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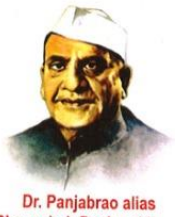

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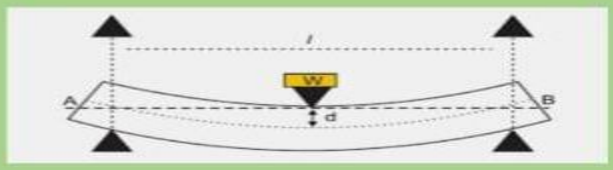

Written By

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Dr. Y. D. Choudhari
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978-81-957599-0-3

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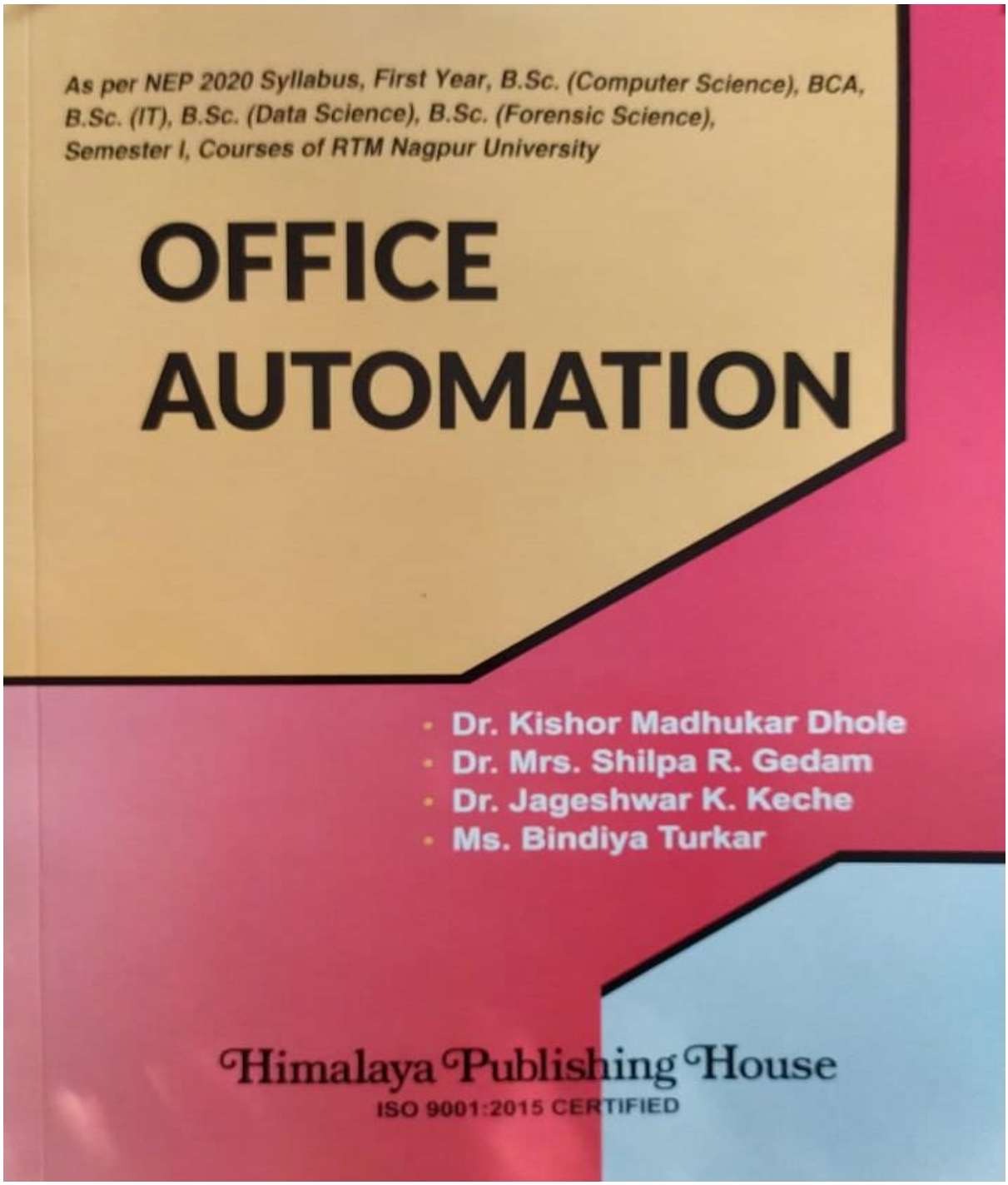
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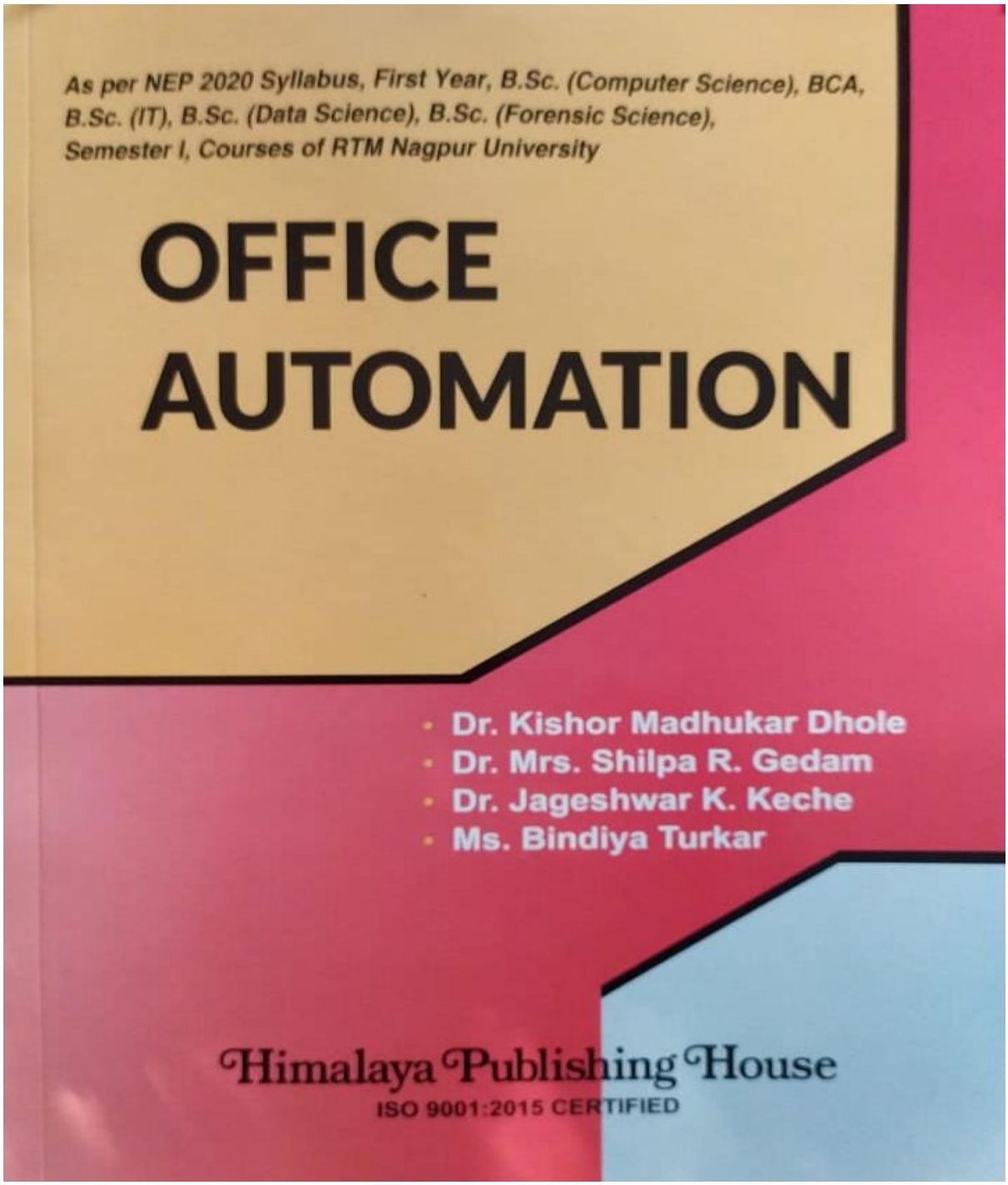
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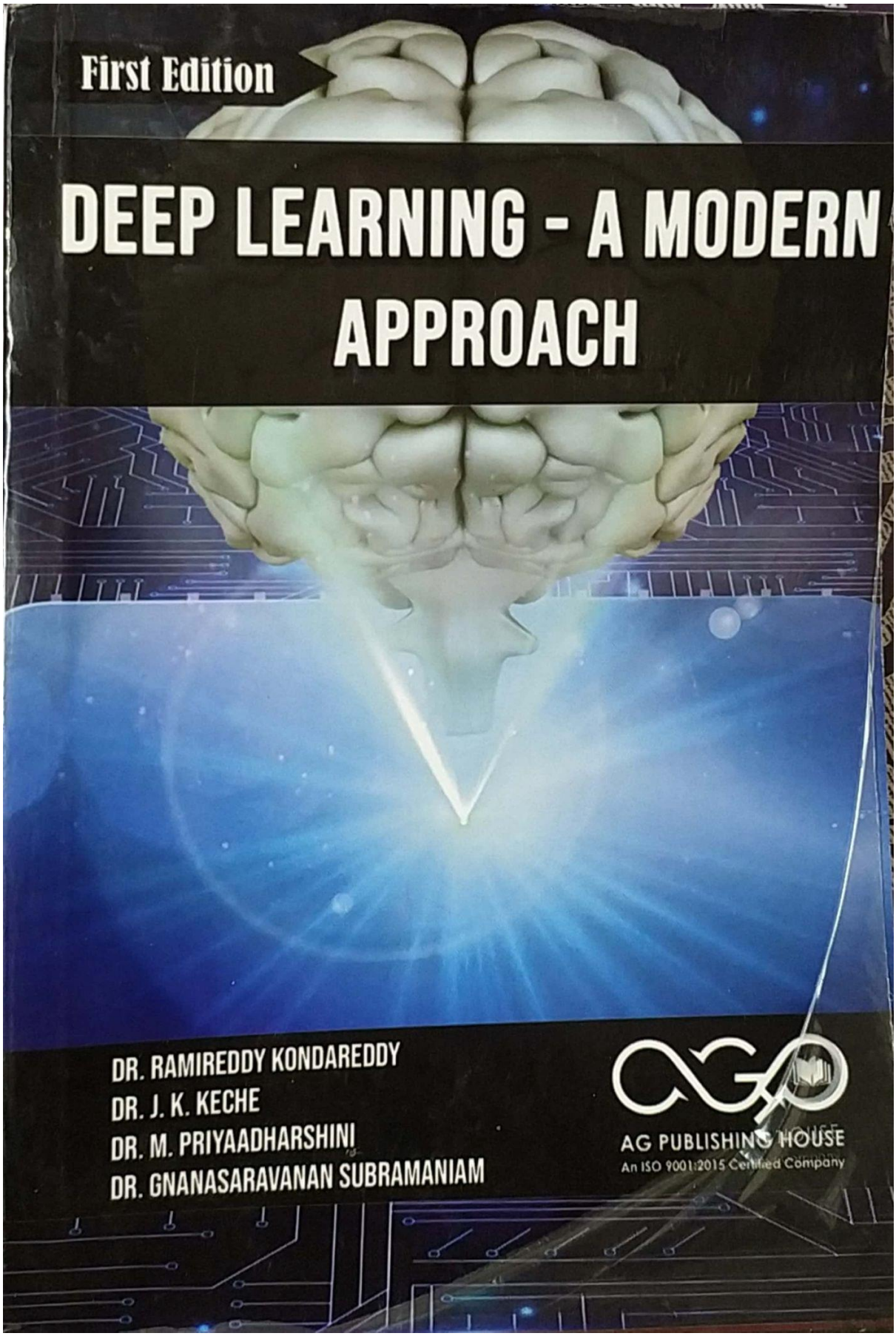
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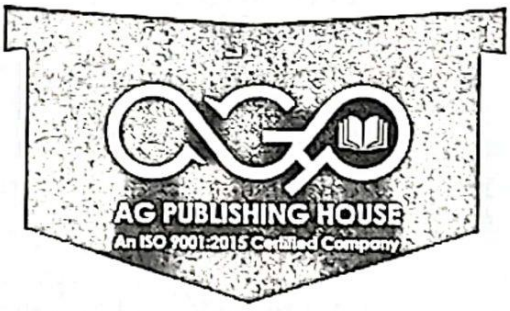

