



Professional Research Thesis

Titled

*Artificial intelligence and its impact on administrative
judiciary.*

Researcher

Kairman fathy youssef mostafa Al demerdash

Supervisor signature

SUMMARY

The world has witnessed in recent decades tremendous technological development that has created a qualitative leap in various aspects of life, and the legal field, particularly administrative judiciary, has not been immune to this digital revolution. Artificial intelligence has become one of the most prominent manifestations of this transformation, as its applications have begun to penetrate justice systems, specifically in judicial work mechanisms, whether through assistance in judicial decision-making, simplification of procedures, or through judicial prediction tools that rely on big data analysis and precise statistical models.

Artificial intelligence has emerged as a tool with exceptional capability to process enormous amounts of information, extract recurring patterns, and even provide recommendations or decisions based on complex algorithms. This raises fundamental questions about the extent to which the judicial system can interact with these intelligent tools without compromising the essence of justice, especially in administrative judiciary, which requires consideration of legality principles and balance between executive authority and individual rights. Administrative judiciary is not only concerned with applying the law but plays a vital role in

achieving effective oversight of administrative actions and ensuring respect for the rule of law principle.

In this context, widespread debate arises about the appropriateness of integrating artificial intelligence into the judicial environment, specifically in administrative judiciary, considering the nature and complexity of administrative disputes and the varying circumstances surrounding them, making excessive reliance on algorithms a thorny issue that may involve real risks affecting individual rights, especially when these systems are closed or non-transparent. A pivotal question is also raised about whether artificial intelligence can replace the human judge or whether its role is limited to being merely an assistive tool, particularly since administrative judiciary is not measured by technical efficiency standards alone but is based on objective and human foundations and considerations related to societal justice.

Therefore, studying the impact of artificial intelligence on administrative judiciary requires research into the legal, constitutional, and ethical dimensions of using this technology, along with analyzing the changing nature of the relationship between the human judge and these intelligent systems, and anticipating the future of administrative judicial work in light of accelerating technical progress. The matter

also requires examining comparative experiences of countries in this field to ascertain the extent of their success or failure and benefiting from them in developing the legal and institutional framework governing the use of artificial intelligence in administrative judiciary, in a manner that ensures enhanced efficiency without compromising justice principles.

Against this background, this study comes to shed light on a central problem represented in: "To what extent can artificial intelligence contribute to developing administrative judiciary without undermining its role in protecting rights and public freedoms?" This is a problem that necessitates reconciling the requirements of technological modernization with the requirements of respecting judicial privacy and ensuring judicial independence and discretion.

Therefore, this thesis proceeds from the hypothesis that artificial intelligence may contribute to developing administrative judiciary efficiency and improving judicial service quality, provided that it is employed according to a strict legal framework that considers the legal specificity of this type of judiciary and prevents sliding toward a rigid technical judicial model lacking the human dimension. Consequently, this study aims to analyze theoretical and practical frameworks for employing artificial intelligence in administrative judiciary and identify legal

controls capable of ensuring this employment's consistency with rule of law principles, judicial independence, and protection of rights and freedoms.

RESEARCH PROBLEM

In light of the accelerating transformations witnessed by the contemporary world due to the digital revolution and the development of artificial intelligence technologies, judicial institutions face fundamental challenges related to reconsidering their work methods, modernizing their tools, and improving their efficiency without compromising the essence of justice and the foundations of legal legitimacy. Administrative judiciary is considered one of the most sensitive areas in this context, given the nature of its jurisdiction related to overseeing administrative actions and protecting individual rights against public authority, which requires a high degree of objectivity, accuracy, and flexibility simultaneously.

Artificial intelligence has imposed itself on judicial work through multiple applications, such as intelligent systems for analyzing judicial data, judgment prediction software, judicial procedure automation services, and other means aimed at accelerating case resolution, reducing costs, and improving performance quality. However, this expansion in reliance on artificial intelligence raises many legal and intellectual problems related to the compatibility of these technologies with fair trial principles, guarantees of judicial independence, and defense rights,

especially if used in contexts of a discretionary nature requiring human thinking and in-depth legal vision.

