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Abstract: The empirical data indicate that a relatively small increment of additional effort at the initial examination stage would allow the USPTO to improve its accuracy in evaluating patent applications. This additional increment of effort could be supplied by humans only, or by humans assisted by artificial intelligence (AI). This article assesses the advantages and disadvantages of AI. AI offers the potential advantage of being more cost-effective than humans, particularly for the laborious task of prior art search. Moreover, AI in patent examination does not raise the potent concerns about discrimination and privacy that it raises in many other areas of administrative and judicial process. AI also has the potential to foster schemes of technology classification that are more adaptive than existing schemes, thereby contributing to accuracy not only in the individual case but across cases.

But even an apparently easy case like the USPTO poses legal and policy challenges. Two of the most salient involve training data and explainability. The most readily available source of training data -- existing examiner searches and rejections -- may be flawed, at least if used uncritically. But determining what data is appropriate to use, and how to use it, requires answering important legal and policy questions.

As for explainability, challenges on that front are likely to arise even if (as seems likely in the near term), AI is not making the ultimate validity determination. For example, even in the more modest case where AI is used to find the key prior art that results in a rejection, rejection based on apparently nonanalogous art could be challenged as failing the administrative law standard of "reasoned decision making." Such challenges might be particularly likely in cases where trade secrecy associated with AI that has been provided by the private sector precludes revealing details regarding how the AI works. The ultimate result could be a perceived need on the part of the USPTO to build its own AI and make it as transparent as possible, even while the agency recognizes that private sector capabilities are often superior and that transparency creates the potential for gaming.