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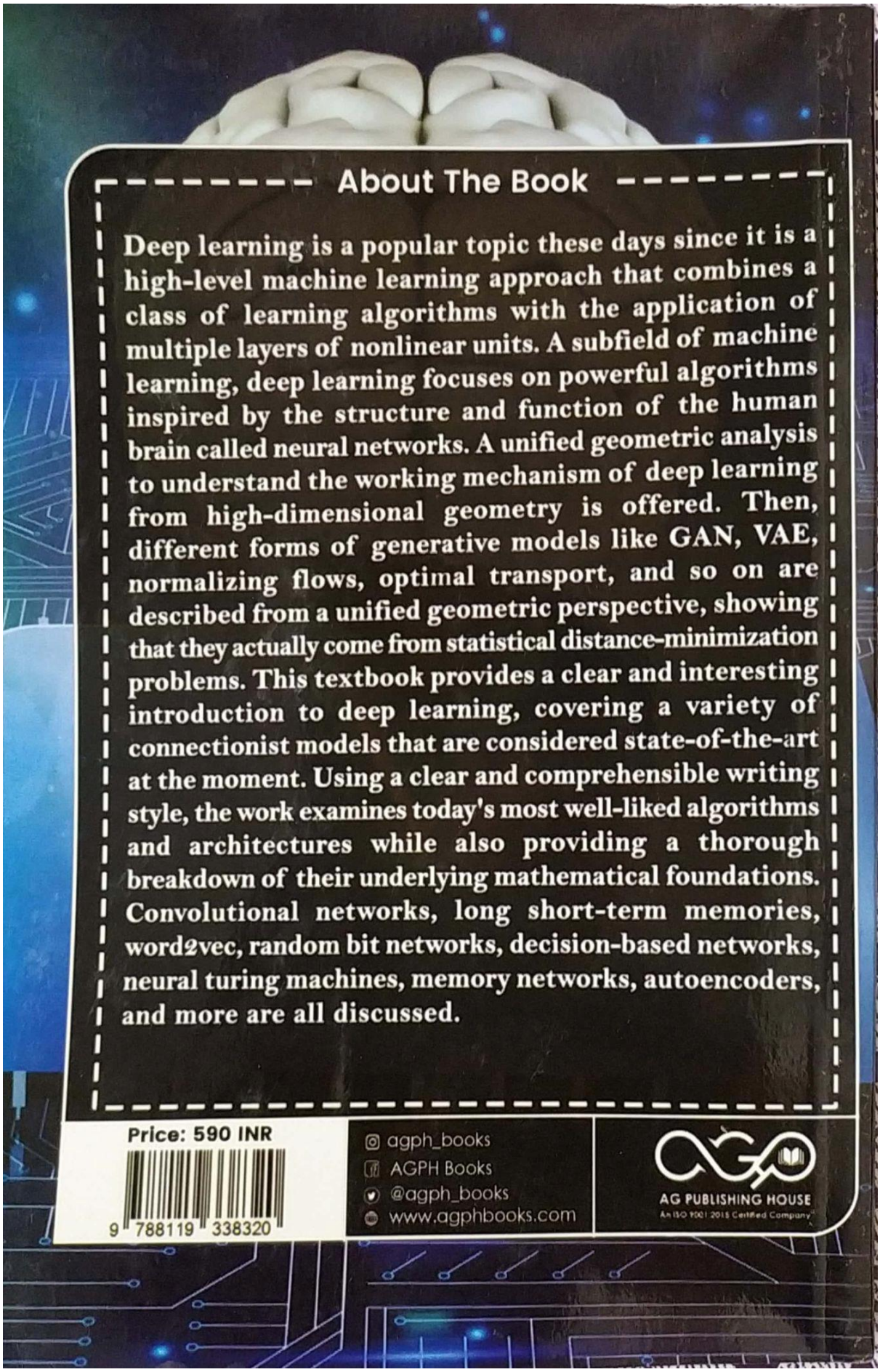
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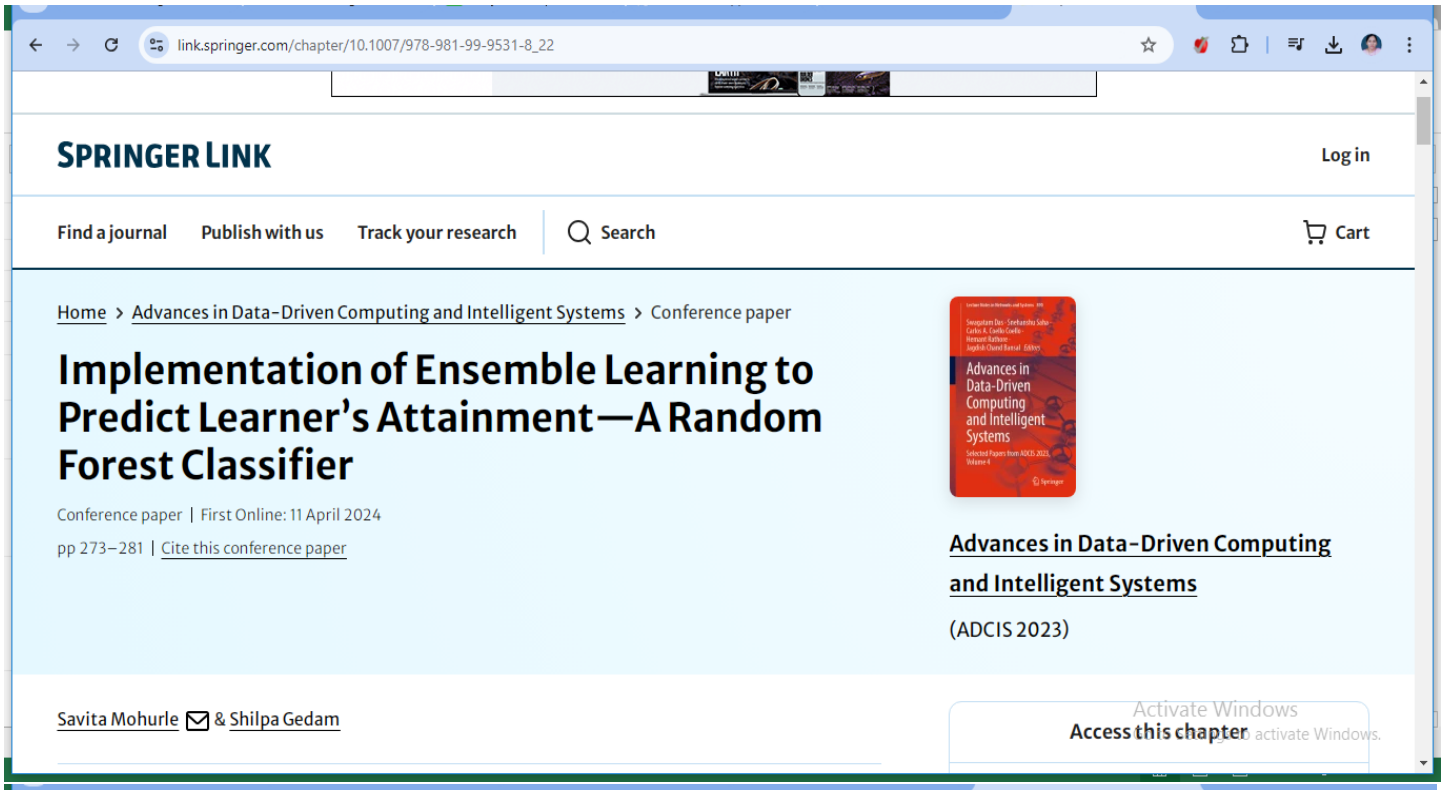
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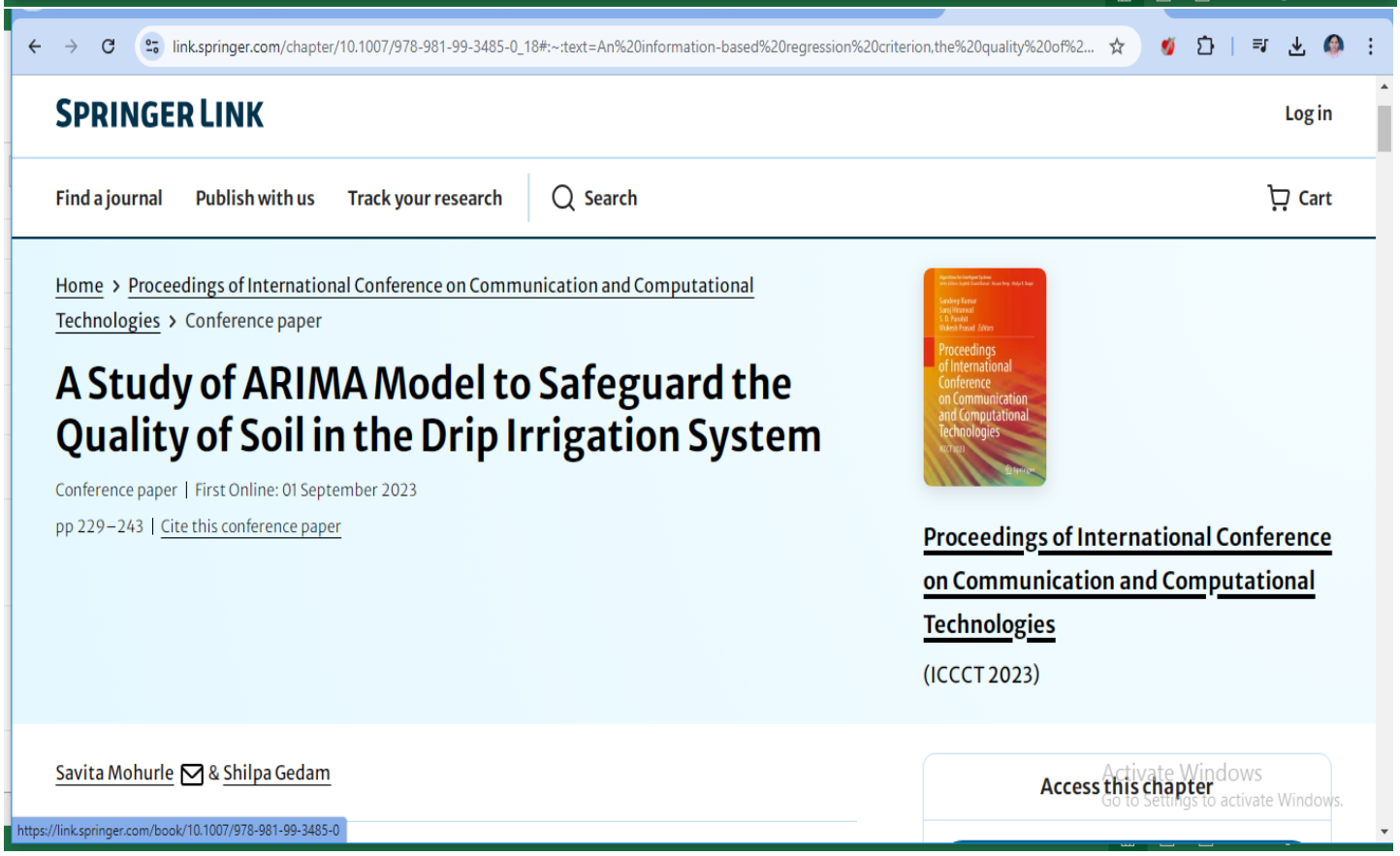
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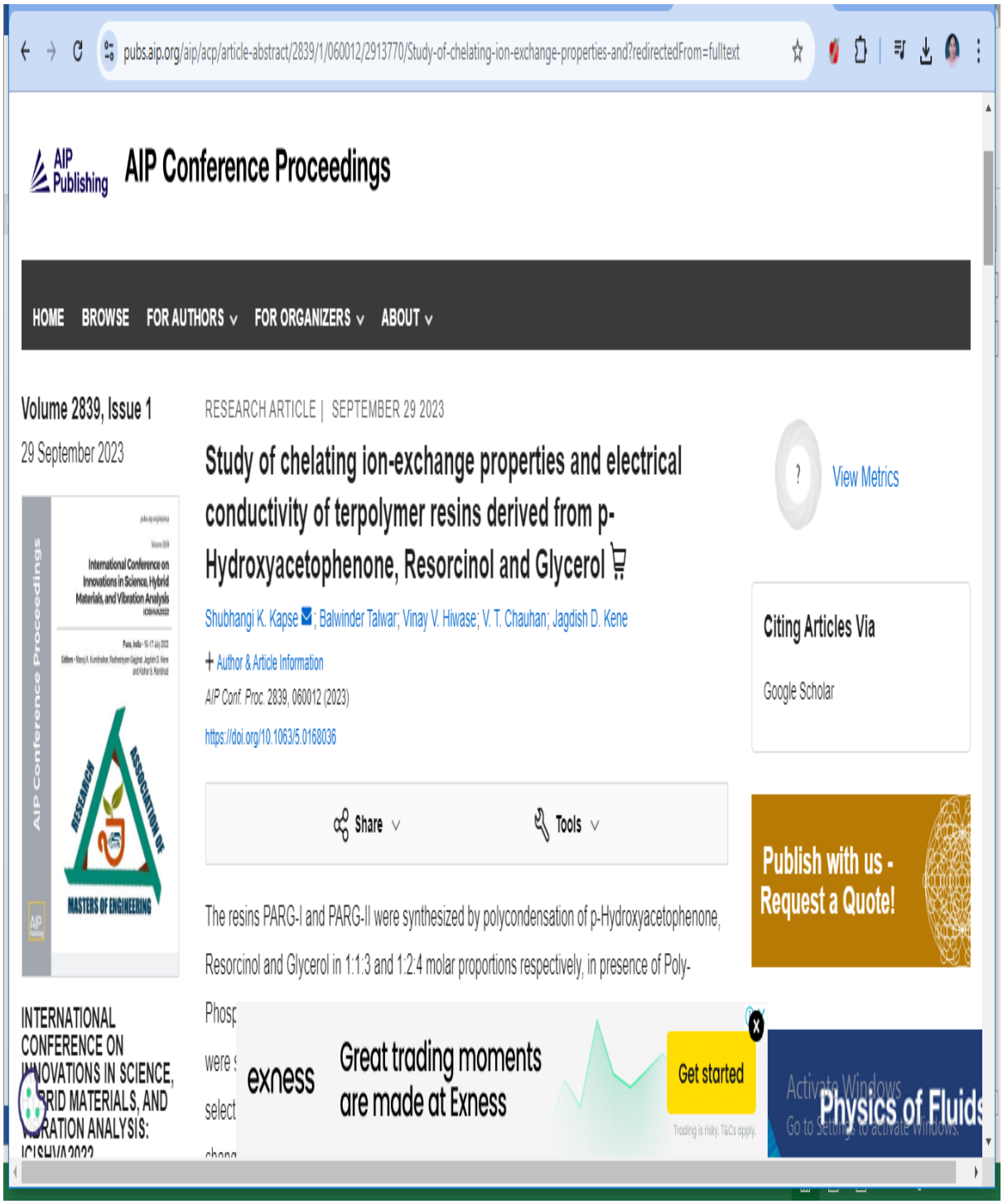
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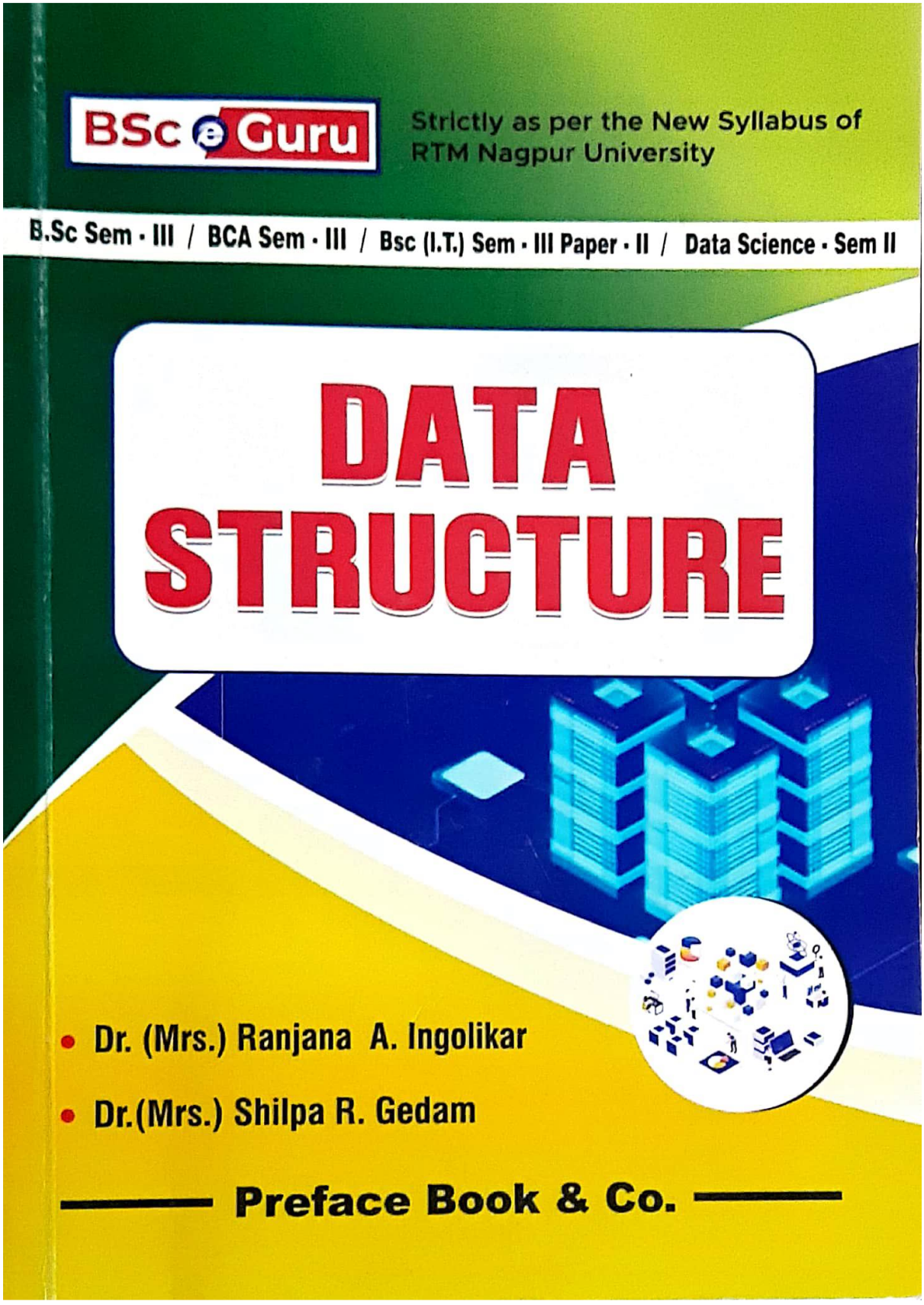
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A computer is an electronic device that can perform various functions by taking input from the user, performing various processes on it with a set of defined instructions that produce an output. The word computer is derived from the Latin word 'computare' which translates to 'to compute'. With the technology advancing each day computers are now not just limited to perform calculations or play videos. They have evolved and doing all those activities that humans can do that too faster and with zero errors. We must know-how must have computers evolved over the years. Take a quick look at the different generations of the computer. Computer fundamentals provides basic and advanced concepts of Computer. Our Computer fundamentals is designed for beginners and professionals. Computer is an electronic device i.e. used to work with information or compute. It is derived from the Latin word "computare" which means to calculate. Our Computer fundamentals tutorial includes all topics of Computer fundamentals such as input devices, output devices, memory, CPU, motherboard, computer network, virus, software, hardware and all types of computer Related Queries etc.

