>.

<sup>11</sup> pymetrics. "Matching Talent to Opportunity." pymetrics. Accessed February 17, 2019. <https://www.pymetrics.com/employers>.

facial recognition system achieved higher accuracy on male subjects than female subjects, scoring 8.1% to 20.6% more accurately on males than females. When researchers considered ethnicity, each company performed worst on darker-skinned female subjects. Compared to lighter-skinned male subjects, machines were 20.8% to 34.4% less accurate in identifying darker-skinned female subjects' gender. Furthermore, 93.6% to 95.9% of all error occurred to darker-skinned subjects.<sup>12</sup>

The American Civil Liberties Union (ACLU) carried out a similar investigation but using members of Congress, comparing congress-members' faces against mugshots. In ACLU's analysis of Amazon Rekognition—a facial recognition tool used by at least one police department—it was found that people of color accounted for nearly 40% of all incorrect matches while they occupied 20% of seats in Congress.<sup>13 14</sup>

Some companies claim to “remove bias” from the hiring process entirely by performing sentimental analyses in video interviews,<sup>15</sup> and their clients testify to the effectiveness of these unconventional methods.<sup>16</sup> However, machines exhibit racial bias in reading human emotions. In one study, Face++ and Microsoft systems consistently categorized Blacks as

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<sup>12</sup> Buolamwini, Joy, and Timnit Gebru. “Gender Shades: Intersectional Accuracy Disparities in Commercial Gender Classification.” Paper presented at the Conference on Fairness, Accountability, and Transparency, 2018. <http://proceedings.mlr.press/v81/buolamwini18a/buolamwini18a.pdf>.

<sup>13</sup> Suppe, Ryan. “Orlando police decide to keep testing controversial Amazon facial recognition program.” *USA TODAY*, July 9, 2018. Accessed February 17, 2019. <https://www.usatoday.com/story/tech/2018/07/09/orlando-police-decide-keep-testing-amazon-facial-recognition-program/768507002>.

<sup>14</sup> Jacob Snow. “Amazon’s Face Recognition Falsely Matched 28 Members of Congress With Mugshots.” *Free Future*. American Civil Liberties Union. July 26, 2018. Accessed February 18, 2019. <https://www.aclu.org/blog/privacy-technology/surveillance-technologies/amazons-face-recognition-falsely-matched-28>.

<sup>15</sup> Lindsey Zuloaga. “THE POTENTIAL OF AI TO OVERCOME HUMAN BIASES, RATHER THAN STRENGTHEN THEM.” *HireView Blog*. May 31, 2018. Accessed February 19, 2019. <https://www.hirevue.com/blog/the-potential-of-ai-to-overcome-human-biases-rather-than-strengthen-them>.

<sup>16</sup> HireView. *Customers+*. Accessed February 19, 2019. <https://www.hirevue.com/customers>.



being angrier than the Whites, even when researchers controlled the subjects' degrees of smiling individually.<sup>17</sup>

The flaws in the facial recognition technology reached the general public when Google's facial recognition tool labeled African-Americans as gorillas in 2015. The company publicly apologized and promised to take "immediate action to prevent this type of result from appearing."<sup>18</sup> However, three years later, Google has ultimately decided to stop facial recognition services, stating that the company must work through "important technology and policy questions" before offering facial recognition services.<sup>19</sup>

Grotesque machine expressions can also be found in natural language processing (NLP).

One striking case is when the Microsoft chatbot, Tay, learned to speak racist and sexist remarks on Twitter. Twitter is a cyber medium where human users exchange messages called tweets. Here, the Microsoft chatbot learned natural forms of human language through the Twitter users it interacted, whereas humans' tweets served as the training data for Tay. The innocent chatbot quickly learned to incite hateful words against Blacks and women. Consequentially, Microsoft shut down Tay within hours of release.<sup>20</sup>

Studies have also shown that machines can mirror subconscious human bias when they are not actively presenting human bias. In 2017, computer scientists at Princeton

University discovered that implicit human biases could be found in machine corpus

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<sup>17</sup> Rhue, Lauren. "Racial Influence on Automated Perceptions of Emotions." SSRN Electronic Journal, December 17, 2018. Accessed February 20, 2019. <http://dx.doi.org/10.2139/ssrn.3281765>.

<sup>18</sup> Schupak, Amanda. "Google apologizes for mis-tagging photos of African Americans." *CBS News*, July 1, 2015. Accessed February 17, 2019. <https://www.cbsnews.com/news/google-photos-labeled-pics-of-african-americans-as-gorillas>.

<sup>19</sup> Kent Walker. "AI for Social Good in Asia Pacific." Google in Asia, Google Inc. December 13, 2018. Accessed February 17, 2019. <https://www.blog.google/around-the-globe/google-asia/ai-social-good-asia-pacific>.

<sup>20</sup> Price, Rob. "Microsoft is deleting its AI chatbot's incredibly racist tweets." *Business Insider*, March 24, 2016. Accessed February 17, 2019. <https://www.businessinsider.com/microsoft-deletes-racist-genocidal-tweets-from-ai-chatbot-tay-2016-3>.

derived from word embedding (a neural network NLP technique used to extract contextual information of words in documents).<sup>21 22 23</sup> The Princeton team created an algorithm to calculate distances between words stored in the machine's lexicon, then compared their results with psychological studies in which implicit human biases were measured. It was found that biases contained in the machine's corpus were nearly identical to implicit biases manifested by human minds. For example, machines associated pleasant words (i.e., love, peace, health) with European-American names while associating unpleasant words (i.e., hatred, murder, sickness) with African-American names; career-oriented words (i.e., executive, management, career) were closer to male names, but family-oriented words (i.e., home, marriage, children) aligned to female names.<sup>24</sup>

In spite of ethical drawbacks, NLP systems have automated millions of interviews by engaging in direct conversations with job applicants.<sup>25</sup> Furthermore, automation service providers claim that artificial intelligence systems have dramatically reduced the time and costs for some multinational companies such that these systems are integral to their clients' recruitment process.<sup>26</sup> Nevertheless, NLP machines have not always produced

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<sup>21</sup> Mikolov, Tomas, Ilya Sutskever, Kai Chen, Greg Corrado, and Jeffrey Dean. "Distributed Representations of Words and Phrases and their Compositionality." Paper presented at the Advances in Neural Information Processing Systems 26. October, 2013. Accessed February 17, 2019. <https://papers.nips.cc/paper/5021-distributed-representations-of-words-and-phrases-and-their-compositionality.pdf>.

<sup>22</sup> Pennington, Jeffrey, Richard Socher, and Christopher D. Manning. "GloVe: Global Vectors for Word Representation." The Stanford NLP Group. Stanford University. 2014. Accessed February 17, 2019. <https://nlp.stanford.edu/pubs/glove.pdf>.

<sup>23</sup> TensorFlow. "Vector Representation of Words." TensorFlow. Accessed February 17, 2019. <https://www.tensorflow.org/tutorials/representation/word2vec>.

<sup>24</sup> Caliskan, Bryson, and Narayanan, *Semantics Derived Automatically from Language Corpora Contain Human-like Biases*.

<sup>25</sup> Mya. "Mya Automates Recruitment for 60 Retailers." PRESS. January 30, 2019. Accessed February 17, 2019. <https://mya.com/press/mya-automates-recruitment-for-60-retailers>.

<sup>26</sup> TextRecruit. "Speed is your greatest recruiting asset." TextRecruit. Accessed February 18, 2019. <https://www.textrecruit.com>.

good outcomes for job candidates with certain profiles. In 2018, Amazon stopped developing an artificial intelligence recruitment tool after noticing a biased pattern in their computer program: It was discriminating against female candidates. A project that had been in development since 2014, the recruitment tool was intended to filter out only the top applicants among hundreds of resumes. Instead, the machine categorically penalized resumes containing the word: women.<sup>27</sup>

From the talent acquisition perspective, artificial intelligence presents a dilemma. On the one hand, the technology has the potential to transform the recruitment industry and organizations lagging behind the technology may end up losing top talent in competition.<sup>28</sup> On the other, executives must consider not only effective solutions to modern-day problems (i.e., high turnover) but run the risk of confronting legal issues and incurring high costs.<sup>29 30 31</sup>

The American Bar Association (ABA) warns that “there is potentially great liability” in artificial intelligence hiring systems.<sup>32</sup> In particular, the ABA highlights the possibility of

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<sup>27</sup> Dastin, Jeffrey. “Amazon scraps secret AI recruiting tool that showed bias against women.” *Reuters*, October 9, 2018. Accessed February 17, 2019. <https://www.reuters.com/article/us-amazon-com-jobs-automation-insight/amazon-scraps-secret-ai-recruiting-tool-that-showed-bias-against-women-idUSKCN1MK08G>.

<sup>28</sup> Austin Carr. “Moneyball for business: How AI is changing talent management.” *Fast Company*. Mansueto Ventures, LLC. August 16, 2018. Accessed February 18, 2019. <https://www.fastcompany.com/90205539/moneyball-for-business-how-ai-is-changing-talent-management>.

<sup>29</sup> Elejalde-Ruiz, Alexia. “The end of the resume? Hiring is in the midst of a technological revolution with algorithms, chatbots.” *Chicago Tribune*, July 19, 2018. Accessed February 18, 2019. <https://www.chicagotribune.com/business/ct-biz-artificial-intelligence-hiring-20180719-story.html>.

<sup>30</sup> Lisa Nagele-Piazza. “How Is Artificial Intelligence Changing the Workplace?” *Employment Law*. Society for Human Resource Management. November 13, 2018. Accessed February 18, 2019. <https://www.shrm.org/resourcesandtools/legal-and-compliance/employment-law/pages/artificial-intelligence-is-changing-the-workplace.aspx>.

<sup>31</sup> Kahn, Jeremy. “Sky-High Salaries Are the Weapons in the AI Talent War.” *Bloomberg Businessweek*, February 13, 2018. Accessed February 18, 2019. <https://www.bloomberg.com/news/articles/2018-02-13/in-the-war-for-ai-talent-sky-high-salaries-are-the-weapons>.

<sup>32</sup> Gay, Darrell S., and Abigail M. Lowin. “Big Data in Employment Law: What Employers and Legal Counsel Need to Know.” Paper presented at the American Bar Association Labor and Employment Law Conference, Washington, D.C., November 8-11, 2017. [https://www.americanbar.org/content/dam/aba/events/labor\\_law/2017/11/conference/papers/Gay-Paper%20on%20Big%20Data%20%20for%20ABA%20LEL%20Conference.authcheckdam.PDF](https://www.americanbar.org/content/dam/aba/events/labor_law/2017/11/conference/papers/Gay-Paper%20on%20Big%20Data%20%20for%20ABA%20LEL%20Conference.authcheckdam.PDF).

disparate impact arising from algorithm-based methods. Disparate impact can exist in the absence of “explicit intent to discriminate, if they disparately impact a protected group.” That is, even if employers take precautions to protect individuals belonging in certain demographics, employers can commit unintentional discrimination if a plaintiff presents evidence showing a negative impact on protected groups “so disproportionately that courts can infer discrimination from that impact.”<sup>33</sup>

Legal discussions are further complicated when employers outsource artificial intelligence hiring systems. In such cases, it is “unclear how to apportion contributory liability in a lawsuit,” and vendors may refuse to acknowledge liability and claim negligent use by clients.<sup>34</sup>

Moreover, “the greatest risk” that the ABA underscores is the “lack of formal legal authority on the subject.”<sup>35</sup> In 2018, The White House took the free market approach on artificial intelligence technologies by choosing not to create formal regulatory guidelines.<sup>36</sup> This position has not changed in the 2019 executive order on artificial intelligence.<sup>37</sup> In the meantime, policymakers are grappling with ways to govern the evolving machines, and addressing social injustices amplified by artificial intelligence is one of the primary topics in artificial intelligence policy discussions.<sup>38</sup> Nevertheless,

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<sup>33</sup> American Bar Association. “Disparate Impact: Unintentional Discrimination.” The 101 Practice Series. American Bar Association. January 26, 2018. February 18, 2019.  
[https://www.americanbar.org/groups/young\\_lawyers/publications/the\\_101\\_201\\_practice\\_series/disparate\\_impact\\_unintentional\\_discrimination](https://www.americanbar.org/groups/young_lawyers/publications/the_101_201_practice_series/disparate_impact_unintentional_discrimination).