The fundamental problem that this study seeks to address is represented in the existing tension between the need to modernize the administrative judiciary system by benefiting from artificial intelligence technologies and the concerns related to the possible erosion of the fundamental values upon which this judiciary is based if reliance is placed on technologies that may lack transparency and accountability, or if the human role is replaced by rigid algorithmic outputs. This problem becomes more complex in the absence of a unified legal framework or clear legislative controls governing the use of artificial intelligence within the judicial facility, opening the field to many questions about the limits of this use and the necessary guarantees for securing justice and protecting rights.

Hence, this study proceeds from the conviction that artificial intelligence, despite the technical advantages it provides, should not be viewed as a substitute for the administrative judge but rather as an assistive tool that should be subject to strict legal controls ensuring no compromise to judicial independence or individuals' constitutional guarantees. The central problem in the research is represented in how to achieve this delicate balance between benefiting from technological

development and preserving the fundamental principles upon which administrative judiciary is based, in light of the accelerating and complex transformations witnessed by judicial reality.

RESEARCH SIGNIFICANCE

This study derives its significance from its intersection with one of the most prominent challenges facing contemporary judicial systems, represented in adapting to accelerating technological leaps without compromising justice principles and judicial independence. At a time when countries worldwide are moving toward employing artificial intelligence technologies in various areas of life, including judicial systems, the need to understand the real impact of this employment increases, especially in administrative judiciary, which is considered a faithful guardian of the rule of law principle and a primary tool for ensuring balance in the relationship between public authority and individual rights.

The significance of this study comes from the fact that it sheds light on a subject of extreme modernity and sensitivity simultaneously, as it is not limited to technical aspects of using artificial intelligence but extends to analyze its legal, constitutional, and rights dimensions and explores its suitability for the nature of administrative judiciary, which is characterized by its discretionary nature and careful consideration of facts and circumstances. The study also aims to fill a clear research gap in Arab legal literature, which still—for the most part—deals with artificial intelligence as a purely technical phenomenon without delving into its

fundamental effects on the judicial structure and on concepts of justice and legal legitimacy.

The significance of this study is also manifested in its practical dimension, as it seeks to present a comprehensive legal vision to help decision-makers establish a legislative and regulatory framework governing the integration of artificial intelligence into judicial work without compromising the position of the human judge or violating fair trial principles. The study also aims to raise awareness among actors in the legal field—judges, lawyers, and researchers—about the dangers of unregulated use of these technologies and highlight the need to enhance transparency and accountability in designing and implementing intelligent systems in the judicial environment.

Furthermore, this study gains added significance in the context of accelerating developments witnessed by justice systems in the Arab world and the diligent pursuit by some countries to modernize their judicial facilities through digital transformation, making the results and conclusions of this study of direct benefit in directing this transformation toward the safe path that achieves effectiveness without compromising established constitutional values and legal guarantees.

RESEARCH OBJECTIVES

- ✓ Identify the concept of artificial intelligence and its applications in the judicial field.
- ✓ Analyze the extent of artificial intelligence's impact on administrative judiciary from a legal perspective.
- ✓ Clarify legal and constitutional challenges associated with using artificial intelligence in administrative judiciary.
- ✓ Study the compatibility of artificial intelligence technologies with fair trial principles and guarantees of individual rights.
- ✓ Propose legal controls and standards ensuring safe and effective use of artificial intelligence without compromising judicial independence.

RESEARCH HYPOTHESES AND QUESTIONS

First: Research Hypotheses

✓ *Artificial intelligence contributes to improving administrative judiciary efficiency and accelerating judicial procedures.*

✓ *The use of artificial intelligence in administrative judiciary faces legal and constitutional challenges related to transparency, oversight, and fair trial guarantees.*

✓ *Artificial intelligence cannot replace the administrative judge given the nature of administrative disputes requiring flexible human discretion.*

✓ *There is an urgent need to develop a legal framework regulating the use of artificial intelligence in administrative judiciary in a manner that preserves judicial independence and protects rights.*

Second: Research Questions

✓ *What is meant by artificial intelligence, and what are its most prominent applications in the judicial field?*

✓ How does the use of artificial intelligence affect the nature of administrative judiciary and its basic principles?

✓ What are the legal and constitutional challenges imposed by integrating artificial intelligence into administrative judiciary?

✓ Can artificial intelligence be relied upon in issuing administrative judgments? And what are the limits of this reliance?