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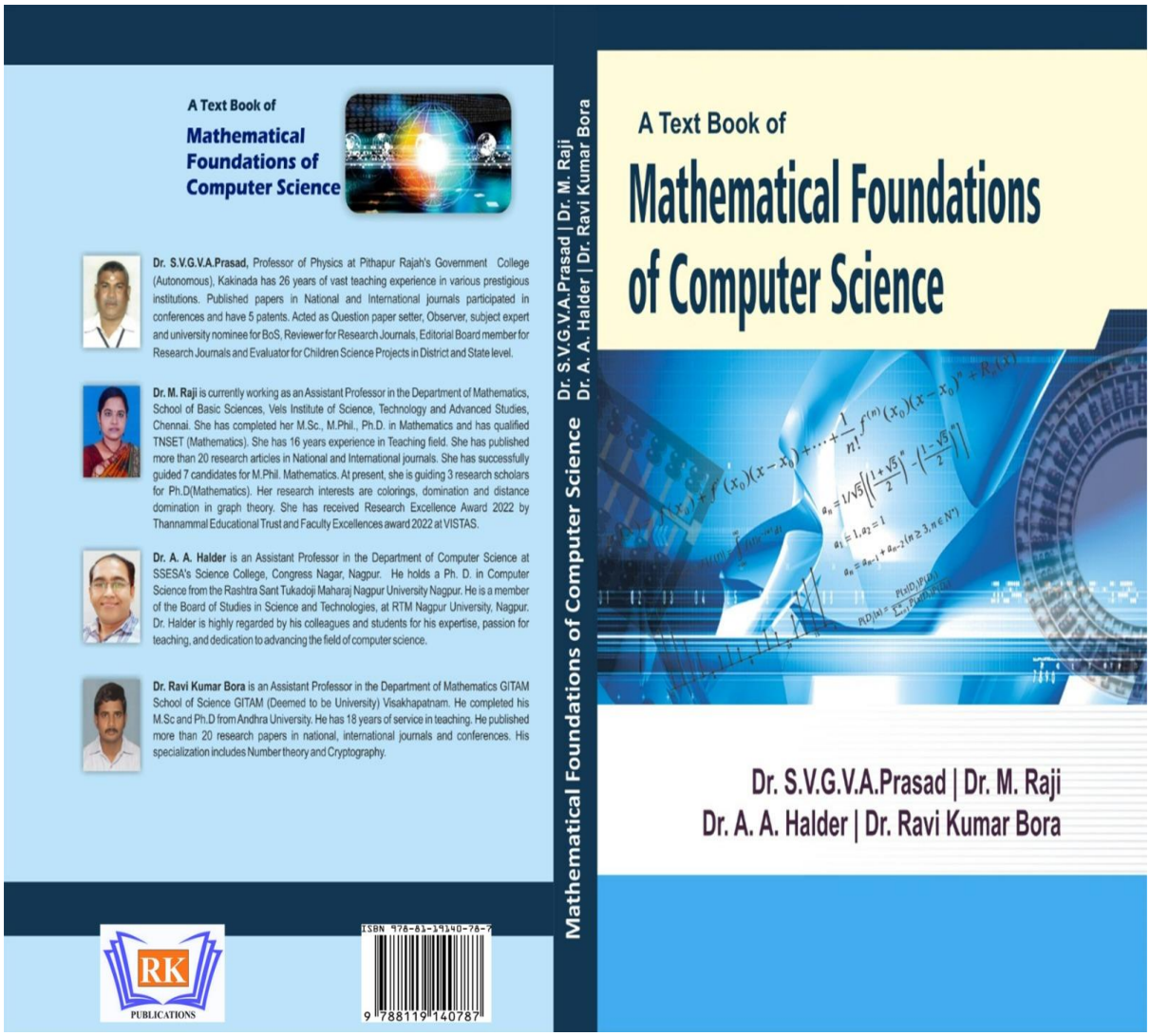
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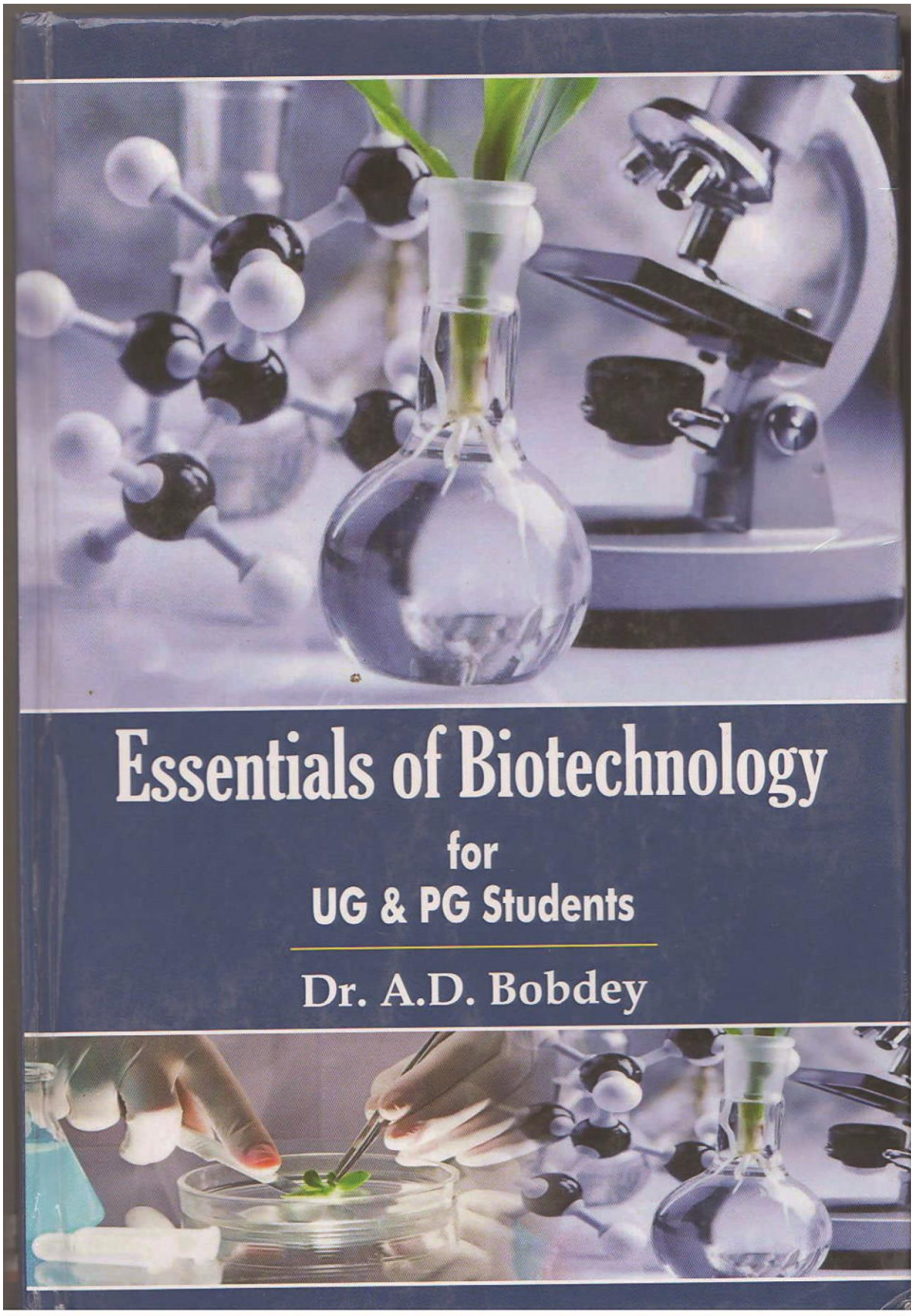
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ABOUT THE BOOK