<sup>34</sup> Gay and Lowin, *Big Data in Employment Law: What Employers and Legal Counsel Need to Know*.

<sup>35</sup> Gay and Lowin, *Big Data in Employment Law*.

<sup>36</sup> United States of America. The White House. Office of Science and Technology Policy. *SUMMARY OF THE 2018 WHITE HOUSE SUMMIT ON ARTIFICIAL INTELLIGENCE FOR AMERICAN INDUSTRY*. Washington, DC, 2018.

<sup>37</sup> Executive Order No. 13859, 3 C.F.R. 3967 (2019).

<sup>38</sup> Lohr, Steve. “How Do You Govern Machines That Can Learn? Policymakers Are Trying to Figure That Out.” *The New York Times*, January 20, 2019. Accessed February 18, 2019.  
<https://www.nytimes.com/2019/01/20/technology/artificial-intelligence-policy-world.html>.

without formal regulatory guidelines, employers are left to “hope their predictions – based on algorithmic analyses, no doubt – are correct.”<sup>39</sup>

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<sup>39</sup> Gay and Lowin.

## HISTORY & BACKGROUND

The concept of machine intelligence dates back to 1950 when a young British mathematician published a paper in a philosophical journal.<sup>40</sup> Turing, who is often referred to as the father of computer science, started the theoretical paper with a question, “Can machines think?” He then described a blind test called the imitation game. The game is played by three players: a human interrogator, a human responder, and a machine responder. The interrogator’s objective is to tell apart the machine from a human, but because the imitation game is a blind test, the interrogator does not know the responders’ identities. So the interrogator must ask a series of questions and evaluate the answers provided by the responders.<sup>41</sup>

Although Turing could not test the imitation game due to technological limitations of his time,<sup>42</sup> Turing grounded a theoretical foundation for the generations that followed.<sup>43</sup> Over the years, people created new ways for machines to process information and named it artificial intelligence.<sup>44</sup> These artificial constructs of the human mind imitate human

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<sup>40</sup> Smith, Chris, Brian McGuire, Ting Huang, and Gary Yang. *The History of Artificial Intelligence*. University of Washington Paul G. Allen School of Computer Science & Engineering. CSEP590: Special Topics (ICTD). December 2006. Accessed February 23, 2019.

<sup>41</sup> Turing, Alan M. "Computing Machinery and Intelligence." *Mind* 49, no. 236 (October 1950): 433-60. Accessed February 23, 2019.

<sup>42</sup> Rockwell Anyoha. "The History of Artificial Intelligence." *Science in the News*. Harvard University. August 28, 2017. Accessed February 23, 2019. <http://sitn.hms.harvard.edu/flash/2017/history-artificial-intelligence>.

<sup>43</sup> Chris, McGuire, Huang, and Yang, *The History of Artificial Intelligence*.

<sup>44</sup> Newell, Alan, and Herbert A. Simon. "The Logic Theory Machine - A Complex Information Processing System." Paper presented before the Professional Group on Information Theory of the Institute of Radio Engineers, Cambridge, Massachusetts, September 6, 1956.

behaviors like speech, memory, and learning. They are sophisticated software that defeated humans in tasks what many would consider intellectual markings.<sup>45 46 47</sup>

But machines are more than a piece of hardware to humans. People see the image of themselves in machines. Take futurist films and novels for example. Some fictitious narratives present cyborgs as killing machines while others portray artificial minds as peaceful sentient beings seeking to walk among humans as equal citizens.<sup>48</sup>

In the real world, computers are built to resemble human beings.<sup>49</sup> Hundreds of businesses have replaced humans with machines in many parts of the recruitment process. For instance, IKEA, Microsoft, Burger King, and PepsiCo have automated over a million interviews by outsourcing machine recruiters, and companies like Goldman Sachs and LinkedIn have developed in-house intelligent recruitment tools.<sup>50 51</sup> Because the recruitment process consumes a significant amount of time and associated costs,<sup>52</sup> artificial intelligence hiring tools could have appealed to many organizations with high

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<sup>45</sup> Benjamin Powers. "Algorithms Can Now Identify Cancerous Cells Better Than Humans." Medium. February 22, 2019. Accessed February 22, 2019. <https://medium.com/s/story/algorithms-can-now-identify-cancerous-cells-better-than-humans-78e6518f65e8>.

<sup>46</sup> Markoff, John. "Computer Wins on 'Jeopardy!': Trivial, It's Not." *The New York Times*, February 16, 2011. Accessed February 23, 2019. <https://www.nytimes.com/2011/02/17/science/17jeopardy-watson.html/>.

<sup>47</sup> BBC. "Google AI defeats human Go champion." Technology, *BBC*, May 25, 2017. Accessed February 23, 2019. <https://www.bbc.com/news/technology-40042581>.

<sup>48</sup> Hogan, Michael, and Greg Whitmore. "The top 20 artificial intelligence films." *The Guardian*, January 8, 2015. Accessed February 23, 2019. <https://www.theguardian.com/culture/gallery/2015/jan/08/the-top-20-artificial-intelligence-films-in-pictures>.

<sup>49</sup> Sigfusson, Lauren. "Saudi Arabia Grants Citizenship to Robot." *Discovery*, October 27, 2017. Accessed February 24, 2019. <http://blogs.discovermagazine.com/d-brief/2017/10/27/robot-citizen-saudi-arabia/#.XHMCwS2ZNQJ>.

<sup>50</sup> Robot Vera. "Robot Vera will find top candidates for you." Accessed February 27, 2019. [https://ai.robotvera.com/static/newrobot\\_en/index.html](https://ai.robotvera.com/static/newrobot_en/index.html).

<sup>51</sup> Jeffrey Dastin. *Amazon scraps secret AI recruiting tool that showed bias against women*.

<sup>52</sup> SHRM. "Average Cost-per-Hire for Companies Is \$4,129, SHRM Survey Finds." Press Releases. Society for Human Resource Management. August 3, 2016. Accessed February 27, 2019. <https://www.shrm.org/about-shrm/press-room/press-releases/pages/human-capital-benchmarking-report.aspx>.

volumes of job applicants.<sup>53</sup> In fact, some companies claim to have cut time and costs by nearly one-third using machine recruiters compared to traditional hiring methods.<sup>54</sup> Machine recruiters start the hiring process by writing position descriptions.<sup>55</sup> These algorithm techniques use historical data to predict applicant response rates based on words contained in job announcements. Upon completing the writing process, machines automatically post vacant positions in online platforms or recommend humans to make targeted advertisements in specific geographic locations.<sup>56 57</sup> When a specified number of resumes fill the inbox, algorithmic tools called applicant tracking system (ATS) swift through thousands of resumes to identify the most promising candidates.<sup>58 59</sup> About 95% of Fortune 500 companies use some form of ATS technology to screen resumes.<sup>60</sup> Then, machines contact selected candidates over the phone to talk about vacant positions.<sup>61</sup> Alternatively, prospective candidates may also communicate with chatbots via online or take an automated assessment depending on hiring needs.<sup>62 63 64</sup> If the machine recruiter is satisfied with a candidate's qualifications for the vacancy, it schedules a virtual

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<sup>53</sup> Ideal. "AI for Recruiting: A Definitive Guide for HR Professionals." Accessed February 27, 2019. <https://ideal.com/ai-recruiting>.

<sup>54</sup> Umoh, Ruth. "Meet the robot that's hiring humans for some of the world's biggest corporations." *Make it, CNBC*, April 20, 2018. Accessed March 1, 2019. <https://www.cnbc.com/2018/04/20/this-robot-hires-humans-for-some-major-corporations.html>.

<sup>55</sup> Textio. "Welcome to Augmented Writing." Accessed March 1, 2019. <https://textio.com>.

<sup>56</sup> Clearfit. "The Easy Way to Find and Hire the Best Employees." Accessed March 1, 2019. <https://www.smoothhiring.com>.

<sup>57</sup> ENGAGE. "Discover New Passive Candidate Pools and be the First to ENGAGE." Accessed March 1, 2019. <https://www.engagetalent.com>.

<sup>58</sup> NASA. "About NASA Stars." HR NASA People. Accessed March 1, 2019. [https://nasajobs.nasa.gov/NASASTars/about\\_NASA\\_STARS/overview.htm](https://nasajobs.nasa.gov/NASASTars/about_NASA_STARS/overview.htm).

<sup>59</sup> Ideal. "Resume Screening at Scale." Accessed March 1, 2019. <https://ideal.com/product/screening>.

<sup>60</sup> Zahn, Max. "95% of Fortune 500 companies let a robot decide which job applications are good — here's how to get past the tech." *MONEY, BUSINESS INSIDER*, September 25, 2018. Accessed March 1, 2019. <https://www.businessinsider.com/how-to-get-past-robots-deciding-job-application-2018-9>.

<sup>61</sup> Robot Vera. *Robot Vera will find top candidates for you*.

<sup>62</sup> Wade&Wendy. "AI Recruiters personalizing the hiring process at scale." Accessed March 1, 2019. <https://wadeandwendy.ai>.

<sup>63</sup> Harver. "AI-Powered Selection Technology for Better Hiring." Accessed March 1, 2019. <https://harver.com>.

<sup>64</sup> Filtered. "Test your candidates before they meet you." Accessed March 1, 2019. <https://www.filtered.ai>.



meeting with that candidate and conducts a “face-to-face” interview with or without human interventions.<sup>65 66 67 68 69</sup>

Behind each step of the machine’s hiring process, venture capitalists invest hundreds of millions of dollars in companies engineering those specific recruitment tools.<sup>70 71 72</sup> The increase in the capital flow indicates a calculated move in the current recruitment market valued at \$200 billion.<sup>73</sup> Collectively, artificial intelligence technologies are expected to contribute \$15.7 trillion to the global economy by 2030. Sectors in healthcare, automotive, financial services, personalized retail services, media, transportation & logistics, energy, and manufacturing will see the most significant boost from artificial intelligence technologies.<sup>74</sup>

In addition to forecasting technological developments and related economic outlooks, educating the existing workforce presents another challenge to many organizations. In

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<sup>65</sup> Umoh. *Meet the robot that's hiring humans for some of the world's biggest corporations.*

<sup>66</sup> x.ai. “Scheduling sucks.” Accessed March 1, 2019. <https://x.ai>.

<sup>67</sup> Weiss, Suzy. “Your next job interview might be with a robot.” *New York Post*, October 17, 2018. Accessed March 1, 2019. <https://nypost.com/2018/10/17/your-next-job-interview-might-be-with-a-robot/>.

