

**Thesis Project Portfolio**

**Corporate Adoption of Artificial Intelligence (AI) technology**  
(Technical Report)

**The Use of Artificial Intelligence in Hiring and Recruitment**  
(STS Research Paper)

An Undergraduate Thesis

Presented to the Faculty of the School of Engineering and Applied Science  
University of Virginia • Charlottesville, Virginia

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Bachelor of Science, School of Engineering

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## **Sociotechnical Synthesis**

AI is taking over the world; rapid advancements in AI technology have allowed services such as ChatGPT to perform tasks faster, more easily, and sometimes even more effectively than humans. A major government contractor made the decision to integrate artificial intelligence within many of its operations. During my internship with them, I was involved in a project that aimed to harness AI's potential for enhancing efficiency and security, which involved creating an in-house generative AI system customized to serve as an internal knowledge base for employees. My STS research investigated what potential problems arise in employing artificial intelligence and machine learning hiring algorithms in the recruitment process. This is because AI algorithms are not immune to the biases present in the data they are trained on or the complexities of their design. With each breakthrough, AI becomes more accessible, more potent, and more integral to our daily lives. As corporations scramble to adopt AI technology, it is important to examine their vast sociotechnical consequences.

My technical project has great potential within the company. It will save time and manpower. It is also significant that it stands as the company's first dive into utilizing AI for everyday company processes. My team's requirements were to create a web application like ChatGPT that would provide employees with company-specific information that would be more helpful than a standard generative AI model. Current features include requiring a full employee authentication process consistent with all other company websites, mimic ChatGPT's functionality by utilizing OpenAI's GPT-4 model and give the model access to all company proprietary information to enable it to assist employees with said company-specific information.

My project was designed to save manpower and time in various areas. Ideally, results would show up as reduced IT support workloads, including tickets, call times, and such.

Truthfully, a myriad of results could emerge as this project continues. There is a reason companies are scrambling to adopt any form of AI they can into either their products or their productions. No doubt more benefits will emerge from this relatively simple concept in terms of productivity and efficiency for individual employees and the company.

To reiterate, my STS research investigated the potential problems that arise in employing artificial intelligence and machine learning hiring algorithms in the recruitment process. These algorithms can be trained on data that is biased against certain groups of people or using features that are correlated with race, gender, or other protected characteristics, which will allow them to reflect and even reinforce existing biases. The case studies I put forth have already proven that these features exist in current AI algorithms. Their effects are already being felt by every actor that has interacted with that system.

I offered four case studies and four academic articles as my evidence. The case studies detail problems with automated resume screeners, including Amazon's infamous resume screener that discriminated against women, and automated video interview analysis algorithms. The articles talk more about the impacts of these algorithms on women, people with disabilities, people with low-income, and other marginalized groups. Overall, unfair hiring algorithms can disadvantage qualified individuals from underrepresented groups, limiting their access to good jobs and career advancement. Furthermore, limited access to good jobs can restrict an individual's ability to save for a home, invest in education, or build a secure financial future for their families. By examining the evidence and the response to this new AI wave, we can see that responsible implementation of AI is urgently needed. While AI offers astronomic benefits to society, its implementation requires careful planning and oversight