Biotechnology is responsible for many of the things that make our lives better. The field focuses on the intersection of biology and technology, leading to a vast array of new products that are designed to enrich lives, make day-to-day living easier, and make us healthier. From vaccine production to genetic modification, biotechnology is everywhere – and as a result, biotechnology careers are quite promising for new graduates. This guide focuses on the various biotechnology degrees, jobs and expectations for those who are interested in the field.

The term biotechnology was first coined in 1919 by Károly Ereky, a Hungarian agricultural engineer, who foresaw a time when biology could be used for turning raw material into useful products. The emerging field of synthetic biology represents the natural progression of this idea as our ability to synthesize gene sequences and engineer biochemical pathways and even entire microorganisms in rational designs for a myriad of purposes from speciality chemicals, to food, to energy improves.

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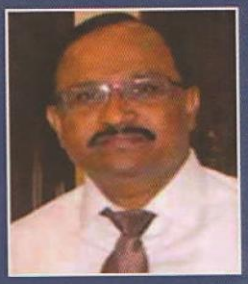

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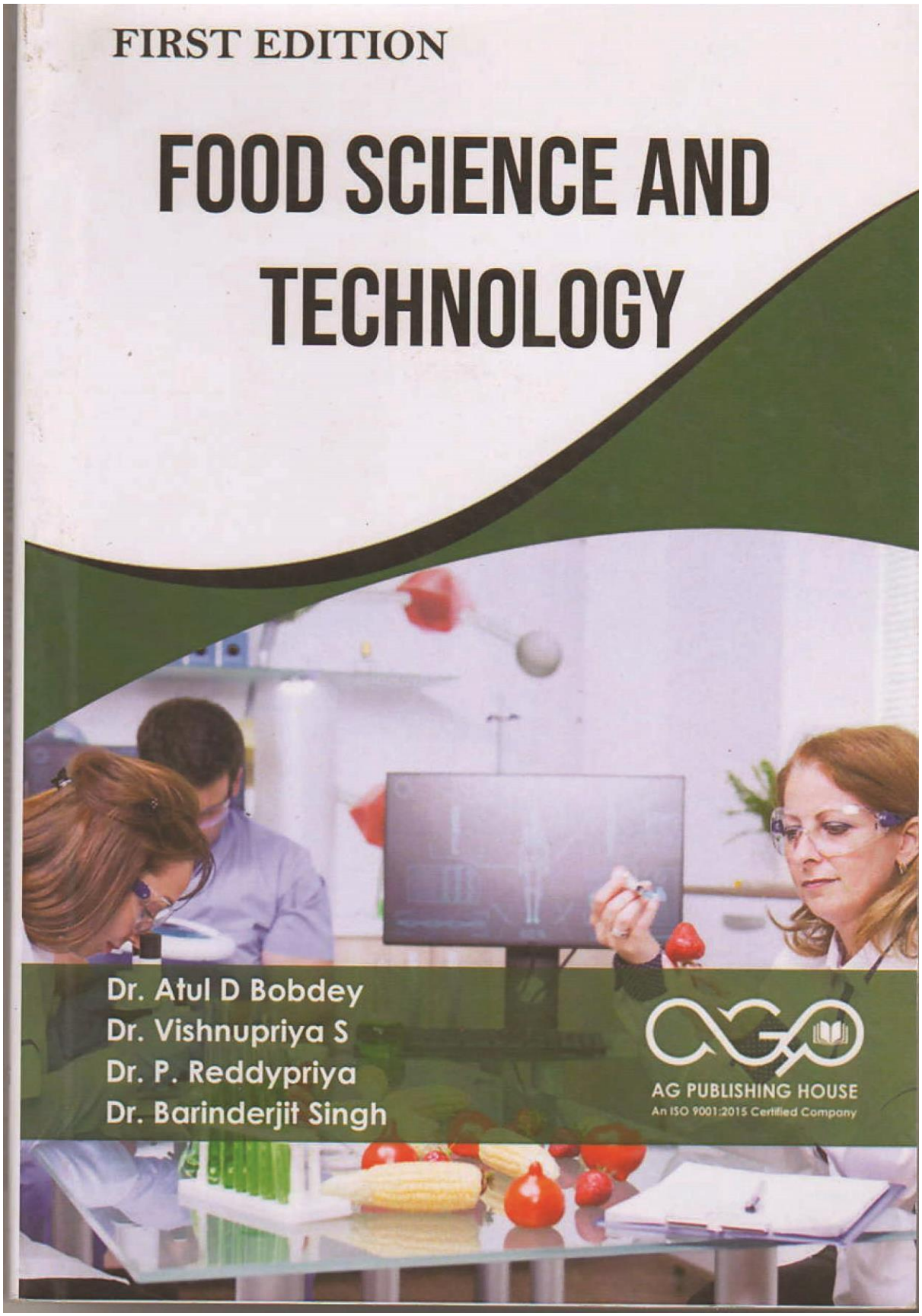
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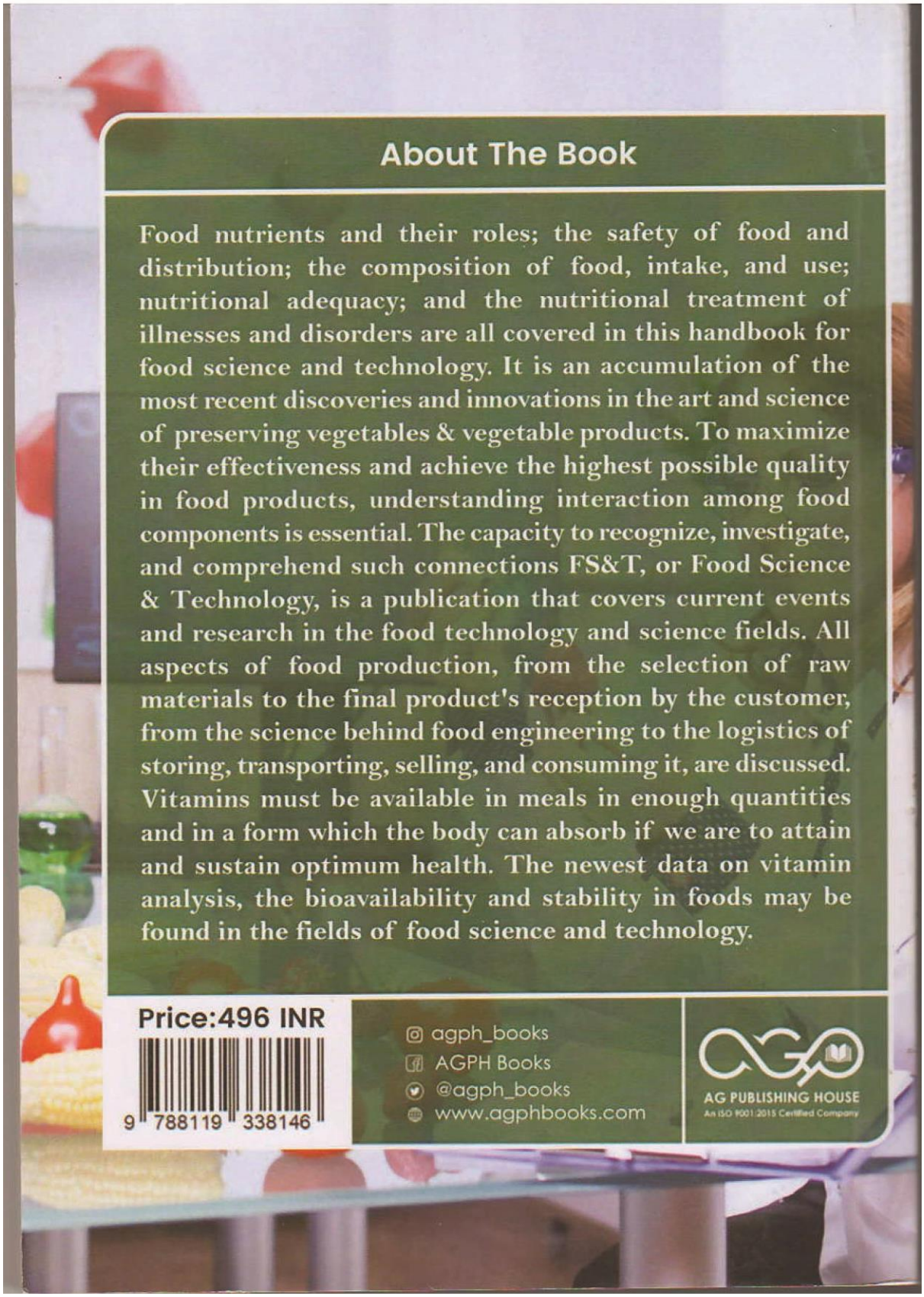
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PREFACE

Food scientists examine foods' chemical, biological, and physical components, as well as what goes into spoilage and how to prevent it.

Scientists in the food industry use knowledge from fields such as chemistry, engineering, and microbiology to study food to make it healthier, more accessible, and more nutrient-dense.

Food scientists work to improve the methods used to prepare, preserve, pack, and/or store food in accordance with industry and government standards and regulations in their respective fields of expertise.

For the purpose of creating and managing food supplies, food scientists and technologists conduct fundamental scientific, microbiological, biochemical, nutritional, biotechnological, and engineering research. Science that studies the content, characteristics, and behavior of food items during production, handling, storage, distribution, and consumption.

The increasing needs of modern markets necessitate the use of food science. As more people seek low-fat, low-carbohydrate, and low-sugar meal options, the food science sector expands to meet the demand.