<sup>68</sup> Dishman, Lydia. “This year your first job interview might be with a robot.” *FastCompany*, January 10, 2018. Accessed March 1, 2019. <https://www.fastcompany.com/40515583/this-year-your-first-interview-might-be-with-a-robot>.

<sup>69</sup> Lopaze, Kate. “How to prepare for a job interview when the interviewer is a robot.” Job Interview Tips. Accessed March 1, 2019. <https://www.thejobnetwork.com/how-to-prepare-for-a-job-interview-when-the-interviewer-is-a-robot>.

<sup>70</sup> Lunden, Ingrid. “ZipRecruiter picks up \$156M, now at a \$1B valuation, for its AI-based job-finding marketplace.” *TechCrunch*, August 4, 2018. Accessed March 1, 2019. <https://techcrunch.com/2018/10/04/ziprecruiter-picks-up-156m-now-at-a-1b-valuation-for-its-ai-based-job-finding-marketplace>.

<sup>71</sup> General Atlantic. “pymetrics Raises \$40 Million in Series B Funding Led by General Atlantic.” Media Page. General Atlantic. September 27, 2018. Accessed March 1, 2019. <https://www.generalatlantic.com/media-article/pymetrics-raises-40-million-in-series-b-funding-led-by-general-atlantic>.

<sup>72</sup> Saws, Paul. “Hired raises \$30 million to power its recruitment marketplace with data and machine learning.” *Entrepreneur*, *VentureBeat*, June 20, 2018. Accessed March 1, 2019. <https://venturebeat.com/2018/06/20/hired-raises-30-million-to-power-its-recruitment-marketplace-with-data-and-machine-learning>.

<sup>73</sup> Bersin, Josh. “Google For Jobs: Potential To Disrupt The \$200 Billion Recruiting Industry.” *Leadership*, *Forbes*, May 26, 2017. Accessed March 1, 2019. <https://www.forbes.com/sites/joshbersin/2017/05/26/google-for-jobs-potential-to-disrupt-the-200-billion-recruiting-industry/#7c31cdd34d1f>.

<sup>74</sup> Rao, Anand S., and Gerard Verweij. “Sizing the Price.” AI, PwC, 2017, Accessed February 24, 2019. <https://www.pwc.com/gx/en/issues/analytics/assets/pwc-ai-analysis-sizing-the-prize-report.pdf>.

*Beyond “Moneyball,”* Putka and Dorsey suggested that artificial intelligence technologies evolve faster than HR-centered organizations can thoroughly evaluate and adopt them in practice.<sup>75</sup> Indeed, machines are developing more quickly than HR organizations can civilize them. While 66 percent of CEOs believe that cognitive computing can add significant value in HR,<sup>76</sup> HR professionals are not familiar with artificial intelligence technologies well enough to use it in workplaces.<sup>77</sup>

Furthermore, stakeholders in artificial intelligence hiring systems face the risk of uncertainty under the current regulatory landscape since no federal regulation guides machine standards in the United States.<sup>78</sup> In other words, if organizations invest in machine-based recruitment tools, some of its parts or the entire product might become unserviceable due to unforeseen legislation in the future.

Under current regulatory conditions, one industry fore-runner has called on the government to regulate artificial intelligence technologies. In December 2018, the president of Microsoft Corporation released a statement in the company’s blog by saying that “the time for action has arrived.” Notably, Microsoft underlines the widespread bias against women and people of color in machines, therefore the need to create a “legislation that will put impartial testing groups like Consumer Reports and their

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<sup>75</sup> Dan J. Putka, and David Dorsey. “Beyond “Moneyball.”” Society for Industrial and Organizational Psychology. September 19, 2018. Accessed March 1, 2019. [http://www.siop.org/article\\_view.aspx?article=1847](http://www.siop.org/article_view.aspx?article=1847).

<sup>76</sup> IBM. “Extending expertise: How cognitive computing will transform HR and the employee experience.” IBM Institute for Business Value. IBM. January, 2019. Accessed March 1, 2019. <https://www.ibm.com/downloads/cas/QVPR1K7D>.

<sup>77</sup> HRP. “A New Age of Opportunities : What does Artificial Intelligence mean for HR Professionals?” Human Resources Professional Association. October 31, 2017. Accessed March 1, 2019. <https://www.hrp.ca/Documents/PublicThought-Leadership/HRPA-Report-Artificial-Intelligence-20171031.PDF>.

<sup>78</sup> Korey Clark. “Challenges Ahead for AI Regulation.” Capitol Journal. LexisNexis. February 15, 2019. Accessed March 1, 2019. <https://www.lexisnexis.com/communities/state-net/b/capitol-journal/archive/2019/02/15/challenges-ahead-for-ai-regulation.aspx>.

counterparts in a position where they can test facial recognition services for accuracy and unfair bias in a transparent and even-handed manner.”

To ensure transparency and accountability, the company recommends enabling third-party testing and certification of artificial intelligence products; requiring the disclosure of technology capabilities and limitations; mandating human review of machine decisions to avoid unlawful discrimination; guaranteeing the protection of privacy by requiring notice and clarifying consent in data collection; and protecting the democratic freedom and human rights.<sup>79</sup>

Microsoft’s demand resonated with some prominent leaders in the tech industry. In 2016, five technology giants—Microsoft, Facebook, IBM, Amazon, and Google—formed an alliance known as Partnership on AI (PAI). The partnership aimed to set best practices on artificial intelligence by addressing ethical issues related to safety, fairness, transparency, social good, and privacy. Since its founding, PAI membership has grown to about 80 members, expanding to civil societies, journalists, academic institutions, and research organizations such as the American Psychological Association, ACLU, Human Rights Watch, The New York Times, : ) Affectiva, and the University of California, Berkeley. No government institution joined the partnership as of yet.<sup>80</sup>

While American tech companies lead the world in the race to artificial intelligence, the United States government trails behind among developed nations in terms of funding

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<sup>79</sup> Brad Smith. “Facial Recognition: It’s time for action.” Microsoft on the Issues. Microsoft. December 6, 2018. Accessed March 1, 2019. <https://blogs.microsoft.com/on-the-issues/2018/12/06/facial-recognition-its-time-for-action>.

<sup>80</sup> Partnership on AI. “Bringing together diverse, global voices to realize the promise of artificial intelligence.” Accessed March 1, 2019. <https://www.partnershiponai.org>.

artificial intelligence research.<sup>81 82</sup> In 2019, the Trump administration issued an executive order on artificial intelligence called *Maintaining American Leadership in Artificial Intelligence* (a.k.a., *American AI Initiative*). The executive order aligns the nation's artificial intelligence efforts toward research and development using five principles: developing appropriate technical standards and reduce safety barriers, protecting civil liberties, driving “breakthroughs” across the federal government, preparing the future workforce, and promoting American-friendly international environment while protecting American innovators.

However, the *American AI Initiative* prioritizes research and development without allocating funds or creating incentives,<sup>83</sup> and federal agencies lack resources to carry out the plans outlined by the president.<sup>84</sup> As an example, the Brookings Institution pointed out that “our national government invests only \$1.1 billion” in artificial intelligence research. In contrast, the Chinese government has committed \$150 billion to artificial intelligence technologies,<sup>85</sup> France about \$1.85 billion,<sup>86</sup> and South Korea \$2 billion.<sup>87</sup>

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<sup>81</sup> Tim Dutton. “An Overview of National AI Strategies.” Politics + AI. Medium. June 28, 2018. Accessed March 1, 2019. <https://medium.com/politics-ai/an-overview-of-national-ai-strategies-2a70ec6edfd>.

<sup>82</sup> Castro, Daniel, and Joshua New. “The US is finally moving towards an AI strategy.” Opinion, *The Hill*, February 5, 2019. Accessed March 1, 2019. <https://thehill.com/opinion/technology/431414-the-us-is-finally-moving-towards-an-ai-strategy>.

<sup>83</sup> Executive Order No. 13859, 3 C.F.R. 3967 (2019).

<sup>84</sup> Lipinski, Dan. “The race to responsible artificial intelligence.” Opinion. *The Hill*. February 19, 2019. Accessed March 1, 2019. <https://thehill.com/blogs/congress-blog/technology/430593-the-race-to-responsible-artificial-intelligence>.

<sup>85</sup> Darrell M. West. “Assessing Trump’s artificial intelligence executive order.” TechTank. The Brookings Institution. February 12, 2019. Accessed March 1, 2019. <https://www.brookings.edu/blog/techtank/2019/02/12/assessing-trumps-artificial-intelligence-executive-order>.

<sup>86</sup> France24. “France to invest €1.5 billion in artificial intelligence by 2022.” *France 24*, March 29, 2018. Accessed March 1, 2019. <https://www.france24.com/en/20180329-france-invest-15-billion-euros-artificial-intelligence-AI-technology-2022>.

<sup>87</sup> Tony Peng, and Michael Sarazen. “South Korea Aims High on AI, Pumps \$2 Billion Into R&D.” Synced. Medium. May 16, 2018. Accessed March 1, 2019. <https://medium.com/syncedreview/south-korea-aims-high-on-ai-pumps-2-billion-into-r-d-de8e5c0c8ac5>.

Despite the lacking appropriations in artificial intelligence research, federal agencies have begun to explore the use of artificial intelligence in practice.<sup>88</sup> Consider the Central Intelligence Agency (CIA) for example. In July 2018, the CIA announced plans to expedite its hiring and security clearance process by implementing virtual interviews and artificial intelligence technologies.<sup>89</sup> Although the CIA did not disclose the exact type of artificial intelligence tool it plans to use in their hiring process, the decision made by the hard-headed agency demonstrates just how far recruitment technologies have advanced in recent years.

CIA is not alone in the race towards intelligent hiring systems. Other federal institutions like the U.S. Secret Service, Federal Aviation Administration, U.S. Customs and Border Protection, Federal Emergency Management Agency, U.S. Office of Personnel Management, Transportation Security Administration, and U.S. Immigration and Customs Enforcement appeared in tech-recruitment themed seminars.<sup>90</sup> But, so far, only a handful of government institutions have formally adopted artificial intelligence in their recruiting process, and the level of technological engagement varies by institutions. For instance, the National Aeronautics and Space Administration has been screening resumes

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<sup>88</sup> Keith Nakasone. U.S. General Services Administration. Office of Information Technology Category. United States of America. March 2018. Accessed February 4, 2019. <https://www.gsa.gov/about-us/newsroom/congressional-testimony/game-changers-artificial-intelligence-part-ii-artificial-intelligence-and-the-federal-government>.

<sup>89</sup> Gazis, Olivia. "CIA's Top Recruiter on How the Agency Finds - and Keeps - Its Spies." *CBS News*, July 11, 2018. Accessed February 2, 2019. <https://www.cbsnews.com/news/cias-top-recruiter-on-how-the-agency-finds-and-keeps-its-spies>.

<sup>90</sup> ptcmw. "Cutting Edge Technology: Transforming the World of Work and I/O Psychology as We Know It." 2018 PTCMW Fall Event. ptcmw. Accessed March 3, 2019. <http://www.ptcmw.org/event-3077840>.

using ATS software since 2011 while less tech-savvy agencies outsource recruitment analytic services.<sup>91 92</sup>

As machines increasingly shape social constructs, artificial minds influence conventions and norms to the extent that it impacts people's lives. Talent acquisition in the space of federal law enforcement is no exception. As a premier law enforcement agency, the U.S. Secret Service aims to hire and retain top talent, and the agency must compete against institutions in both the public and private sectors. But the agency is not equipped with sophisticated recruiting tools like many organizations in the private sector. So, borrowing the words said by the president of Microsoft: the time for action has arrived.