✓ What is the future of administrative judiciary in light of the expansion in using artificial intelligence? Can the human dimension in the judicial process be preserved in the future?

RESEARCH METHODOLOGY

The descriptive analytical method was used to understand "artificial intelligence and its impact on administrative judiciary."

RESEARCH LIMITATIONS

Spatial Limitations: The Arab World

Temporal Limitations: 2006–2025

RESEARCH PLAN

The study plan will be organized as follows into several chapters, sections, requirements, and a conclusion:

Chapter One. Theoretical Framework and Scientific Concepts

Section One. Introduction to Understanding Artificial Intelligence

First: Nature of artificial intelligence and human intelligence

Second: Methods of artificial intelligence

Third: Origin and development of artificial intelligence

Fourth: Fields and characteristics of artificial intelligence

Section Two. Introduction to Understanding Administrative Legislation

First: Concept of administrative legislation

Second: Origin and characteristics of administrative law

Third: Principles of administrative legislation in Egyptian law

Fourth. Objectives of administrative judiciary and its role in protecting rights and monitoring administration

Chapter Two: Legal and Practical Impacts of Artificial Intelligence on Administrative Judiciary

Section One. Positive Impacts of Artificial Intelligence on Administrative Judiciary

First. Accelerating judicial procedures and improving performance efficiency

Second. Enhancing access to justice and reducing judicial costs

Third. Supporting the administrative judge in analyzing facts and predicting judgments

Section Two. Legal and Constitutional Challenges of Using Artificial Intelligence in Administrative Judiciary

First. Risks of algorithmic bias and lack of transparency

Second. Problem of legal responsibility for artificial intelligence decisions

Third. Challenges related to judicial independence and fair trial guarantees

Section Three. Applications of Administrative Judiciary in Protecting Individual Rights

First. Protection of civil and political rights

Second. Protection of economic and social rights in administrative judiciary

Third. Evaluation of administrative judiciary's role and prospects for its development

CONCLUSION

This study has addressed a contemporary subject witnessing accelerating development, which is the impact of artificial intelligence on administrative judiciary, in light of major technological transformations that have imposed themselves on various areas of life, including the judicial field. The study sought to examine the dimensions of this impact from multiple angles, through research into theoretical concepts and practical applications, and analysis of challenges and opportunities involved in integrating artificial intelligence within the administrative judiciary system.

The study showed that artificial intelligence represents a promising tool that can contribute to developing the work of administrative judiciary in terms of accelerating case resolution, improving decision quality, and facilitating access to justice. However, its use remains surrounded by a set of legal, ethical, and constitutional concerns, especially in the absence of strict regulatory frameworks and controls governing the working mechanisms of these intelligent systems.

It also became clear that administrative judiciary, by its special nature and vital role in protecting individual rights and monitoring administrative authority

actions, requires preserving the human dimension in judicial decision-making and not being satisfied with algorithmic outputs that may fail to comprehend the real and social complexities surrounding each case individually.

From this perspective, the future of integrating artificial intelligence into administrative judiciary should be built on clear legal foundations that balance the need for modernization and development with preserving the established principles of justice and judicial independence. This issue remains an open field for research and discussion and requires continued studies and legislative initiatives to ensure safe and legitimate use of this technology within judicial systems.

FINDINGS

✓ *Artificial intelligence constitutes an effective tool that can contribute to improving administrative judiciary efficiency.*

✓ *The use of artificial intelligence in judiciary remains limited in Arab countries and needs a comprehensive legislative and regulatory environment.*

✓ *Administrative judiciary, by its discretionary and supervisory nature, requires preserving the human element in the decision-making process.*

✓ *There are potential risks of using artificial intelligence related to algorithmic bias and the absence of transparency and accountability.*

✓ *There are no clear legal standards yet regulating responsibility for decisions resulting from artificial intelligence systems in judiciary.*

✓ *Artificial intelligence can be an assistive tool for the judge and not a substitute in complex administrative cases.*

✓ *There is an urgent need to qualify judges and judicial cadres to understand and employ artificial intelligence technologies safely.*

✓ Activating artificial intelligence in administrative judiciary requires advanced digital infrastructure and balanced legal guarantees.

✓ The future of artificial intelligence in judiciary is linked to clear legislative will ensuring balance between development and codification.