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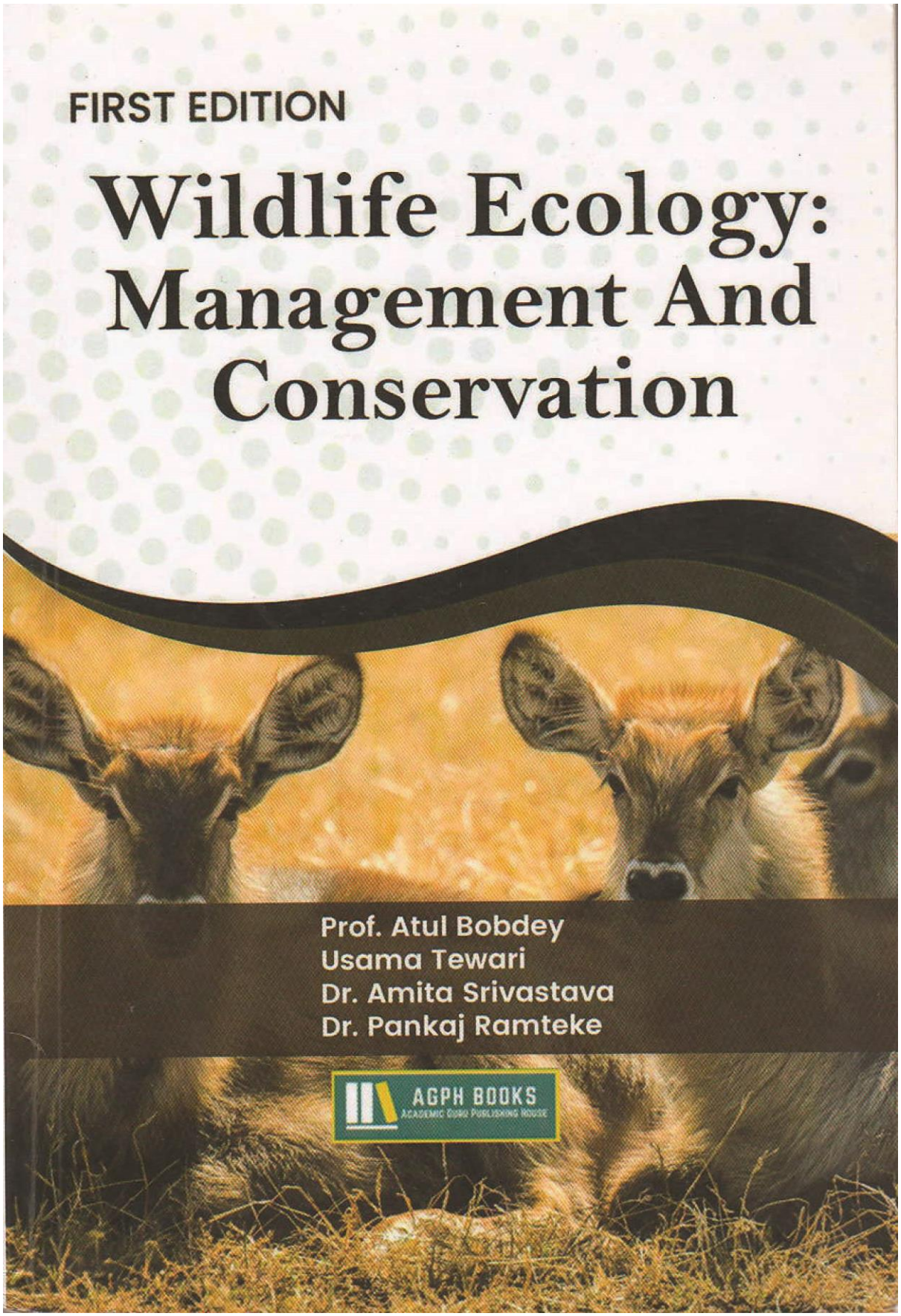
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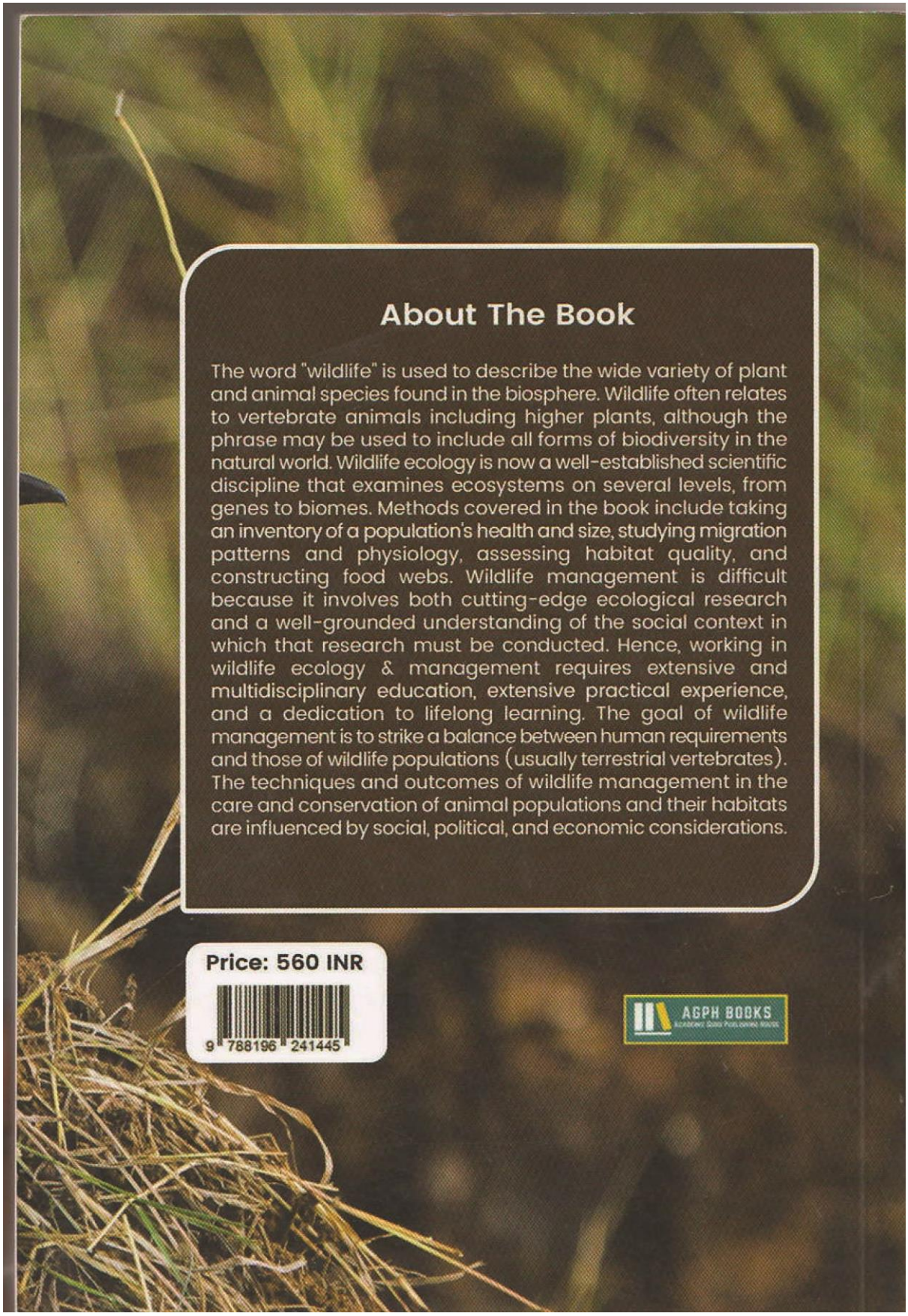
About The Book
The word "wildlife" is used to describe the wide variety of plant and animal species found in the biosphere. Wildlife often relates to vertebrate animals including higher plants, although the phrase may be used to include all forms of biodiversity in the natural world. Wildlife ecology is now a well-established scientific discipline that examines ecosystems on several levels, from genes to biomes. Methods covered in the book include taking an inventory of a population's health and size, studying migration patterns and physiology, assessing habitat quality, and constructing food webs. Wildlife management is difficult because it involves both cutting-edge ecological research and a well-grounded understanding of the social context in which that research must be conducted. Hence, working in wildlife ecology & management requires extensive and multidisciplinary education, extensive practical experience, and a dedication to lifelong learning. The goal of wildlife management is to strike a balance between human requirements and those of wildlife populations (usually terrestrial vertebrates). The techniques and outcomes of wildlife management in the care and conservation of animal populations and their habitats are influenced by social, political, and economic considerations.
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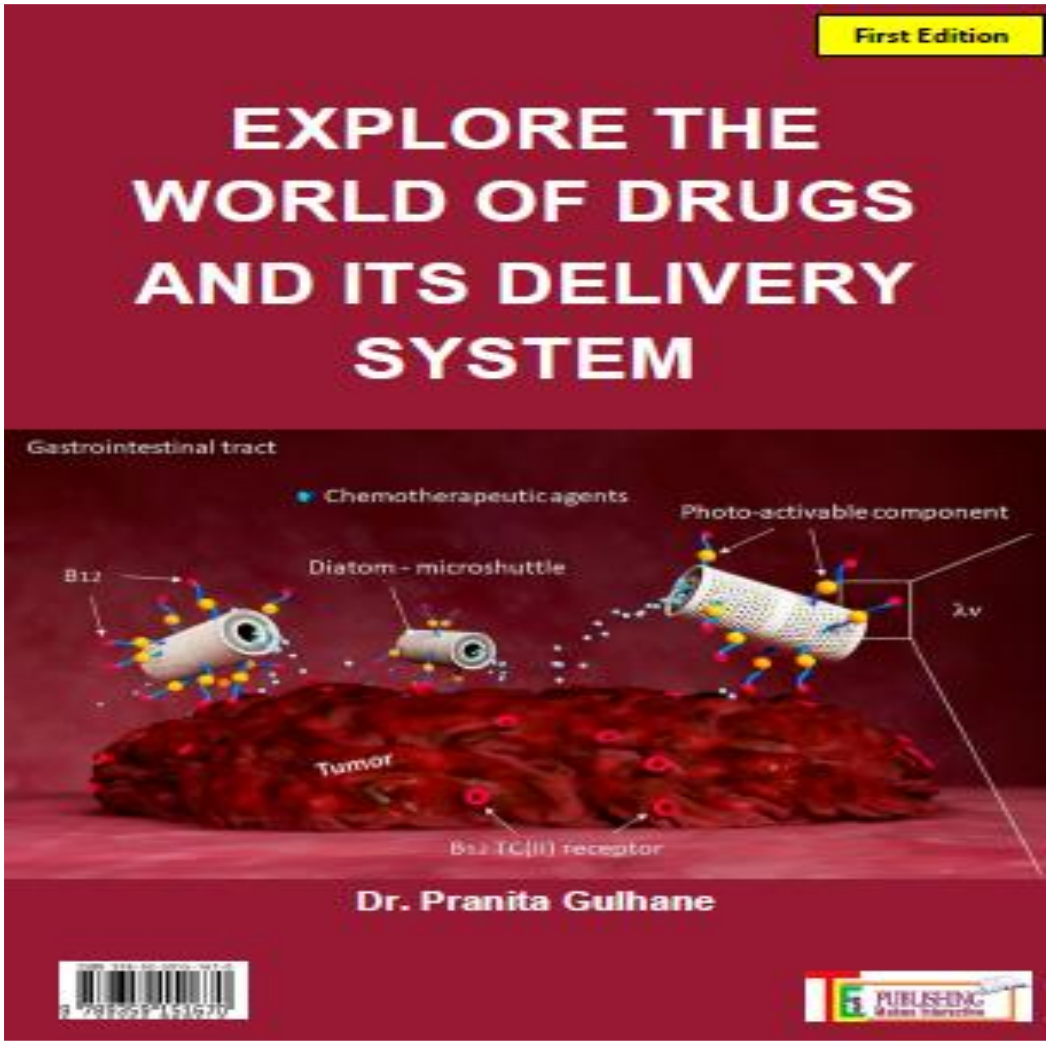
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Developing a Novel Architecture for Convolutional Neural Network Firewall Anomaly Detection

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https://doi.org/10.18280/ijsdp.xxxxxx

Received:
Revised:
Accepted:
Available online:

Keywords:
Firewall Anomaly Detection, Machine Learning Integration, Deep Learning Models, Cybersecurity Defence, Network Traffic Analysis

ABSTRACT

The increasing complexity of cyberattacks in the quickly changing field of cybersecurity necessitates constant innovation in protection systems. Even while they worked well in the past, traditional methods now struggle to keep up with the ever-changing nature of cyberattacks. This research presents a novel architecture that integrates three DL models and seven ML models in a strategic way to detect firewall anomalies using convolutional neural networks (CNNs). Rather than relying on rule-based methods, the suggested design combines CNN_LSTM, Feedforward Neural Network, Neural Network, KNeighborsClassifier, Gaussian NB, Linear SVC and Random Forest Classifier. The technology overcomes the drawbacks of conventional firewalls by giving the firewall intelligence and flexibility through machine learning, enabling it to recognize and react to changing cyberthreats on its own. The inclusion of deep learning models enhances the architecture's capacity for capturing complex patterns, emphasizing the CNN-LSTM hybrid model's spatial-temporal awareness. This interdisciplinary initiative aims not only to fortify cybersecurity systems but also to contribute to the broader discourse on integrating machine learning and deep learning in real-world applications, redefining the efficacy of firewall systems against the evolving cyber threat landscape.