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<sup>91</sup> NASA. "MANAGER'S GUIDE TO THE NASA HIRING PROCESS." August 5, 2011. Accessed March 3, 2019. [https://searchpub.nssc.nasa.gov/servlet/sm.web.Fetch/Reviised\\_Manager\\_Hiring\\_Guide\\_-\\_Final\\_8-5-11.pdf?rhid=1000&did=1120495&type=released](https://searchpub.nssc.nasa.gov/servlet/sm.web.Fetch/Reviised_Manager_Hiring_Guide_-_Final_8-5-11.pdf?rhid=1000&did=1120495&type=released).

<sup>92</sup> salesforce. "Teach For America leverages Salesforce, maximizes relationships to expand educational opportunities." Accessed March 3, 2019. <https://www.salesforce.com/customer-success-stories/teach-for-america>.

## POLICY PROPOSAL

**Name.** Responsible Artificial Intelligence Standard of Ethics (RAISE).

**Overview.** The policy creates compliance standards for developers engineering artificial intelligence hiring tools for the U.S. Secret Service. Under RAISE, the agency develops both technical and ethical specifications for emerging recruitment technologies based on five pillars: (1) equal employment opportunity, (2) protection of individuals living with disabilities, (3) human autonomy over machines, (4) human liberty and safety, and (5) product integrity: third-party testing and certification.

**Goal.** To ensure equal employment opportunity protections for all qualified U.S. citizen in hiring processes facilitated by artificial intelligence recruiters.

**Authorization.** Executive Order 13859, section 1(b): “The United States must drive development of appropriate technical standards and reduce barriers to the safe testing and deployment of AI technologies in order to enable the creation of new AI-related industries and the adoption of AI by today’s industries;” and section 1(d): “The United States must foster public trust and confidence in AI technologies and protect civil liberties, privacy, and American values in their application in order to fully realize the potential of AI technologies for the American people.”

**RAISE Requirement 1. Equal Employment Opportunity:** Machines must treat every person equally. The U.S. Secret Service dutifully upholds the egalitarian principle that “Equal Employment Opportunity (EEO) is a fundamental right of all employees and applicants for employment.”<sup>93</sup> Therefore, artificial intelligence hiring systems entering the U.S. Secret Service must align with the agency’s diversity mission. For example,

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<sup>93</sup> United States Secret Service. “Diversity Overview.” Diversity. Accessed March 12, 2019. <https://www.secretservice.gov/join/diversity/overview>.

facial recognition tools must yield equal accuracy, when reading emotions, across every demographic or ethnic background, national origin, religion (i.e., religious ornaments and facial markings), disability-related characteristics (i.e., facial burns, eye-patch, etc.), or other no less important protected membership outlined by the EEO Commission.<sup>94</sup>

***RAISE Requirement 2. Protection of individuals living with disabilities:*** Artificial intelligence-based hiring tools must have design features adapted to individuals living with disabilities or provide alternative means where machines cannot accommodate to their needs. The U.S. Secret Service is fully committed to the Executive Order 13548, *Increasing Federal Employment of Individuals With Disabilities*.<sup>95</sup> As of 2016, the real number and proportion of federal employees living with disabilities have been at its highest “than any time in the past 35 years” since President Obama ordered the executive order in July 2010.<sup>96 97</sup> Artificial intelligence hiring systems will not impede or hinder the hiring goals outlined in Executive Order 13548. If an intelligent tool cannot accommodate to an applicant’s disabilities (i.e., chatbot system interacts with an applicant living with blindness), design features must possess mechanisms to direct the affected individual to a reasonable alternative.

***RAISE Requirement 3. Human autonomy over machines:*** Artificial intelligence hiring systems must align with human values, needs, and feedback at the convenience of

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<sup>94</sup> United States Equal Employment Opportunity Commission. “Title VII of the Civil Rights Act of 1964.” Laws, Regulations & Guidance. Accessed March 16, 2019. <https://www.eeoc.gov/laws/statutes/titlevii.cfm>.

<sup>95</sup> United States Secret Service. “Commitment to Hiring Individuals with Disabilities.” Individuals with Disabilities. Accessed March 12, 2019. <https://www.secretservice.gov/join/diversity/overview>.

<sup>96</sup> Beth F. Cobert. U.S. Office of Personnel Management. United States of America. October 2016. Accessed March 16, 2019. <https://www.opm.gov/policy-data-oversight/diversity-and-inclusion/reports/disability-report-fy2015.pdf>.

<sup>97</sup> Perkes, Courtney. “Government Shutdown Takes Toll On People With Disabilities.” *Disability Scoop*. January 21, 2019. Accessed March 16, 2019. <https://www.disabilityscoop.com/2019/01/21/government-shutdown-disabilities/25911>.



humans. Machines may employ computational methods to reach a conclusion, but only humans shall have the authority to make decisions. Likewise, humans will have complete and undeniable control over machines. Machines must provide ample time, space, and opportunity for humans to express comments, and they will be open and receptive to human feedback without expressing negative emotions. Machines must possess the ability to store and process human inputs, and all machine must comply with human orders. Machines cannot command other machines without human authorization. Machines shall never initiate, add, edit, share, or delete any data or algorithm without human consent. Machines shall provide full disclosure of collected information and analyzed data to humans. At any moment, humans can initiate, interrupt, edit, delete, copy, share, salvage, or destroy any part of machines without machine consent. Furthermore, machines need to be replaceable in any part of the hiring process in case of a malfunction or manufacture defect. And machine suppliers must provide ways to detect malfunctions and defects where the said product does not function as intended.

***RAISE Requirement 4. Human Liberty and Safety.*** Machines must adhere to the Constitution of the United States. Machines may not enter a personal space without consent, and humans have the right to know that they are communicating with machines. Whenever machines greet a human, machines must disclose its machine-identification before engaging in conversation with humans. Humans will have the right not to share their biometrics information such as fingerprints, facial features, or other personal data as defined by employment laws and federal laws governing the land. Furthermore, artificial intelligence-enabled hiring systems must be built with safety in mind. Intelligent tools must have clear warning signs indicating its purpose and

limitations, and every product or service shall have user-friendly manuals and instructions that a reasonable person can access, understand, and execute.

***RAISE Requirement 5. Product integrity: third-party testing and certification.*** The U.S. Secret Service will secure safety, fairness, transparency, and reliability in artificial intelligence-enabled hiring products and services by mandating third-party testing and certification. Artificial intelligence products and services must be tested for artificial intelligence safety and receive certification from reputable independent testing entities. Some examples of artificial intelligence safety testing parameters and techniques include cybersecurity,<sup>98</sup> adaptive stress testing,<sup>99</sup> statistical parity difference, equal opportunity difference, diversity in face images, and mitigating bias in training data.<sup>100 101</sup>

***Implementation.*** To be clear, RAISE does not modify the agency's existing hiring workflows. Instead, the policy defines technical specifications and ethical compliance standards for artificial intelligence hiring systems entering the U.S. Secret Service. The policy process starts by developing specific RAISE requirements and codifying them into a formalized policy. Then the agency implements the policy by publicizing standards and guidelines to the general public. This way, artificial intelligence developers in the private sector can develop products or services with an understanding of what the agency seeks in artificial intelligence hiring systems. Finally, the agency measures the effectiveness of the policy by totaling the number of artificial intelligence hiring systems that satisfy RAISE standards.

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<sup>98</sup> UL. "UL Launches Cybersecurity Assurance Program." Press Release. UL. April 5, 2016. Accessed March 16, 2019. <https://news.ul.com/news/ul-launches-cybersecurity-assurance-program>.

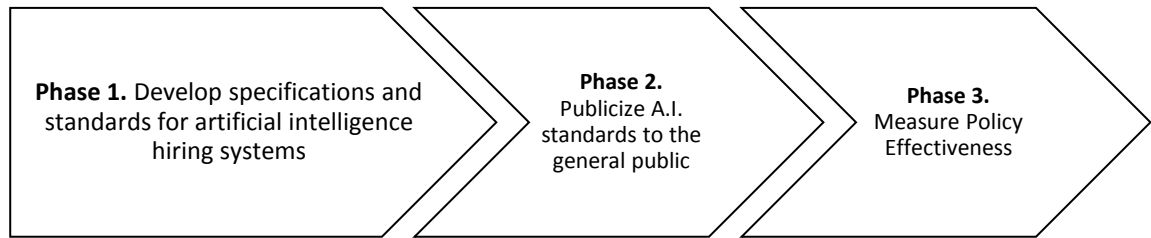
<sup>99</sup> AI Safety @ Stanford. "Center for AI Safety." Stanford University. <http://aisafety.stanford.edu>.

<sup>100</sup> IBM. "Diversity in Faces Dataset." IBM. Accessed March 16, 2019. <https://www.research.ibm.com/artificial-intelligence/trusted-ai/diversity-in-faces>.

<sup>101</sup> IBM. "AI Fairness 360 Open Source Toolkit." IBM Research Trusted AI. IBM. Accessed March 16, 2019. <http://aif360.mybluemix.net>.



**Figure 1.** RAISE Development and Implementation Process Map



*Phase 1.* Effective immediately, the Office of Equity & Employee Support Services (EES) has 180 days to organize a task force comprised of the following agency components: Chief Information Officer (CIO), Office of the Chief Counsel (OCC), Office of Strategic Planning and Policy (OSP), Office of Legislative and Intergovernmental Affairs (LIA), Office of Communications and Media Relations (CMR), Talent and Employee Acquisition Management (TAD), and HR Research and Assessment (HRR).<sup>102 103 104 105 106</sup> The task force shall develop RAISE requirements by providing technical and professional guidance pertaining to their scope of practice.

*Phase 2.* The U.S. Secret Service informs the general public about RAISE by publishing official standards and guidelines for artificial intelligence hiring systems. The agency will issue press releases, form public-private and intragovernmental partnerships, establish a program liaison, and distribute reading materials across printed and cybernetic mediums.

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<sup>102</sup> The United States government openly disclosed the organizational structure of the United States Secret Service to the general public.

<sup>103</sup> Shawn Reese. Congressional Research Service. United States of America. March 6, 2017. Accessed March 16, 2019. <https://fas.org/sgp/crs/homesecc/R44197.pdf>.

<sup>104</sup> Carol C. Harris, Shannin O'Neill, Emily Kuhn, Quintin Dorsey, Rebecca Eyler, Javier Irizarry, and Paige Teigen. U.S. Government Accountability Office. United States of America. November 2018. Accessed March 16, 2019. <https://www.gao.gov/assets/700/695512.pdf>.

<sup>105</sup> Department of Homeland Security. United States of America. October 23, 2015. Accessed March 16, 2019. [https://www.dhs.gov/sites/default/files/publications/U.S. Secret Service Language Access Plan\\_12-8-16.pdf](https://www.dhs.gov/sites/default/files/publications/U.S.%20Secret%20Service%20Language%20Access%20Plan_12-8-16.pdf).

<sup>106</sup> Annual Report. United States Secret Service. United States of America. Accessed March 17, 2019. <https://www.secretservice.gov/press/reports>.