RECOMMENDATIONS

- ✓ *The necessity of establishing a comprehensive legislative framework regulating the use of artificial intelligence in administrative judiciary.*
- ✓ *Emphasizing that the role of artificial intelligence must remain assistive to the judge, not a substitute.*
- ✓ *Preparing specialized training programs for judges and judicial workers on using artificial intelligence.*
- ✓ *Establishing national committees to review and control artificial intelligence algorithms used in the judicial field.*
- ✓ *Ensuring complete transparency in designing and using artificial intelligence systems within judicial institutions.*
- ✓ *Developing digital infrastructure for courts to be capable of accommodating artificial intelligence technologies.*
- ✓ *Benefiting from experiences of leading countries in using artificial intelligence in judiciary while considering local specificity.*

✓ Incorporating human rights principles and digital justice into any artificial intelligence system used judicially.

✓ Enhancing cooperation between judicial, technical, and academic bodies to ensure prudent use of technology in judiciary.

REFERENCES

- ✓ أبو زيد، أحمد. الذكاء الاصطناعي وتحولات العدالة في العصر الرقمي. القاهرة: دار الفكر العربي، 2021.
- ✓ الراشدي، منى عبد الله. "الإطار القانوني لاستخدام الذكاء الاصطناعي في القضاء العربي". المجلة العربية للعلوم القانونية، جامعة البحرين، العدد 14، 2020.
- ✓ الحربي، صفاء عبد العزيز. "التحول الرقمي في القضاء العربي ودور الذكاء الاصطناعي". مجلة جامعة نايف للعلوم الأمنية، العدد 37، 2021.
- ✓ حسن، أحمد جمال الدين. "التحديات الأخلاقية لاستخدام الذكاء الاصطناعي في القضاء: دراسة نقدية". مجلة الحقوق، جامعة الكويت، العدد 4، 2022.
- ✓ عبد الفتاح، حسن عبد العزيز. "الذكاء الاصطناعي ومستقبل العمل القضائي: دراسة تحليلية". المجلة المصرية للقانون والاقتصاد، جامعة القاهرة، العدد 22، 2021.
- ✓ القحطاني، ناصر بن عبد الله. القانون الإداري: التنظيم، الوظيفة، الرقابة. الرياض: مكتبة الرشد، 2020.
- ✓ الطرابلسي، نزار. العدالة والتحول الرقمي في الوطن العربي. بيروت: مركز دراسات الوحدة العربية، 2022.
- ✓ النوري، نزار عبد الكريم. القضاء الإداري وضمانات المحاكمة العادلة. عمان: دار الثقافة للنشر والتوزيع، 2019.
- ✓ العتيبي، خالد محمد. "مخاطر استخدام الذكاء الاصطناعي في القرارات القضائية". المجلة السعودية للدراسات القانونية، العدد 11، 2023.

- ✓ داود، رامي عبد السلام. القانون والتكنولوجيا: تحديات الذكاء الاصطناعي في المنظومة القضائية. بيروت: المؤسسة الحديثة للكتاب، 2021.
- ✓ البدرى، أحمد يوسف. "مدى مشروعية استخدام أنظمة الذكاء الاصطناعي في المحاكم الإدارية". مجلة البحوث القانونية، جامعة بنها، العدد 9، 2021.
- ✓ شفيق، عمرو محمود. الثورة الرقمية ومستقبل العدالة الجنائية والإدارية. القاهرة: دار النهضة العربية، 2020.
- ✓ الربيعي، حيدر كاظم. "القضاء الإلكتروني وتحديات الذكاء الاصطناعي". مجلة جامعة كربلاء القانونية، العدد 18، 2021.
- ✓ الكبيسي، عبد الستار. القضاء الإداري والنظام العام الرقمي. بغداد: دار الكتب القانونية، 2021.
- ✓ الحسن، نجلاء إبراهيم. "التحول الرقمي في مرفق القضاء الإداري في الوطن العربي". مجلة دراسات قانونية، جامعة القاهرة، 2022.
- ✓ جاد، سحر محمود. القضاء والتكنولوجيا: دراسة في علاقة القانون بالابتكار التقني. بيروت: دار المنظومة، 2021.
- ✓ الشريف، سامي أحمد. "حقوق المتقاضين في ظل التحول إلى الذكاء الاصطناعي في القضاء". مجلة الحقوق والعلوم السياسية، العدد 6، 2022.
- ✓ المحمدي، خالد أحمد. القانون والتحول الرقمي: مدخل لدراسة الذكاء الاصطناعي في العدالة الإدارية. عمان: دار وائل، 2020.