1. INTRODUCTION

In the ever-evolving realm of cybersecurity, the sophistication of cyber threats necessitates continuous innovation in defense mechanisms. The conventional approaches, while effective, are increasingly being challenged by the dynamic nature of contemporary cyber-attacks. In response to this pressing need, our research endeavors to pioneer a novel architecture for (CNN) Firewall Anomaly Detection a transformative initiative that draws on the strengths of both machines learning and deep learning models. This introduction serves as a prelude to the multifaceted framework that integrates seven machine learning models, including Logistic Regression, KNeighboursClassifier, Gaussian NB, Linear SVC and Random Forest Classifier, as well as three deep learning models—Neural Network, CNN_LSTM and Feedforward Neural Network. Traditional firewall systems have primarily relied on rule-based mechanisms to filter and regulate network traffic. However, the intricate patterns and subtle deviations characterizing modern cyber threats demand a more nuanced and adaptive approach. Leveraging machine learning models in the proposed architecture adds a layer of intelligence to the firewall, allowing it to autonomously learn and adapt to the evolving threat landscape [1]. The inclusion of algorithms for machine learning, like logistic regression, KNeighboursClassifier, Gaussian NB, Linear SVC and Random Forest Classifier broadens the spectrum of anomaly detection capabilities. Each model brings unique strengths, enhancing the system's ability to discern abnormal patterns and intrusions within network traffic. Complementing the machine learning ensemble, the architecture incorporates three deep learning models Neural Network, CNN_LSTM and Feedforward Neural Network. With its representation learning and hierarchical identification of features, deep learning offers an effective toolkit for identifying intricate patterns in data. The Neural Network component capitalizes on the flexibility and adaptability inherent in neural architectures, while the CNN_LSTM hybrid model combines the spatial awareness of Networks of Convolutional Neurals with the temporal understanding of networks with long short-term memory. The Neural Network Feedforward, characterized by its layered architecture, excels in capturing intricate relationships within the data. The holistic integration between deep learning and machine learning models in our novel architecture aims to create a comprehensive and adaptive firewall system. This ensemble approach capitalizes on the diverse strengths of each model to collectively enhance the accuracy, sensitivity, and responsiveness of anomaly detection. The Research aims to support not just the robustness of cybersecurity systems but

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Developing a Novel Architecture for Convolutional Neural Network Firewall Anomaly Detection

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https://doi.org/10.18280/ijsdp.xxxxxx

Received:
Revised:
Accepted:
Available online:

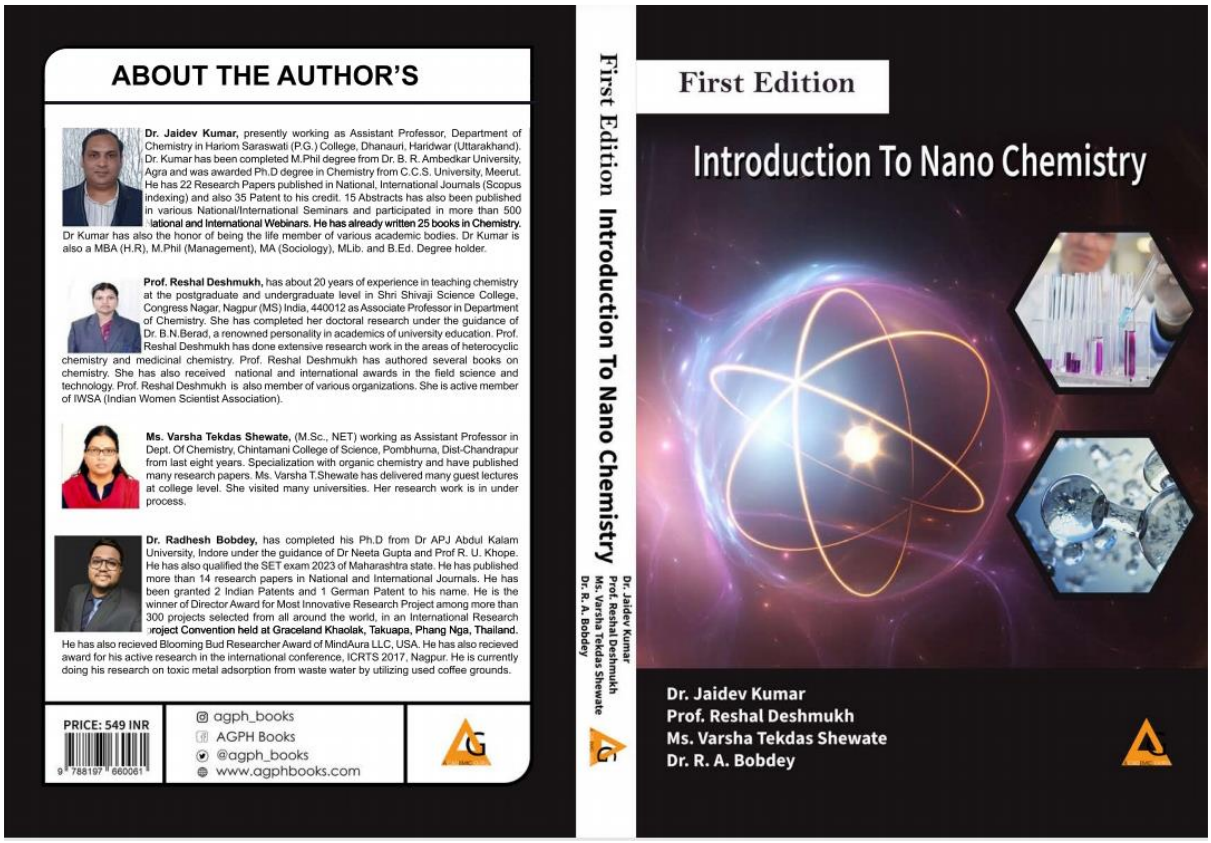
Keywords:
Firewall Anomaly Detection, Machine Learning Integration, Deep Learning Models, Cybersecurity Defence, Network Traffic Analysis

ABSTRACT

The increasing complexity of cyberattacks in the quickly changing field of cybersecurity necessitates constant innovation in protection systems. Even while they worked well in the past, traditional methods now struggle to keep up with the ever-changing nature of cyberattacks. This research presents a novel architecture that integrates three DL models and seven ML models in a strategic way to detect firewall anomalies using convolutional neural networks (CNNs). Rather than relying on rule-based methods, the suggested design combines CNN_LSTM, Feedforward Neural Network, Neural Network, KNeighborsClassifier, Gaussian NB, Linear SVC and Random Forest Classifier. The technology overcomes the drawbacks of conventional firewalls by giving the firewall intelligence and flexibility through machine learning, enabling it to recognize and react to changing cyberthreats on its own. The inclusion of deep learning models enhances the architecture's capacity for capturing complex patterns, emphasizing the CNN-LSTM hybrid model's spatial-temporal awareness. This interdisciplinary initiative aims not only to fortify cybersecurity systems but also to contribute to the broader discourse on integrating machine learning and deep learning in real-world applications, redefining the efficacy of firewall systems against the evolving cyber threat landscape.

1. INTRODUCTION

In the ever-evolving realm of cybersecurity, the sophistication of cyber threats necessitates continuous innovation in defense mechanisms. The conventional approaches, while effective, are increasingly being challenged by the dynamic nature of contemporary cyber-attacks. In response to this pressing need, our research endeavors to pioneer a novel architecture for (CNN) Firewall Anomaly Detection a transformative initiative that draws on the strengths of both machines learning and deep learning models. This introduction serves as a prelude to the multifaceted framework that integrates seven machine learning models, including Logistic Regression, KNeighboursClassifier, Gaussian NB, Linear SVC and Random Forest Classifier, as well as three deep learning models—Neural Network, CNN_LSTM and Feedforward Neural Network. Traditional firewall systems have primarily relied on rule-based mechanisms to filter and regulate network traffic. However, the intricate patterns and subtle deviations characterizing modern cyber threats demand a more nuanced and adaptive approach. Leveraging machine learning models in the proposed architecture adds a layer of intelligence to the firewall, allowing it to autonomously learn and adapt to the evolving threat landscape [1]. The inclusion of algorithms for machine learning, like logistic regression, KNeighboursClassifier, Gaussian NB, Linear SVC and Random Forest Classifier broadens the spectrum of anomaly detection capabilities. Each model brings unique strengths, enhancing the system's ability to discern abnormal patterns and intrusions within network traffic. Complementing the machine learning ensemble, the architecture incorporates three deep learning models Neural Network, CNN_LSTM and Feedforward Neural Network. With its representation learning and hierarchical identification of features, deep learning offers an effective toolkit for identifying intricate patterns in data. The Neural Network component capitalizes on the flexibility and adaptability inherent in neural architectures, while the CNN_LSTM hybrid model combines the spatial awareness of Networks of Convolutional Neurals with the temporal understanding of networks with long short-term memory. The Neural Network Feedforward, characterized by its layered architecture, excels in capturing intricate relationships within the data. The holistic integration between deep learning and machine learning models in our novel architecture aims to create a comprehensive and adaptive firewall system. This ensemble approach capitalizes on the diverse strengths of each model to collectively enhance the accuracy, sensitivity, and responsiveness of anomaly detection. The Research aims to support not just the robustness of cybersecurity systems but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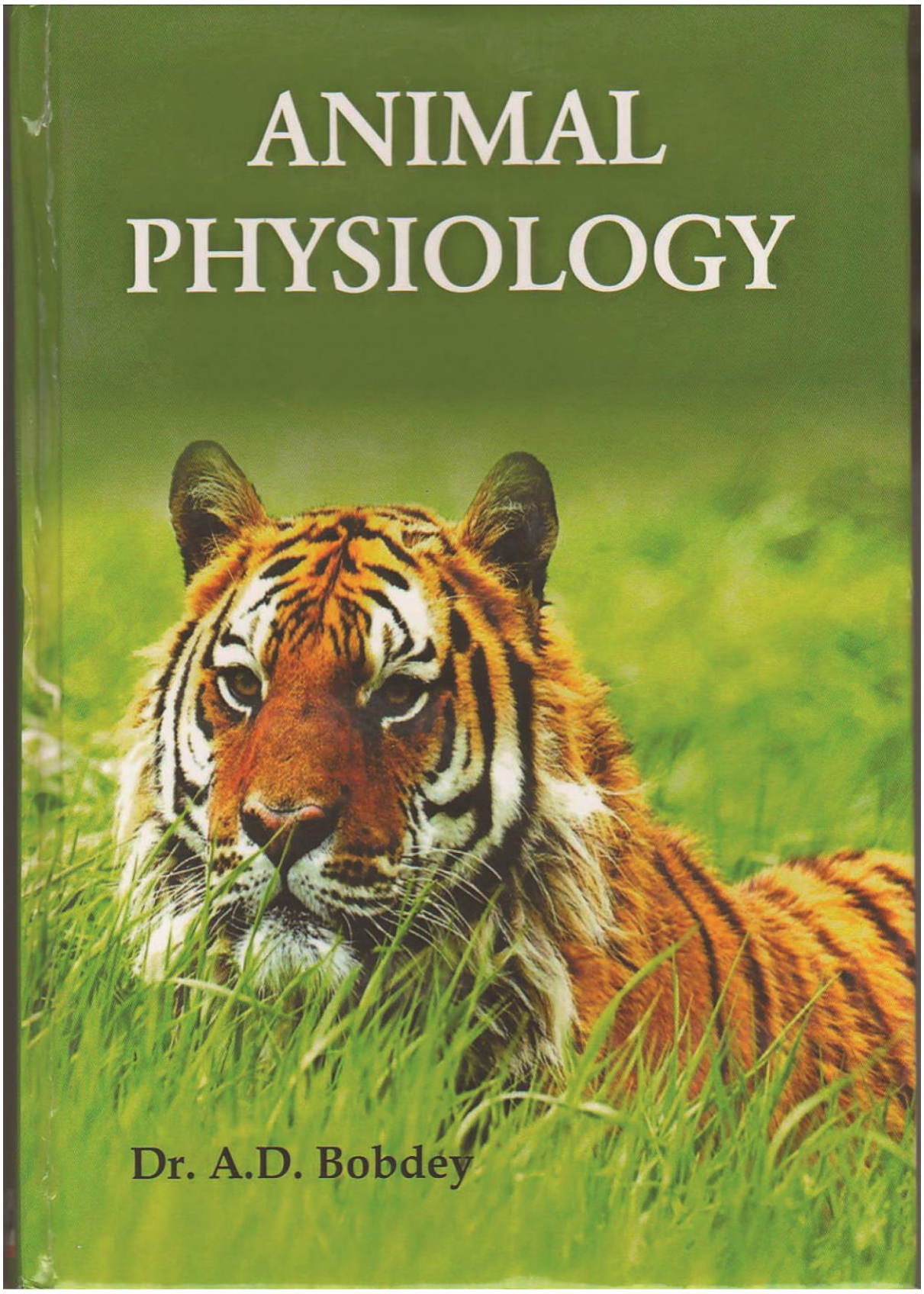
ANIMAL
PHYSIOLOGY
Dr. A.D. Bobdey

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Physiology is the study of the functions of the body, or how the body works. Animal physiology is the study of the internal physical and chemical functions of animals. Professionals in this field may explore the makeup of animals, including their genetics, their behaviors and their biological structure. Animal Physiology entails the anatomy, histology, and endocrine functioning of the physiological processes of livestock under specific conditions. This also includes the possible manipulation of the reproductive processes by means of accelerated breeding techniques for more efficient livestock and poultry production.