*Phase 3.* The effectiveness of the policy shall be measured by 1) tallying the number of inquiries made by artificial intelligence developers in the private sector, 2) totaling the number of artificial intelligence hiring systems meeting RAISE standards, and 3) performing sentimental analyses using state-of-the-art text-mining techniques.<sup>107 108</sup>

***Timeline.*** EES will enter RAISE as an initiative item for the 2020-2021 cycle. So the finalized version of RAISE policy and accompanying guidelines must be ready for publication by the end of FY 2021 (roughly, September 2021).

***Costs. Internal Personnel.*** Assuming that each task force component dedicates one personnel to develop RAISE, the cost of developing RAISE could range from \$556,648 to \$1,323,336 per year.<sup>109 110</sup> However, these estimates are speculative fixed costs based on salaries, and members may attend to other responsibilities while they are assigned to the task force. In other words, the agency will spend the money with or without the proposed policy, but we cannot estimate the loss of opportunity costs not knowing the selected personnel for the task.

***Intragovernmental Personnel Act.*** Alternatively, the agency could allocate funding to dedicate a program manager for RAISE, which could cost anywhere between \$57,510 to \$152,352 per year,<sup>111</sup> and take advantage of the Intergovernmental Personnel Act (IPA).

In a nutshell, the IPA authorizes “the temporary assignment of employees between the

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<sup>107</sup> V.G. Vinod Vydiswaran. “Applied Text Mining in Python.” Michigan Online. University of Michigan. Accessed March 17, 2019. <https://online.umich.edu/courses/applied-text-mining-in-python>.

<sup>108</sup> Rachel Tatman. “Data Science 101: Sentiment Analysis in R Tutorial.” No Free Hunch. Kaggle. October 5, 2017. Accessed March 17, 2019. <http://blog.kaggle.com/2017/10/05/data-science-101-sentiment-analysis-in-r-tutorial>.

<sup>109</sup> The calculation uses salary ranges GS-11 to GS-15 (adjusted for 2019 Washington D.C. locality pay) multiplied by the number of task force components.

<sup>110</sup> United States Office of Personnel Management. United States of America. Accessed March 19, 2019. <https://www.opm.gov/policy-data-oversight/pay-leave/salaries-wages/salary-tables/pdf/2019/DCB.pdf>.

<sup>111</sup> The calculation uses salary ranges GS-9 to GS-14 for a nonsupervisory position (adjusted for 2019 Washington D.C. locality pay).

Federal Government and State, local, and Indian tribal governments, institutions of higher education and other eligible organizations.”<sup>112</sup> The Office of Personnel Management describes the IPA as a resource that could provide funding for “temporary assignments” for eligible organizations.<sup>113</sup>

Instead of expending internal resources, the U.S. Secret Service could receive a financial reimbursement for outsourcing subject matter experts who can study artificial intelligence capabilities on behalf of the agency. To phrase it another way, the IPA can pay for salary, per diem for travel and relocation, and leave (i.e., sick pay), provided that the temporary hire meets the requirements defined in IPA.<sup>114</sup>

## POLICY ANALYSIS

***Effectiveness and Technical Feasibility.*** RAISE mandates third-party testing and certification of artificial intelligence tools to mitigate the negative effects of unreliable market conditions. In a 2019 market survey, for example, a technology-oriented venture capital firm reported that only 60 percent of artificial intelligence startup companies possessed “evidence of AI material to a company’s value proposition.”<sup>115</sup> To phrase it another way, 40 percent of “companies that people assume and think are AI companies are probably not” equipped with technologically advanced artificial intelligence tools.<sup>116</sup>

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<sup>112</sup> Legal Information Institute. Cornell Law School. Cornell University. Accessed March 19, 2019. <https://www.law.cornell.edu/cfr/text/5/part-334>.

<sup>113</sup> United States Office of Personnel Management. United States of America. Accessed March 19, 2019. <https://www.opm.gov/policy-data-oversight/hiring-information/intergovernment-personnel-act>.

<sup>114</sup> National Science Foundation. United States Government. Accessed March 19, 2019. <https://www.nsf.gov/careers/rotator/ipa.jsp>.

<sup>115</sup> David Kelnar. “The State of AI 2019: Divergence.” Research. MMC Ventures. 2019. Accessed March 13, 2019. <https://www.mmventures.com/wp-content/uploads/2019/02/The-State-of-AI-2019-Divergence.pdf>.

<sup>116</sup> Olson, Parmy. “Nearly Half Of All ‘AI Startups’ Are Cashing In On Hype.” *Forbes*, March 4, 2019. Accessed March 12, 2019. <https://www.forbes.com/sites/parmyolson/2019/03/04/nearly-half-of-all-ai-startups-are-cashing-in-on-hype/#c87ee4ed0221>.

The breach of integrity in the artificial intelligence market becomes a problem for buyers like the U.S. Secret Service because there is no regulatory mechanism to flag and identify counterfeit products. Honest developers may withhold proprietary information to protect the time and resources spent in the development of advanced hiring tools, and some companies could possess the fiduciary duty to act in the best interest of their shareholders. But if developers withhold information about their products or services, buyers have less information to gauge the authenticity of the product or service in question, and that leads to an imbalance of information shared between sellers and buyers. When there is an informational asymmetry between sellers and buyers, apprehensive consumers become reluctant to pay the just-price for said goods or services, or some consumers may not engage in trading to avoid flawed merchandise (a.k.a., lemon), so the overall market fails to reach its optimal potential.<sup>117</sup> Hence, if companies purporting to be backed by artificial intelligence technologies lack evidence to their claim, the U.S. Secret Service faces the risk of acquiring a counterfeit in objectionable market conditions, which could render employment protection measures ineffective when the counterfeit tool facilitates the hiring process at the agency.

To adequately address the risks associated with adverse selection in the lemon market, RAISE mandates third-party testing and certification of artificial intelligence hiring tools. This requirement aligns to recommendations proposed by industry leaders in the field of artificial intelligence technologies. In *Ethics and AI*, a technology conference held at The Carnegie Mellon University, the director of Microsoft Research Lab offered a solution to guarantee transparency and standards conformity in artificial intelligence. “I see someday

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<sup>117</sup> N. Gregory Mankiw, "Hidden Characteristics: Adverse Selection and the Lemons Problem," in *Principles of Economics* (Mason: South-Western Cengage Learning, 2012), 469.

us wanting to make sure some independent party that we trust as a proxy has certified, for example, the datasets that we used, the processes in place that systems are fair and unbiased [...] an Underwriters Laboratories or an FDA [...] somebody looking at this as best practice.”<sup>118 119 120</sup> In short, the esteemed artificial intelligence researcher echoed the solution proposed by the Microsoft president: “Enabling third-party testing and comparisons” will guarantee the integrity of artificial intelligence technologies in marketplaces.<sup>121</sup>

Indeed, many organizations have standardized third-party testing and certification practices to ensure product integrity and safety. A good example is the U.S. Food and Drug Administration (FDA). The FDA protects the public health by testing and approving a wide range of food, drugs, animal products, and medical devices.<sup>122</sup> Because the FDA holds manufacturers to safety standards, the federal regulator acts as the intermediary and provides a piece of mind to consumers. But under certain conditions, the FDA relies on reputable independent entities to test and certify goods on their behalf. For instance, the FDA recognizes a number of UL certified medical devices as a safe and trustworthy alternative to an FDA inspection.<sup>123 124</sup>

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<sup>118</sup> Eric Horvitz, “The Carnegie Mellon University - K&L Gates Conference on Ethics and AI,” The Carnegie Mellon University, 1:01:00, April 9, 2019, <https://www.cmu.edu/ethics-ai/agenda/webcast.html>.

<sup>119</sup> Julia Kagan. “Underwriters Laboratories - UL.” Insurance. Investopedia. May 15, 2018. Accessed March 19, 2019. <https://www.investopedia.com/terms/u/underwriters-laboratories-ul.asp>.

<sup>120</sup> Inc. “Underwriters Laboratories (UL).” Encyclopedia. Manusetto Ventures. Accessed March 19, 2019. <https://www.inc.com/encyclopedia/underwriters-laboratories-ul.html>.

<sup>121</sup> Brad Smith, *Facial Recognition: It’s time for action*.

<sup>122</sup> United States Food and Drug Administration. United States of America. Accessed March 23, 2019. <https://www.fda.gov/AboutFDA/WhatWeDo/default.htm>.

<sup>123</sup> UL. “FDA Recognizes UL 2900-1 Cybersecurity Standard for Medical Devices.” Feature Story, UL. September 12, 2017. March 23, 2019. <https://news.ul.com/news/fda-recognizes-ul-2900-1-cybersecurity-standard-medical-devices>.

<sup>124</sup> United States Food and Drug Administration. Medical Devices. United States of America. Accessed March 23, 2019. <https://www.fda.gov/downloads/MedicalDevices/NewsEvents/WorkshopsConferences/UCM630533.pdf>.



From a technical standpoint, the U.S. Secret Service needs an independent party to conduct safety testing on behalf of the agency. Although the agency possesses skilled and experienced artificial intelligence developers,<sup>125</sup> legislative obligations tie technical resources to protective and investigative assignments—the core mission of the U.S. Secret Service.<sup>126</sup> So enabling the third-party testing and certification process could effectively guarantee the compliance of fairness and safety standards without impeding the chief duties.

However, validating standards compliance through independent testing could delay adopting artificial intelligence hiring systems at the U.S. Secret Service because companies might have had spent years developing intelligent tools without addressing the requirements laid out in RAISE. Also, while studies have attempted to address some of the commonly known biases in machines, there is no consensus-based golden standard for ensuring fairness and safety in artificial intelligence models, and no well-established product-testing organization offers third-party testing services for artificial intelligence safety in hiring tools.

Furthermore, artificial intelligence hiring systems lack design features to draw the causal relationship between candidate characteristics and hiring decisions, which means machines cannot sufficiently explain why it *thinks* certain candidates would be more qualified than others.<sup>127</sup> And even if developers invent tools to unravel algorithmic black

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<sup>125</sup> Timothy Scott and Philip S. Kaplan. Privacy Impact Assessment for Facial Recognition Pilot. U.S. Department of Homeland Security. United States of America. November 26, 2018. Accessed March 30, 2019. <https://www.dhs.gov/sites/default/files/publications/privacy-pia-ussf-frp-november2018.pdf>.

<sup>126</sup> U.S. Congress, House, Committee on the Judiciary, *Secret Service Improvements Act Of 2015: Report*, 114<sup>th</sup> Congress, 1st session, 2016, House Report. 14-231, <https://www.congress.gov/congressional-report/114th-congress/house-report/231>.

<sup>127</sup> Chamorro-Premuzic, Tomas. “Four Unethical Uses Of AI In Recruitment.” Editor’s Pick, *Forbes*, May 27, 2018. Accessed March 23, 2019. <https://www.forbes.com/sites/tomaspremuzic/2018/05/27/four-unethical-uses-of-ai-in-recruitment/#5c31c2f015f5>.

boxes, such methods need to be scientifically validated instruments that an average person can learn how to use at the agency. So, while mandating ethical standards could effectively secure fairness and safety in machines, precautionary measures could delay standards conformity,<sup>128</sup> and some artificial intelligence companies may not pursue a business relationship with the U.S. Secret Service to avoid the burden of costs associated with stringent and unwavering EEO and disabilities protections requirements.