- ✓ الشمري، فهد بن عبد الله. "العدالة الاصطناعية ومسؤولية القرارات الآلية". مجلة القانون والسياسة، جامعة بغداد، العدد 15، 2021.
- ✓ صادق، عبد الله. التفاضل الإلكتروني والذكاء الاصطناعي. صنعاء: دار النشر الجامعي، 2022.
- ✓ الفقيه، هشام محمد. "مبدأ العلانية في ظل استخدام الذكاء الاصطناعي قضائياً". مجلة العدالة الرقمية، 2023.
- ✓ السعدي، منى حسن. "استقلال القضاء الإداري في مواجهة الذكاء الاصطناعي". مجلة البحوث الإدارية والقانونية، العدد 19، 2023.
- ✓ الغامدي، فواز. أمن البيانات القضائية والذكاء الاصطناعي. الرياض: دار القانون الحديث، 2022.
- ✓ عبيد، سمير. الرقمنة والعدالة الإدارية في الوطن العربي. طرابلس: مركز البحوث القانونية، 2020.
- ✓ النعيمي، عبد الرحمن. "الأمن السيبراني كشرط لتوظيف الذكاء الاصطناعي في المحاكم". مجلة القانون المعاصر، العدد 12، 2021.

Foreign References

- ✓ *Susskind, Richard. Online Courts and the Future of Justice. Oxford University Press, 2019.*
- ✓ *Surden, Harry. "Artificial Intelligence and Law: An Overview." Georgia State University Law Review, Vol. 35, No. 4, 2019.*
- ✓ *Bench-Capon, Trevor. "The Role of Artificial Intelligence in Legal Reasoning." The Modern Law Review, Vol. 84, No. 2, 2021.*
- ✓ *Remus, Dana, and Frank Levy. "Can Robots Be Lawyers? Computers, Lawyers, and the Practice of Law." Yale Journal of Law & Technology, Vol. 17, 2016.*
- ✓ *Hildebrandt, Mireille. Smart Technologies and the End(s) of Law: Novel Entanglements of Law and Technology. Edward Elgar Publishing, 2015.*
- ✓ *Katz, Daniel Martin. "Quantitative Legal Prediction: The Future of Legal Analytics." Emory Law Journal, Vol. 62, No. 4, 2013.*
- ✓ *Goodman, Bryce. "Ethics of Artificial Intelligence in Law." Philosophy & Technology, Vol. 33, No. 3, 2020.*
- ✓ *Zouridis, Stavros, et al. "Algorithmic Decision-Making and the Rule of Law." Information Polity, Vol. 26, No. 4, 2021.*

- ✓ *McGinnis, John O., and Russell G. Pearce. "The Great Disruption: How Machine Intelligence Will Transform the Role of Lawyers in the Delivery of Legal Services." Fordham Law Review, Vol. 82, No. 6, 2014.*
- ✓ *Aletras, Nikolaos, et al. "Predicting Judicial Decisions of the European Court of Human Rights: A Natural Language Processing Perspective." PeerJ Computer Science, Vol. 2, 2016.*
- ✓ *Eubanks, Virginia. Automating Inequality: How High-Tech Tools Profile, Police, and Punish the Poor. St. Martin's Press, 2018.*
- ✓ *O'Neil, Cathy. Weapons of Math Destruction: How Big Data Increases Inequality and Threatens Democracy. Crown Publishing Group, 2016.*
- ✓ *Branting, L. Karl. Reasoning with Rules and Precedents: A Computational Model of Legal Analysis. Springer, 2000.*
- ✓ *Livermore, Michael A., and Daniel N. Rockmore (eds.). Law as Data: Computation, Text, and the Future of Legal Analysis. Santa Fe Institute Press, 2019.*
- ✓ *Wachter, Sandra, et al. "Transparent, Explainable, and Accountable AI for the Administration of Justice." Computer Law & Security Review, Vol. 38, 2020.*