

Saint Louis University School of Law

Scholarship Commons

All Faculty Scholarship

2024

AI Renaissance: Pharmaceuticals and Diagnostic Medicine

Ty J. Feeney

Michael S. Sinha

Follow this and additional works at: <https://scholarship.law.slu.edu/faculty>



Part of the [Health Law and Policy Commons](#), [Medicinal and Pharmaceutical Chemistry Commons](#), [Other Pharmacy and Pharmaceutical Sciences Commons](#), and the [Pharmaceutics and Drug Design Commons](#)



SAINT LOUIS UNIVERSITY SCHOOL OF LAW
Legal Studies Research Paper Series

No. 2024-04

AI Renaissance: Pharmaceuticals and Diagnostic Medicine

Ty J. Feeney
Third-year law student
Saint Louis University-School of Law

Michael S. Sinha
Saint Louis University-School of Law

The George Washington Journal of Law and Technology, Forthcoming, 2024

AI Renaissance: Pharmaceuticals and Diagnostic Medicine

The George Washington Journal of Law and Technology (forthcoming 2025)

Saint Louis U. Legal Studies Research Paper No. 2024-04

Ty J. Feeney

Saint Louis University - School of Law

Michael S. Sinha

Saint Louis University – School of Law

Abstract

The explosive growth of Artificial Intelligence (AI) in the modern era has led to significant advancements in the world of medicine. In drug discovery, AI technology is used to classify proteins as drug targets or non-targets for specific diseases, more accurately interpret and describe pharmacology in a quantitative fashion, and predict protein structures based on only a protein sequence for input. AI methods are used in drug development to generate predictive models for drug screening purposes, refine and modify candidate structures of drugs to optimize compounds, and predict a drug's physiochemical properties, bioactivity, and toxicity. For medical devices, the advancement of AI technology in the areas of colonoscopy, percutaneous coronary intervention (PCI), acute stroke and intracranial hemorrhage (ICH), vascular surgery, and ophthalmology may offer increased efficacy as compared to traditional patient-care techniques in diagnostic medicine.

While use of AI in pharmaceutical development processes and diagnostic medicine increases, the rapidly growing technology has substantial barriers to overcome. The combination of AI with other novel technologies (e.g., nanotechnology) is anticipated to provide solutions to problems in drug development, model selection, drug screening, and even in clinical trials. Advancements in AI-enabled imaging analysis will be increasingly used in the fields of radiology and pathology, bringing with it increased efficiency in traditional patient-care techniques. Challenges in data representation, data labeling, small sample sizes, data privacy, ethical concerns, and interpretation of models present barriers for AI developers and interested clinicians to overcome when further developing AI technology in the pharmaceutical and medical diagnostics industries. These industries must also consider the importance of patent rights in the considering whether to invest in further development of AI technology, as the United States and other countries debate whether AI-assisted invention should be patentable.

As governments consider the implications of an AI-enabled world, it will be crucial for the United States government to develop comprehensive legislation and regulations for the increasingly widespread technology. As sentiment from American citizens, corporate leaders, and government officials grows increasingly available, President Biden's Executive Order on the Safe, Secure, and Trustworthy Development and Use of Artificial Intelligence stands out as a substantial starting point for anticipated legislation. Debate as to how AI should be regulated points to a logical conclusion:

Congress should create a new federal agency with the sole purpose of regulating AI technology, developers, and sellers. This newly created agency must consider appropriate regulatory schemes, the need for interaction between all interested agencies and industries, and proper enforcement techniques such as licensure, monitoring, and legal penalties.

Suggested Citation:

Feeney, Ty and Sinha, Michael S., AI Renaissance: Pharmaceuticals and Diagnostic Medicine (February 15, 2024). The George Washington Journal of Law and Technology (forthcoming 2025), Saint Louis U. Legal Studies Research Paper No. 2024-04.