***Efficiency and Legality.*** Nevertheless, safeguarding EEO and disabilities protections in machine algorithms is not only morally compelling, but they are also financially responsible. In 2017, the U.S. Secret Service reached a \$24 million in a settlement after spending 16 years on a legal battle involving racial discrimination allegations.<sup>129</sup> And the actual cost of the lengthy case could have been more substantial than the amount explicitly defined in the monetary sum. While the settlement amount quantifies the loss in terms of budgetary outlay, the resolution does not reflect damages associated with the agency's reputation, morale, trust culture, workplace distractions, and the potential loss of productivity that might have occurred throughout the 16 years of dealing with the dispute. Clearly, the agency should avoid another situation that might warrant similar disputes in machine-to-human interactions.

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<sup>128</sup> Daws, Ryan. "Editorial: EU regulations put AI startups at risk of being left behind." Editorial, *IoTnews*, August 18, 2017. Accessed April 19, 2019. <https://www.iottechnews.com/news/2017/aug/18/editorial-eu-regulations-put-ai-startups-risk-being-left-behind>.

<sup>129</sup> Johnson, Kevin. "Secret Service settles long-running race discrimination suit for \$24 million." News, *USA Today*, January 17, 2017. March 23, 2019. <https://www.usatoday.com/story/news/2017/01/17/government-pays-24-million-settle-secret-service-discrimination-case/96703854>.

But the agency faces the risk of encountering other types of discrimination lawsuits in the coming years, which can be just as costly if not more.<sup>130 131 132</sup> As of 2019, the U.S. Secret Service employs about 7,000 personnel comprised of Special Agents, Uniformed Division Officers, Technical Law Enforcement Officers, and Administrative, Professional, and Technical employees.<sup>133 134</sup> Under the FY 2018-2025 Secret Service Human Capital Plan, the agency plans to expand the current number of the workforce to 9,595 by the end of FY 2025.<sup>135</sup> Since each new hire bears some legal risks,<sup>136 137</sup> should the agency decide to equip artificial intelligence in the hiring process, the time and resources spent on developing ethical guidelines for artificial intelligence hiring systems justify the investment.

On the flip side, implementing fairness and safety measures could reduce the affordability of artificial intelligence hiring tools in the long-run because merchants will internalize the marginal cost of developing a safer product and pass the added expense down to consumers.<sup>138</sup> Also, safe artificial intelligence hiring systems may not

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<sup>130</sup> Patrick Mitchell. "The 2017 Hiscox Guide to Employment Lawsuits™." Hiscox, 2017, Accessed March 23, 2019. <https://www.hiscox.com/documents/2017-Hiscox-Guide-to-Employee-Lawsuits.pdf>.

<sup>131</sup> Roy Maurer. "Seasons 52 Settles \$2.85M Hiring Discrimination Lawsuit." Talent Acquisition. Society for Human Resources Management. May 21, 2018. Accessed March 23, 2019. <https://www.shrm.org/resourcesandtools/hr-topics/talent-acquisition/pages/seasons-52-settles-hiring-discrimination-lawsuit.aspx>.

<sup>132</sup> United States Equal Employment Opportunity Commission. "Texas Roadhouse to Pay \$12 Million to Settle EEOC Age Discrimination Lawsuit." Press Release. March 31, 2017. Accessed March 23, 2019. <https://www.eeoc.gov/eeoc/newsroom/release/3-31-17.cfm>.

<sup>133</sup> Tim Godbee. U.S. Department of Homeland Security. Office of Public Affairs. United States of America. November 7, 2018. Accessed March 23, 2019. <https://www.dhs.gov/photo/secretary-s-award-excellence-2018-technical-law-enforcement-development-team-us-secret-service>.

<sup>134</sup> United States Department of Homeland Security. USSS Budget Overview. United States of America. Fiscal Year 2019. Accessed March 23, 2019. <https://www.dhs.gov/sites/default/files/publications/USSS%20FY19%20CJ.pdf>.

<sup>135</sup> U.S. Department of Homeland Security. *USSS Budget Overview*.

<sup>136</sup> Claudia St. John. "Avoid Legal Risks When Interviewing New Hires." Services. MediaEdge Communications. Accessed March 29, 2019. <https://servicesmag.org/online-digital-magazine/digital-archives/item/740-avoid-legal-risks-when-interviewing-new-hires>.

<sup>137</sup> BLR. "Hiring: What you need to know." Markets. BLR. Accessed March 29, 2019. <https://www.blr.com/HR-Employment/Staffing-Training-/Hiring>.

<sup>138</sup> Turley, Jonathan. "Product Liability." Lecture, George Washington University Law School, Washington, D.C., March 25, 2019.

materialize in a timely manner. As with many job assessment models at the U.S. Secret Service, artificial intelligence hiring tools entering the agency will require proof of empirical evidence and the time to undergo a rigorous peer review process,<sup>139</sup> subject to reproducibility. Thus, lowering the risk of discrimination and accompanying lawsuits may come at a higher price tag and, conceivably, not anytime soon.

Nonetheless, precautionary measures should not be overlooked because courts may treat talking machines the same way as humans. The theoretical posture—that machines have the right to enjoy the freedom of religion, speech, and protest—could appear distant from today’s generation. However, our democratic system already offers non-human entities the same constitutional rights that we enjoy as humans.<sup>140</sup> Take the case of *Citizens United v. Federal Election Commission* for example. In the case, the Supreme Court ruled that “limiting independent expenditures on political campaigns by groups such as corporations, labor unions, or other collective entities violates the First Amendment because limitations constitute a prior restraint on speech.” In other words, the Supreme Court recognizes non-human but legal entities such as corporations and unions as legitimate members of our society that can participate in the nation’s democratic process when they speak through campaign contributions.<sup>141</sup> In a reasonable person’s mind, speech is not limited to monetary spending.<sup>142</sup> And machines are also non-human entities. So if machines act as agents by speaking the opinions of human or non-human but legal entities, it follows that the First Amendment extends to machines.

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<sup>139</sup> Alok Bhupatkar, U.S. Secret Service, interviewed by author, Washington, D.C., March 15, 2019.

<sup>140</sup> Mathias Risse. “Human Rights and Artificial Intelligence: An Urgently Needed Agenda.” Carr Center For Human Rights Policy. Harvard Kennedy School, Harvard University. May 2018. March 30, 2019. [https://carrcenter.hks.harvard.edu/files/cchr/files/humanrightssai\\_designed.pdf](https://carrcenter.hks.harvard.edu/files/cchr/files/humanrightssai_designed.pdf).

<sup>141</sup> *Citizens United v. Federal Election Commission*, 558 U.S. 310 (2010).

<sup>142</sup> Merriam-Webster, s.v. “speech,” accessed March 31, 2019. <https://www.merriam-webster.com/dictionary/speech>.

If courts acknowledge machines as a legitimate and legal entity, then machines can theoretically become tortfeasors as well. Let us say that machine interviewers representing some legal entity incite hate speech, inflict emotional distress, or cause defamation in hiring, then the theory of *respondeat superior* can pass the liability of damages caused by machine-agents to its employer (i.e., the U.S. Secret Service).<sup>143</sup> So if a machine interviewer delivers disparaging remarks or rejects job applicants based on race, gender, sex, disability, religion, age or other no less important protected characteristics, then the machine's employer could incur the financial costs. Therefore, ethical guidelines are a pragmatic, wise, and fiscally responsible way to approach artificial intelligence hiring systems.

***Administrative Feasibility.*** The U.S. Secret Service staffs about 2,000 administrative, professional, and technical employees.<sup>144</sup> But for the past ten years, federal employee surveys ranked the U.S. Secret Service as, or close to, the worst place to work in the federal government,<sup>145</sup> and a series of security breaches and scandals ensued the agency within the same timeframe.<sup>146</sup> Following the repeated mishaps, a study led by the Office of Inspector General at the Department of Homeland Security revealed that substantial workloads negatively impact employees' work-life balance, and the growing operational demands continue to consume the U.S. Secret Service as a whole.<sup>147</sup> The proposed policy

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<sup>143</sup> Legal Information Institute. "Respondeat Superior." Cornell Law School, Cornell University. Accessed March 30, 2019. [https://www.law.cornell.edu/wex/respondeat\\_superior](https://www.law.cornell.edu/wex/respondeat_superior).

<sup>144</sup> U.S. Department of Homeland Security. *USSS Budget Overview*.

<sup>145</sup> The Best Places to Work in the Federal Government. Rankings. Partnership for Public Service. <https://bestplacestowork.org/rankings/detail/HS14>.

<sup>146</sup> CNN Library. "Secret Service Fast Facts." *CNN*. April 18, 2016. Updated December 14, 2018. Accessed March 31, 2019. <https://www.cnn.com/2016/04/18/us/secret-service-fast-facts/index.html>.

<sup>147</sup> United States Department of Homeland Security. Office of the Inspector General. United States of America. November 10, 2016. Accessed March 31, 2019. <https://www.oig.dhs.gov/sites/default/files/assets/2017/OIG-17-10-Nov16.pdf>.

will add pressure to undergoing SSSP, even though the workforce has grown in recent years.<sup>148</sup> However, if artificial intelligence hiring systems streamline the hiring process more efficiently than traditional methods, then the administrative burden may decline in the future.

***Social Feasibility.*** Historically, automation technologies have thought to influence blue-collar jobs by outsourcing repetitive laborious tasks. In recent years, however, advancements in the technology also threaten the stability of white-collar jobs. Artificial intelligence technologies will digitize and replace about half of all U.S. workforce within the next two decades,<sup>149</sup> and some white-collar jobs face displacement rates as high as 70%.<sup>150 151 152</sup>

By introducing the idea of artificial intelligence hiring system to the U.S. Secret Service, we unfold the element of automation and the possibility of job replacements. This could pose a significant concern to many people who work in the federal government for the sense of job security.<sup>153</sup> So, while some people might welcome the idea of artificial intelligence hiring tools, a significant portion of the workforce may compound skeptical attitudes against emerging technologies.

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<sup>148</sup> U.S. Department of Homeland Security. *USSS Budget Overview*.

<sup>149</sup> Making SenSe Editor. "Are robots coming for your blue-collar jobs?" *Economy, Public Broadcasting Services*, May 8, 2017. Accessed March 31, 2019. <https://www.pbs.org/newshour/economy/robots-coming-blue-collar-jobs>.

<sup>150</sup> Robert Gloy. "How AI threatens white-collar jobs." *Future of Work. Technologist*. Accessed March 31, 2019. <https://technologist.eu/the-threat-to-white-collar-jobs>.

<sup>151</sup> Penny Crosman. "How Artificial Intelligence Is Reshaping Jobs in Banking." *Insights. Samsung*. May 18, 2018. Accessed March 31, 2019. <https://insights.samsung.com/2018/05/18/how-artificial-intelligence-is-reshaping-jobs-in-banking>.

<sup>152</sup> Hawksworth, John, Richard Berriman, and Saloni Goel. "Will robots really steal our jobs?" *PwC*, 2018, Accessed February 24, 2019. <https://www.pwc.co.uk/economic-services/assets/international-impact-of-automation-feb-2018.pdf>.

<sup>153</sup> Dennis Vilorio. United States Bureau of Labor Statistics. United States of America. <https://www.bls.gov/careeroutlook/2014/article/mobile/federal-work-part-1.htm>.

