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Ethical Programming of Algorithms: How to Deal with Ethical Risks of AI Tools for Hiring Decisions? (A)

Programming had always been Simon's passion.[1] In school, he had started to learn various programming languages. Alongside his physics studies, he continued to deepen his programming skills and acquired further knowledge in algorithms and artificial intelligence (AI). He sometimes even developed an algorithm or tools for daily use for himself or his friends in his spare time.

Right after Simon's graduation, he was offered a job as a data scientist in the newly established advanced analytics team of a large German company in the manufacturing sector. Simon was excited about his job because he could do what he loved: optimize different processes in the company by developing algorithms for various application areas. He also liked the project-based work that came with his job. During his first year in the job, he was able to complete two interesting projects in collaboration with the planning and production departments. Simon's supervisor was also very pleased with his work, as Simon was a very efficient and solution-oriented team member.

Six months ago, Simon had taken over a project that entailed collaboration with the company's HR department. As a data scientist, Simon was tasked with further developing the existing AI hiring software according to the needs of the HR managers.

The company was using this AI tool in the hiring process for all corporate functions. More precisely, in the process, AI technology analyzed video interviews of candidates by not only evaluating the actual responses, but also making use of audio and facial recognition software to analyze additional factors such as tone of voice, microfacial movements, and emotions of applicants to provide insights on certain personality traits and competencies. Based on these data, the software predicted an applicant's fit for a specific role and made recommendations about which candidate to hire.

In this way, the HR managers were provided with a personality profile of each candidate, created in an automated and thus time- and effort-efficient manner. Moreover, the AI-enabled assessment was seen as very fair, as it was data-driven and not prone to human bias. In addition, this practice allowed the firm to put all

[1] This material is part of the *Giving Voice to Values* (GVV) curriculum. The Yale School of Management was the founding partner, along with the Aspen Institute, which also served as the incubator for GVV. From 2009 to 2015, GVV was hosted and supported by Babson College. This case study is made possible with a grant to the University of Virginia from the Deloitte Foundation, which supports education through a variety of initiatives that help develop the talent of the future and promote excellence in teaching, research, and curriculum innovation. The case study may contain references to the content of third parties ("Third Party Content"). Third Party Content is not monitored, reviewed, or updated, nor is any Third Party Content endorsed by the Deloitte Foundation. This case is inspired by an actual business situation, but the business context, names, and other situational details have been fictionalized.

This fictionalized case was prepared by Anna Lena Hunkenschroer, Business Consultant and Researcher, Technical University of Munich, Germany, under the guidance of Mary C. Gentile, Creator and Director, *Giving Voice to Values*, and former Richard M. Waitzer Bicentennial Professor of Ethics, Darden School of Business.

applicants through the same experience, resulting in increased consistency of candidate assessment, whereas traditional assessment techniques, such as face-to-face interviews, were difficult to standardize. Nevertheless, the company's HR representatives were instructed to use the AI recommendation only as an additional data point and not to base their decision entirely upon the AI-generated profile. The reason behind this was that the AI technology made recommendations based on a huge amount of data points. This fact made it difficult to understand which specific data points were driving each recommendation, giving the AI a "black-box" character, meaning its mechanisms were too complex to understand in detail. This was ethically critical in the context of hiring because of hiring's relevance to people's lives. As this type of black-box system might remain unchallenged, discrimination practices could be obscured. Furthermore, applicants might not be able to receive an explanation of the (algorithmic) decisions made about them.

This kind of AI-powered video analysis was not the only way algorithms could be used in the recruiting and selection process. Simon's colleagues were already thinking about implementing AI-enabled tools in additional stages of the hiring process. For example, they considered leveraging AI for targeted communication across online platforms and social media and to remove bias from the wording of job ads. Here, an AI-based tone meter would determine whether the overall tone of the writing was likely to attract more men or more women and then make suggestions on how to improve the inclusiveness of the language. In addition, the firm considered using algorithms to screen applicants' curricula vitae (CVs), deriving a short list of the most promising candidates. This screening tool was considered highly efficient especially for top employers who received huge numbers of applications for a single position.

For Simon, the development of the AI-based video analysis tool was the most exciting project he had worked on up to that point. Also, the collaboration with Luke, the HR manager and his counterpart on this project, worked very well. For a few new job roles, Luke had defined the required characteristics and attributes and aligned them with Simon so that he could program the AI platform accordingly. In addition, Simon was responsible for constantly improving the robustness of the AI tool and continuously checking that the AI delivered valid results that were free of bias and did not discriminate against any applicant group. To this end, he carried out random spot checks on algorithmic recommendations, investigating in detail which candidates the algorithm had been selecting and why. This was particularly important because German law—the General Equal Treatment Act[2]—required that applicants not be discriminated against in personnel selection based on personal characteristics such as ethnic origin, gender, age, religion or belief, disability, or sexual identity.

One day, Luke asked Simon to adapt the standard software and program and train the AI so that it displayed not only a person's personality profile, but also another data point: the probability that the person would soon become pregnant. He suggested that for this purpose, the AI could be trained with data from the company's female employees, whose company records included whether and when they had gone on parental leave. Luke justified the request by saying that, especially for the company's advertised manufacturing jobs, it was important that applicants be physically fit and resilient, as they would have to operate large machines if hired. For pregnant workers, the HR manager said, these tasks were too strenuous, and he did not want to put them at risk. Also, HR would use the data only as an additional information point, not as a hard criterion for selection.

Although Simon had the data points and skills to customize and train the software as Luke desired, he felt uncomfortable after the conversation. He wondered if it was unfair to impose additional hiring criteria for some applicants, even if those criteria were meant for their own safety. Of course, he wanted to do his job and not jeopardize the good relationship with Luke. However, he was sure that he did not want to add the new feature

[2] "Allgemeines Gleichbehandlungsgesetz (AGG): General Act on Equal Treatment," 2006, https://www.antidiskriminierungsstelle.de/SharedDocs/downloads/DE/publikationen/AGG/agg_gleichbehandlungsgesetz.pdf?__blob=publicationFile (accessed June 11, 2022).

to the AI software. He wondered how he should handle the situation and how to behave toward Luke, whom he wanted neither to stab in the back nor to disappoint.

Discussion Questions

1. What is Simon's values-driven position?
2. What are Simon's objectives? What does he wish to accomplish through his action and voice?
3. What's at stake for the key parties involved in this situation?
4. What counterarguments might Simon expect and what would be effective responses?
5. What will be the most effective action plan? If you were the protagonist, with whom would you want to talk and what would you want to say?