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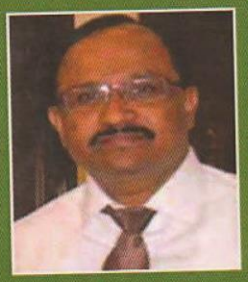

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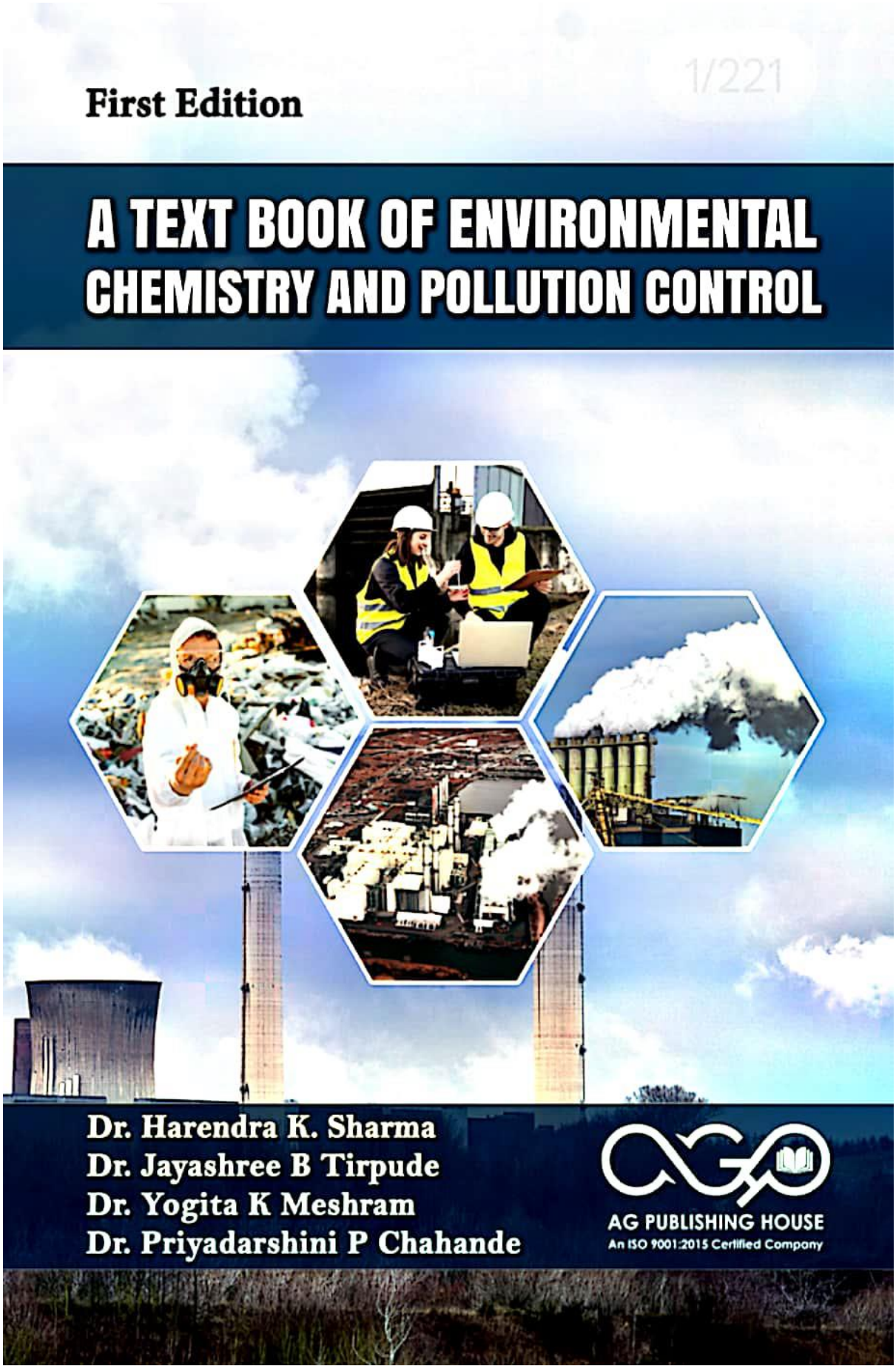
ISBN 978-93-88465-03-8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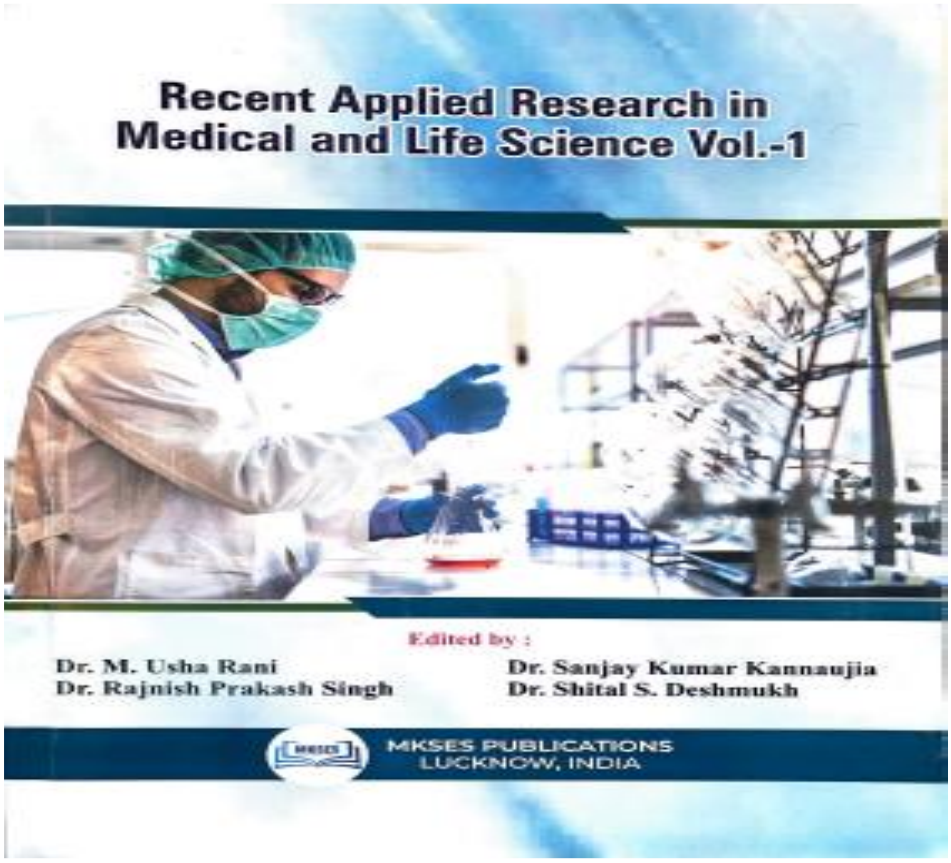
Author Proof: Dr. Harendra K. Sharma, Dr. Jayashree B Tirpude, Dr. Yogita K Meshram and Dr. Priyadarshini P Chahande
Layout & Cover: AGPH Books

ISBN: 978-81-19843-18-3



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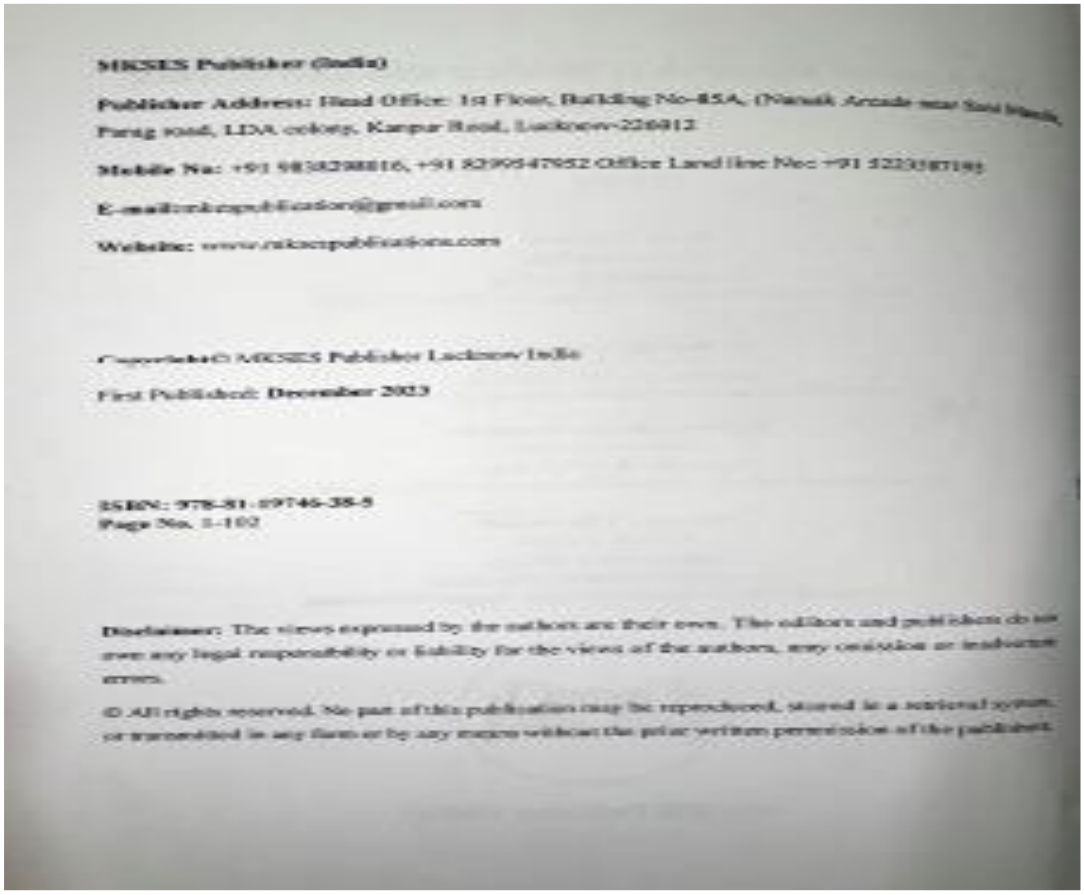

MKSES Publisher (India)

Publisher Address: Head Office: 1st Floor, Building No-85A, (Nanak Arcade near Sant Nagar, Parag road, LDA colony, Kanpur Road, Lucknow-226012

Mobile No: +91 9838288816, +91 8299547952 Office Land line No: +91 5223587191

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First Published: **December 2023**

ISBN: 978-81-19746-38-5
Page No. 1-102

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Edition published in 22nd March, 2024
ISBN 13 : 978-81-19435-61-6