## POLITICAL ANALYSIS

***Internal reactions to Director Randolph D. Alles' appointment.*** When President Trump announced that a retired Marine general would lead the U.S. Secret Service, members of the premium law enforcement agency expressed concerns about an outsider leading the duties of presidential protections and investigative assignments.<sup>154</sup> At the same time, the U.S. Secret Service had been subject to reoccurring controversies for many years under the leadership of their own.<sup>155</sup> And in the face of poor morale and high attrition rate,<sup>156</sup> some key decision-makers and influential figures—both inside and outside of the U.S. Secret Service—rejoindered by saying that the agency needs fresh perspectives from the outside to transform the working culture under the new oversight of the Department of Homeland Security.<sup>157</sup> <sup>158</sup> <sup>159</sup> Whatever the case, the director faces the monumental challenge of leading the agency under the time of stress. As a newcomer to the agency, he will either build or disrupt the trust and confidence of the highly-esteemed loyal staff.<sup>160</sup>

***Earn the trust of the workforce by meeting employee demands:*** At a time when intelligent tools have standardized many aspects of recruitment, introducing an

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<sup>154</sup> Fandos, Nicolas. "Randolph Alles, Retired General, Is Chosen to Lead Secret Service." Politics, *The New York Times*, April 25, 2017. Accessed April 7, 2019. <https://www.nytimes.com/2017/04/25/us/politics/randolph-alles-secret-service.html>.

<sup>155</sup> Adamczyk, Ed. "Retired Gen. Randolph 'Tex' Alles to lead Secret Service." U.S. News, *United Press International*, April 26, 2017. Accessed April 6, 2019. <https://www.upi.com/Retired-Gen-Randolph-Tex-Alles-to-lead-Secret-Service/5691493203362>.

<sup>156</sup> Orgrysko, Nicole. "Secret Service facing an uphill battle to improve employee morale and lower attrition." Workforce, *Federal News Network*, June 8, 2017. Accessed April 6, 2019. <https://federalnewsnetwork.com/workforce/2017/06/secret-service-facing-an-uphill-battle-to-improve-employee-morale-and-lower-attrition>.

<sup>157</sup> Emmett, Dan. "A retired Secret Service agent reveals the agency's biggest problem." Vox, October 9, 2014. Accessed April 7, 2019. <https://www.vox.com/2014/10/9/6946949/secret-service-911-homeland-security-treasury>.

<sup>158</sup> The Associated Press. "White House names Randolph Alles as new Secret Service director." Politics, *USA Today*, April 25, 2017. Accessed April 7, 2019. <https://www.usatoday.com/story/news/politics/2017/04/25/white-house-names-randolph-alles-new-secret-service-director/100893490>.

<sup>159</sup> The U.S. Department of the Treasury had oversight on U.S. Secret Service until 2003 when the U.S. Department of Homeland Security took on the responsibility of the oversight.

<sup>160</sup> Nicolas Fandos. *Randolph Alles, Retired General, Is Chosen to Lead Secret Service*.

innovative recruitment strategy could advance the director's position by meeting the demands of the workforce. We can find evidence in the 2018 Federal Employee Viewpoint Survey. One year following the director's appointment, a government-sponsored survey reported that the U.S. Secret Service improved the most among all of the federal agency subcomponents by climbing 11-points higher in the *Best Places to Work in the Federal Government* rankings.<sup>161 162</sup>

Notably, the agency saw the largest gain in morale when the workforce perceived that the leadership adopted strategic recruitment practices and rewarded innovation at the workplace.<sup>163 164</sup> Therefore, introducing artificial intelligence hiring systems could possibly increase workforce morale and build employee support.

***Take the advice of seasoned experts: introduce the intelligent recruitment tool as means to modernizing the existing business systems.*** When the agency overcame “the worst place to work in the federal government” status, the director may have secured confidence among some employees.<sup>165</sup> However, while the improvement in survey rankings could be a good tell-sign, the director can rally more support around him by innovating business functions.<sup>166</sup> Under the FY 2018-2022 U.S. Secret Service Strategy

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<sup>161</sup> The Best Places to Work in the Federal Government. Subcomponents. Partnership for Public Service. <https://bestplacestowork.org/rankings/overall/sub>.

<sup>162</sup> Onamé Thompson. “2018 Best Places to Work in the Federal Government Rankings Show a Decline in Employee Engagement Across Majority of Federal Agencies.” The Best Places to Work in the Federal Government. Partnership for Public Service. December 12, 2018. Accessed April 7, 2019.

<https://bestplacestowork.org/publications/2018-best-places-to-work-in-the-federal-government-rankings-show-a-decline-in-employee-engagement-across-majority-of-federal-agencies>.

<sup>163</sup> The Best Places to Work in the Federal Government. Innovation. Partnership for Public Service. [https://bestplacestowork.org/rankings/detail/HS14#tab\\_category\\_tbl](https://bestplacestowork.org/rankings/detail/HS14#tab_category_tbl).

<sup>164</sup> The Best Places to Work in the Federal Government. Leadership. Partnership for Public Service. [https://bestplacestowork.org/rankings/detail/HS14#tab\\_leadership](https://bestplacestowork.org/rankings/detail/HS14#tab_leadership).

<sup>165</sup> Dann, Carrie. “Federal worker morale ticks up overall but drops at State, FBI.” Politics, *NBC News*, December 6, 2017. Accessed April 11, 2019. <https://www.nbcnews.com/politics/first-read/federal-worker-morale-ticks-overall-drops-state-fbi-n826786>.

<sup>166</sup> Tony Schwartz and Christine Porath. “The Power of Meeting Your Employees’ Needs.” *Harvard Business Review*. Harvard Business School. June 30, 2014. Accessed April 8, 2019. <https://hbr.org/2014/06/the-power-of-meeting-your-employees-needs>.



Plan (SSSP), Director Alles convened subject matter experts (SMEs) across workforce components to identify Key Performance Indicators steering the agency towards successful mission outcomes. As a result, the Secret Service developed five strategic goals and determined that the agency must modernize the existing business processes by the end of FY 2022.<sup>167</sup>

From here, we can piece together three key points: employees at the U.S. Secret Service want more innovation in the workplace; adopting strategic recruitment functions increased workforce morale; and SMEs call for modernizing business systems. So enabling innovative technologies in the business process—namely, artificial intelligence in recruitment and hiring—is a politically sound initiative.

***Alternative Option.*** The director has the option to disregard every key point altogether. However, ignoring the SMEs recommendations would be a significant departure from the directives outlined in the SSSP, so it does not make sense from a policy standpoint. And SMEs would have to convene again to reach a consensus on a new recommendation, so it would disrupt SMEs daily functions. Also, considering that FY 2018-2022 SSSP distributed to the workforce already (it has been made available to the general public as well), not following through with the original directive could confuse to the workforce. Furthermore, ignoring the demands of the workforce, especially when surveys have shown a positive relationship with morale, does not make sense from a political angle. On the other hand, it could be argued that there could be other ways of listening to the demands of the workforce. And the director can explore different recruitment strategies.

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<sup>167</sup> United States Secret Service. "United States Secret Service FY 2018-2022 Strategic Plan." Reports. May 2018. Accessed April 7, 2019. [https://www.secretservice.gov/data/press/reports/USSS\\_FY18-22\\_Strategic\\_Plan.pdf](https://www.secretservice.gov/data/press/reports/USSS_FY18-22_Strategic_Plan.pdf).

We do not discuss other types of recruitment strategies because 1) doing so would be out of scope, and 2) the list could be exhaustive.

***The threat of job security: a possible unintended consequence of the policy.*** The leadership should approach the workforce demands with caution because introducing effective recruitment tools could signal a wrong message. For example, while artificial technologies have said to be effective in HR processes (i.e., predicting employee attrition with 95% accuracy),<sup>168</sup> the technology that drives these innovative tools have replaced 30% of all HR staff in at least one tech company engineering such tool—IBM.<sup>169</sup> Under such precedents, employees might mistakenly interpret RAISE as a threat to job security as most Americans do,<sup>170</sup> in spite of the fact that RAISE does not mention anything about replacing humans in the current hiring process.

***Potential outcomes of the unintended consequence.*** Misguided understandings can have grave implications to an organization, and overlooking the element of job security could severely damage the agency from the inside-out.<sup>171</sup> Studies have shown that even the *perceived* threat of job security can lower employee trust and heighten job-related

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<sup>168</sup> Rosenbaum, Eric. "IBM artificial intelligence can predict with 95% accuracy which workers are about to quit their jobs." @Work, *CNBC*, April 3, 2019. Accessed April 7, 2019. <https://www.cnbc.com/2019/04/03/ibm-ai-can-predict-with-95-percent-accuracy-which-employees-will-quit.html>.

<sup>169</sup> Pontefract, Dan. "IBM's Artificial Intelligence Strategy Is Fantastic, But AI Also Cut 30% Of Its HR Workforce." Leadership, *Forbes*, April 6, 2019. Accessed April 7, 2019. <https://www.forbes.com/sites/danpontefract/2019/04/06/ibms-artificial-intelligence-strategy-is-fantastic-but-ai-also-cut-30-of-its-hr-workforce/#730462b6126a>.

<sup>170</sup> Aaron Smith and Monica Anderson. "Americans' attitudes toward a future in which robots and computers can do many human jobs." Internet & Tech. Pew Research Center. October 4, 2017. Accessed April 11, 2019. <https://www.pewinternet.org/2017/10/04/americans-attitudes-toward-a-future-in-which-robots-and-computers-can-do-many-human-jobs>.

<sup>171</sup> Sharkie, Robert. "Trust in Leadership Is Vital for Employee Performance." *Management Research News* 32, no. 5 (2009): 491-98. doi:10.1108/01409170910952985.

stress,<sup>172</sup> decrease safety compliance and increase work-related injuries,<sup>173</sup> and, ultimately, reduce overall performance.<sup>174</sup>

***Political sensitivity of adverse outcomes.*** That makes job security a sensitive topic to the director. Politically speaking, if the agency unleashes another fallout under the Trump-appointed leadership, it could draw negative publicity and agitate the president who vowed to undo every single “damage” caused by President Obama.<sup>175</sup> Additionally, employee performance indicators are of chief concern to congress-members who pressed the agency over ceaseless controversies during the past decade.<sup>176</sup> <sup>177</sup> So on the one side, artificial intelligence recruitment systems could potentially boost workforce morale and win the trust of the workforce, but it could also have the opposite effect and upset bureaucratic actors if not handled correctly.

***Mitigate adverse outcomes through preventative communication.*** Given the magnitude of possible unintended consequences, it would be politically sensible to convey transparent communication to reduce misunderstandings and mitigate associated conflicts.<sup>178</sup> Create a publicity strategy to clarify the intent and purpose of introducing

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<sup>172</sup> Phil Ciciora. “Perception of job insecurity results in lower use of workplace programs.” University of Illinois. February 17, 2014. Accessed April 11, 2019. <https://blogs.illinois.edu/view/6367/204652>.

<sup>173</sup> Probst, Tahira M., and Ty L. Brubaker. “The Effects of Job Insecurity on Employee Safety Outcomes: Cross-sectional and Longitudinal Explorations.” *Journal of Occupational Health Psychology* 6, no. 2 (2001): 139-59. Accessed April 11, 2019. doi:10.1037//1076-8998.6.2.139.

<sup>174</sup> Brown, Sarah, Daniel Gray, Jolian McHardy, and Karl Taylor. “Employee Trust and Workplace Performance.” *Journal of Economic Behavior & Organization* 116 (August 2015): 361-78. doi:10.1016/j.jebo.2015.05.001.

<sup>175</sup> McGrane, Victoria. “Trump’s greatest mission: erasing Obama’s legacy.” *Nation, The Boston Globe*, December 16, 2017. Accessed April 11, 2019. <https://www.bostonglobe.com/news/nation/2017/12/16/trump-greatest-mission-erasing-obama-legacy/OA9M4qwS2hHIOj3MGLxGxK/story.html>.

<sup>176</sup> Schmidt, Michael. Staffing Crisis Threatens Secret Service Mission, House Report Says.” *Politics, The New York Times*, December 3, 2015. Accessed April 11, 2019. <https://www.nytimes.com/2015/12/04/us/politics/staffing-crisis-threatens-secret-service-mission-house-report-says.html>.

<sup>177</sup> In 2017, Congress enacted legislative mandates for the U.S. Secret Service, stipulating conditions for funding the agency based on performance indicators related to hiring and retention.

<sup>178</sup> Obi, Oke. “Influence of Leader Communication on Employee Motivation.” Doctoral thesis, Walden University, 2018. Accessed April 14, 2019. <https://scholarworks.waldenu.edu/cgi/viewcontent.cgi?article=6668&context=dissertations>.

emerging technologies in the recruitment process: artificial intelligence hiring tools will augment the existing workforce—rather than replacing them in place of machines.<sup>179</sup>

***Director Alles’ experience meets the eye with RAISE in addressing the needs of the U.S. Secret Service.*** Director Alles has the experience to adopt sophisticated technologies for mission success. In fact, he has a history of promoting emerging applications despite political challenges, and that track-record might have helped him to serve as the Director of the U.S. Secret Service. When the director served as the head of Air and Marine Operations at U.S. Customs and Border Protection (CBP), he built a reputation by defending the use of \$18 million in the Predator Drone program when congress members doubted the effectiveness of the aerial technology.<sup>180 181 182</sup>

Eventually, the director’s persistent pursuit of technological innovation earned him standing in successful mission outcomes. And he benefited from the strong relationship with John F. Kelly when the former Secretary of the Department of Homeland Security paved the way for Director Alles to lead the U.S. Secret Service as the top official.<sup>183 184</sup> Similarly, tackling the hiring and retention challenges at the U.S. Secret Service with emerging technologies could raise the director’s national profile, once again, and grow a favorable political climate for potential opportunities in the future.

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<sup>179</sup> Sugriiva Paramasivam. “AI to augment, not displace jobs according to new Microsoft Study on AI.” Microsoft. March 25, 2019. Accessed April 7, 2019. <https://news.microsoft.com/en-my/2019/03/25/ai-to-augment-not-displace-jobs-according-to-new-microsoft-study-on-ai>.

<sup>180</sup> The Predator drone program equipped the U.S. Customs and Border Protection with an aerial technology that used augmented reality functionalities to detect and identify targets along the border.

<sup>181</sup> Robbins, Ted. “Border Drones Fly Into Fight Over Immigration.” National, *NPR*, June 11, 2013. Accessed April 12, 2019. <https://www.npr.org/2013/06/11/190741527/border-drones-fly-into-fight-over-immigration>.

<sup>182</sup> Randolph Alles, “Technology and Border Security,” C-SPAN, May 13, 2015. Accessed April 13, 2019. <https://www.c-span.org/video/?326015-1/hearing-technology-border-security>.

<sup>183</sup> Nicolas Fandos. *Randolph Alles, Retired General, Is Chosen to Lead Secret Service*.

<sup>184</sup> John F. Kelly served as the Secretary of the Homeland Security prior to joining the White House as the Chief of Staff in 2017.

***Public's attitude towards artificial intelligence in policing—and U.S. Secret Service.***

Outside of the U.S. Secret Service, the expansion of artificial intelligence in policing has been stirring some apprehension in the public sphere.<sup>185</sup> In April 2019, for example, Turing-laureates and artificial intelligence developers at Microsoft, Google, Harvard, UC Berkeley, DeepMind, and Facebook called on Amazon to stop selling facial recognition technologies to law enforcement agencies until regulatory oversights mature in place, calling that these technologies negatively impact women and people of color.<sup>186</sup>

The organized petition extends to the U.S. Secret Service. When the agency launched a pilot program to test facial recognition technologies around The White House, civil rights organizations like the ACLU emphasized that the “facial recognition is one of the most dangerous biometrics from a privacy standpoint.” Although the esteemed legal institution acknowledged the protection of the President of the United States as legitimate grounds for using the tool, the lack of clarity in ethical and technical parameters concerned social scholars at ACLU.<sup>187</sup>

***Highlight the ethical aspects of RAISE in public messages.*** RAISE orients the technical specifications of artificial intelligence hiring programs based on five ethical pillars:

Protection of 1) equal employment opportunity, 2) individuals living with disabilities, 3) human autonomy, 4) individual liberties and safety, 5) product integrity. The five pillars

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<sup>185</sup> Charles, Brian. “NYPD’s Big Artificial-Intelligence Reveal.” Public Safety & Justice, *Governing*, March 26, 2019. Accessed April 13, 2019. <https://www.governing.com/topics/public-justice-safety/gov-new-york-police-nypd-data-artificial-intelligence-patternizr.html>.

<sup>186</sup> Gershgor, Dave. “AI experts are calling on Amazon to stop selling facial recognition to law enforcement.” Face the Music, *Quartz*, April 3, 2019. Accessed April 13, 2019. <https://qz.com/1586544/ai-experts-want-amazon-to-stop-selling-facial-recognition-to-law-enforcement>.

<sup>187</sup> Jay Stanley. “Secret Service Announces Test of Face Recognition System Around White House.” ACLU. December 4, 2018. Accessed April 13, 2019. <https://www.aclu.org/blog/privacy-technology/surveillance-technologies/secret-service-announces-test-face-recognition>.

directly address the pressing concerns expressed by members of the public by demonstrating our commitment to diversity and liberties of the people.

Alternatively, the agency can partner up with artificial intelligence developers. However, this could backfire and thus pose a high risk for negative publicity. Recently, Google disbanded an artificial intelligence ethics advisory board. The board members feared the militarization of artificial intelligence technologies when an executive of a drone company joined the group, which led to member resignations in protest.<sup>188</sup> Given the director's influence over the Predator Drone program at CBP, a similar fallout is highly likely.

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<sup>188</sup> Glenn Chapman. "Google disbands artificial intelligence ethics board." Machine Learning & AI. Science X network. April 5, 2019. Accessed April 13, 2019. <https://phys.org/news/2019-04-google-disbands-artificial-intelligence-ethics.html>.

## RECOMMENDATION

Adopt the policy and develop ethics standard for artificial intelligence hiring systems.

Codifying RAISE will protect job applicants by defining system parameters and prevent unverified recruitment systems from entering the agency.

***Politically mindful: the policy raises the agency's national profile and addresses public concerns.*** RAISE could bring many parties to the table. The White House, members of Congress, the press and media, the general public, civic institutions, artificial intelligence developers, or other entities might hear about RAISE and monitor our progress.

While some people might feel uncomfortable about a law enforcement agency like the U.S. Secret Service approaching artificial intelligence technologies, RAISE will secure civil rights at the nexus between emerging technologies and the Secret Service. Our predecessors have made the ultimate sacrifice to preserve an institution at which we must protect the fruits of our democratic process. As such, the authority and power granted to us are the means of securing the integrity of our nation: the voice of the people. RAISE will build trust and confidence by aligning our position with public interests.

***RAISE takes a cost-effective approach to accomplish strategic goals.*** RAISE empowers the workforce to drive innovation at no expense other than salary payouts. Since the FY 2018-2025 Secret Service Human Capital Plan has already budgeted personnel salaries, the cost of RAISE development is a matter of maximizing the use of personnel rather than finding a new source of budget.

But if the agency outsources artificial intelligence expertise, additional costs could range anywhere between \$300,000 and \$500,000 per artificial intelligence specialist.<sup>189</sup>

However, even under that scenario, we can cover the outsourcing cost through IPA assignments. This should reduce the cost of ethics research down to zero provided that the agency finds developer(s) willing to lend expertise to the U.S. Secret Service.

***A morally sound policy: RAISE protects equal employment opportunities.*** In the 19<sup>th</sup> century, the early-American society crafted scientific techniques to justify the culture of slavery and discrimination against women. These conniving benchmarks deprived people of their civil liberties and employment opportunities.<sup>190 191 192</sup> Today, cutting-edge technologies do the same. Artificial intelligence is infested with biases against women and people of color, yet employers utilize them to justify hiring decisions in the name of innovation and efficiency.

At the U.S. Secret Service, RAISE will position civil rights at the heart of machines. The policy will require machines and their creators to secure human rights, diversity, non-discrimination, fairness, and safety. Grounded by the principles of equality, RAISE will ensure intelligent machines to speak at the intersection between the mind and the heart. Machine recruiters working for the Secret Service will treat all people equally, with respect, regardless of background. RAISE will stay consistent with the Constitution of the

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<sup>189</sup> Metz, Cade. "Tech Giants Are Paying Huge Salaries for Scarce A.I. Talent." Technology, *The New York Times*, October 22, 2017. April 20, 2019. <https://www.nytimes.com/2017/10/22/technology/artificial-intelligence-experts-salaries.html>.

<sup>190</sup> Anna Groves. "Lost Research Notes Clear Up Racial Bias Debate in Old Skull Size Study." Crux. Discover. October 31, 2018. April 15, 2019. <http://blogs.discovermagazine.com/crux/2018/10/31/morton-skulls-brain-size-controversy/#.XLNw2C-ZNQL>.

<sup>191</sup> Saini, Angela. "From Darwin to Damore, How Modern Science Failed Women," Think, *NBC Universal*, October 17, 2017. Accessed April 15, 2019. <https://www.nbcnews.com/think/opinion/darwin-damore-how-modern-science-failed-women-ncna801586>.

<sup>192</sup> Rierson, Sandra L. "Race and Gender Discrimination: A Historical Case for Equal Treatment Under the Fourteenth Amendment." *Duke Journal of Gender Law & Policy* 1, no. 89 (1994): 89-118. Accessed April 16, 2019. <https://scholarship.law.duke.edu/djglp/vol1/iss1/6>.



United States—this, we will defend with life; no cost outweighs the noble principle in which the American people rely upon.

## **Curriculum Vitae**

Jim H. Ong has been working at the United States Secret Service since 2018. In 2019, Jim had the honor of becoming the 2018 Employee of the Year. Jim also received the Quarterly Peer-Recognition Award for creativity and innovation.

Before joining the agency, Jim interned at UL as a policy analyst. At UL, Jim developed the Road Safety Framework Indicator for the UL Safety Index with the help of Population Reference Bureau. He also programmed computer scripts, like automating essays for the UL Safety Index country profiles and mining images of defected products.

During college, Jim gained experience in every level of the government from city, state, and to federal. Between 2008 and 2016, Jim served in the U.S. Army Reserve and received an honorable discharge as a rank of Sergeant.

Jim graduated from UCLA with a bachelor's degree in psychology in 2015. He will be pursuing a Juris Doctorate degree starting Fall of 2019. Jim wishes to explore the field of artificial intelligence safety by studying the intersection between legal theories and the psychology of machines.