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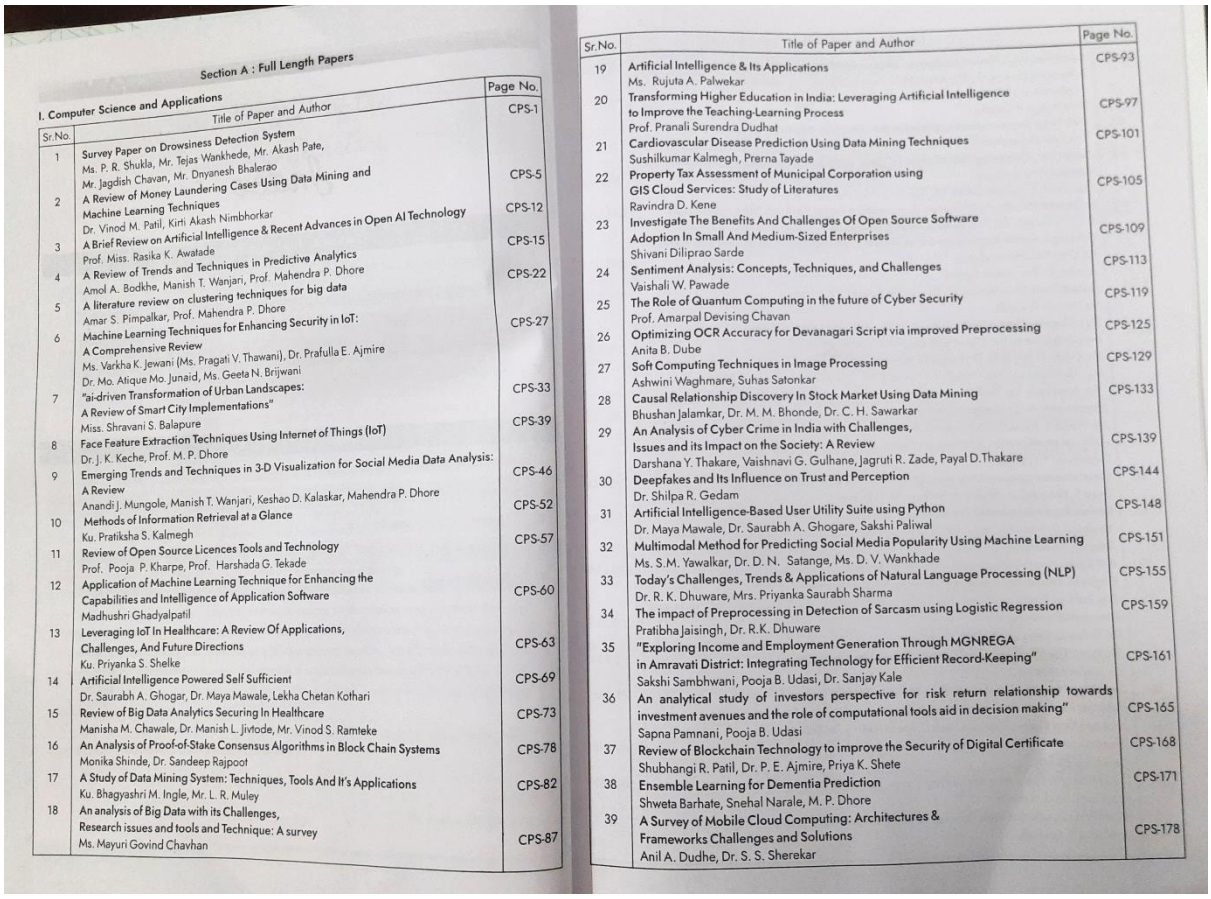

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Deepfakes and Its Influence on Trust and Perception

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Abstract:

The rapid advancement of deepfake technology presents unprecedented challenges to our understanding, trust, and grasp of reality. This study delves into the intricate impacts of deepfakes on society, with a specific focus on their influence on perceptions of reality and trust dynamics. Deepfakes evoke concerns regarding their potential to undermine confidence in media, institutions, and interpersonal connections by seamlessly blending fabricated con-tent with authentic footage. This research elucidates how cognitive biases and heuristics con-tribute to the dissemination of misinformation and disinformation, shedding light on the psy-chological mechanisms that render individuals susceptible to manipulation by deepfakes. Fur-thermore, it explores the potential ramifications of deepfake proliferation across various sec-tors, encompassing cybersecurity, media, politics, and entertainment. The paper serves as a call to action, urging us to uphold the principles of truth and transparency in an increasingly digitized world through vigilance, resilience, and unwavering commitment.

Keywords:

Deepfake, Perception, Cognitive biases, Trust, Cybersecurity, Misinformation.

1. Introduction

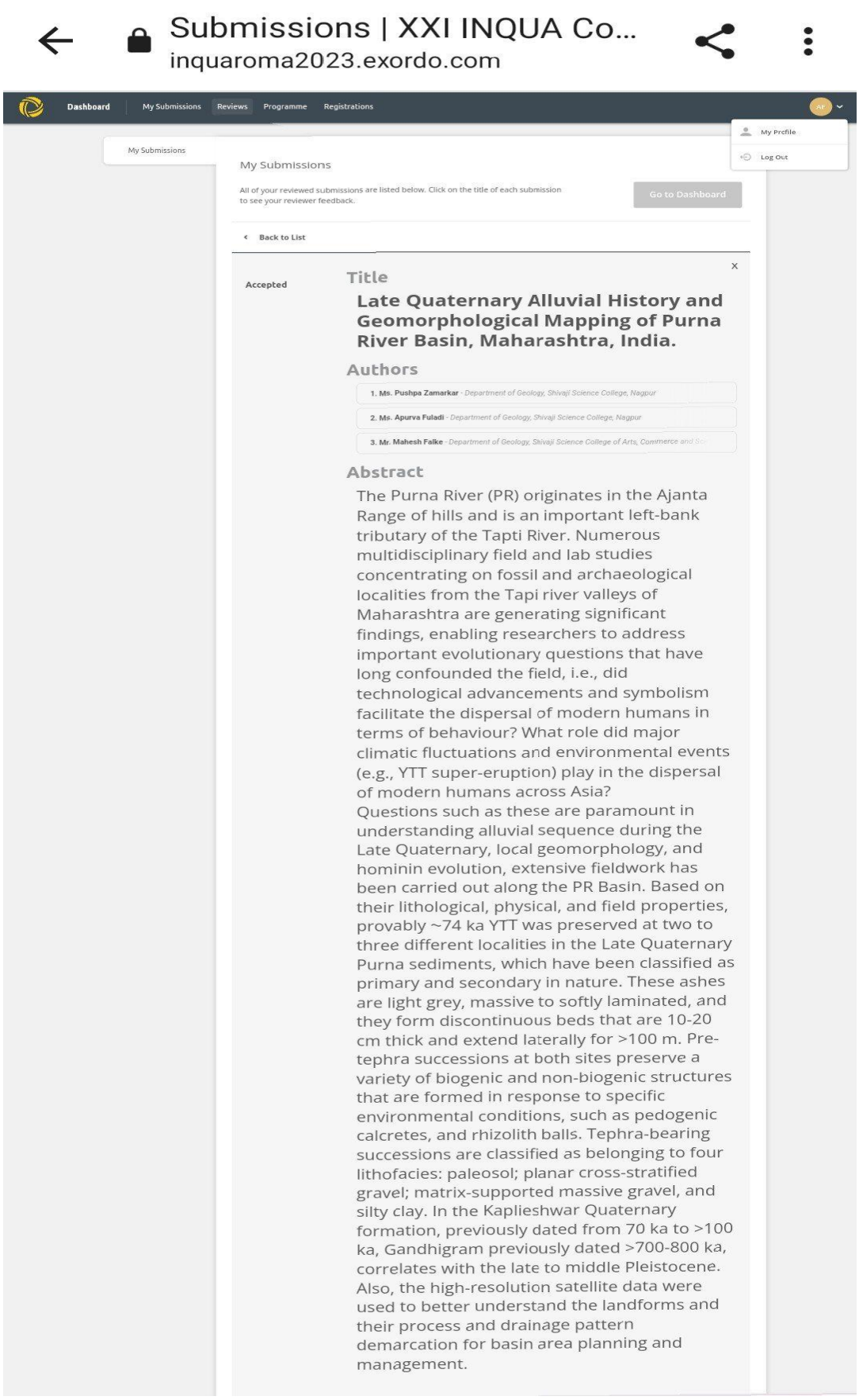
In an era characterized by the proliferation of digital media and the advancement of artificial intelligence, the emergence of deepfake technology has introduced a fresh dimension to dis-cussions surrounding perception, truth, and trust. Deepfakes, which are synthetic media gen-erated by artificial intelligence (AI), can seamlessly alter or overlay audio and visual content, often to the extent that discerning between fake and authentic recordings becomes challeng-ing. While this technological innovation offers new avenues for creative expression and enter-tainment, it also raises significant concerns regarding the authenticity of media sources and the accuracy of information.

The influence of deepfakes extends across various domains, including politics, journalism, interpersonal communication, and entertainment. Growing apprehensions about the potential of deepfake technology to propagate misinformation, sow discord, and undermine public trust have intensified as it becomes more accessible and sophisticated. Indeed, the wide-spread utilization of deepfakes has prompted urgent inquiries into the ethical, social, and psychological implications of these fabrications, as well as the development of countermeasures aimed at mitigating their adverse effects.

The objective of this endeavor is to elucidate the intricate interplay between perceptual reali-ties, trust dynamics, and deepfakes. Drawing upon insights from psychology, communication studies, computer science, and sociology, our aim is to illuminate how deepfakes impact indi-viduals' trust in media, institutions, and interpersonal connections through a multidisciplinary exploration. Additionally, we probe into the cognitive biases and heuristics that render indi-viduals susceptible to manipulation by deepfakes and facilitate the dissemination of false in-formation.

Moreover, this paper delves into the multifaceted consequences of deepfake proliferation across diverse domains. From the manipulation of political discourse to the erosion of journal-istic integrity, and from the destabilization of public trust to the exacerbation of cybersecurity vulnerabilities, the effects of deepfakes are far-reaching and profound. Through comprehen-sive analysis of these implications, we strive to inform strategies for confronting the challeng-es posed by deepfakes and safeguarding trust in the digital era.

This study advocates for a holistic approach to mitigating the adverse effects of deepfakes in light of these considerations. Proposing technical solutions, advocating for ethical standards in content creation, enhancing media literacy, and fostering critical thinking skills are among the measures recommended to navigate the complex landscape of deepfake-induced realities. Together, we can address the concerns raised by deepfakes, preserve the integrity of infor-mation dissemination, and uphold trust in an increasingly digitized society.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Title
Late Quaternary Alluvial History and Geomorphological Mapping of Purna River Basin, Maharashtra, India.
Authors
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Abstract
The Purna River (PR) originates in the Ajanta Range of hills and is an important left-bank tributary of the Tapti River. Numerous multidisciplinary field and lab studies concentrating on fossil and archaeological localities from the Tapi river valleys of Maharashtra are generating significant findings, enabling researchers to address important evolutionary questions that have long confounded the field, i.e., did technological advancements and symbolism facilitate the dispersal of modern humans in terms of behaviour? What role did major climatic fluctuations and environmental events (e.g., YTT super-eruption) play in the dispersal of modern humans across Asia?
Questions such as these are paramount in understanding alluvial sequence during the Late Quaternary, local geomorphology, and hominin evolution, extensive fieldwork has been carried out along the PR Basin. Based on their lithological, physical, and field properties, provably ~74 ka YTT was preserved at two to three different localities in the Late Quaternary Purna sediments, which have been classified as primary and secondary in nature. These ashes are light grey, massive to softly laminated, and they form discontinuous beds that are 10-20 cm thick and extend laterally for >100 m. Pre-tephra successions at both sites preserve a variety of biogenic and non-biogenic structures that are formed in response to specific environmental conditions, such as pedogenic calcretes, and rhizolith balls. Tephra-bearing successions are classified as belonging to four lithofacies: paleosol; planar cross-stratified gravel; matrix-supported massive gravel, and silty clay. In the Kaplieshwar Quaternary formation, previously dated from 70 ka to >100 ka, Gandhigram previously dated >700-800 ka, correlates with the late to middle Pleistocene. Also, the high-resolution satellite data were used to better understand the landforms and their process and drainage pattern demarcation for basin area planning and management.

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Track

3 - Quaternary environments and Human evolution: fossil record, phylogeny, palaeobiology, palaeoecology and cultural models

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Session 92: Zooming into the Quaternary Research in South Asia: Understanding the landscape-cultural-climatic evolution

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120 - Volcanic impacts on climate and society

Submission Format	**Latest Update**
Poster	17th May 2023, 10:20am CEST
Submission Date	**Submission ID**
27th Nov 2022, 7:19pm CET	4119
Decision	
Oral	

Review Summary

Chair Feedback

No comments provided.

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Identification of Suitable Sites for Artificial Recharge Measures in the Part of Dhodana Mini- watershed, Deccan Basaltic Terrain, Maharashtra State, India

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Groundwater is challenging to assess, plan and manage groundwater since it is an invisible resource. The goal of this paper is to address drinking water issues in the basaltic terrain of Maharashtra state, India, by implementing an integrated approach for artificial recharge structures. The lithological, geochemical and physical properties of basaltic lava flows differ. Basalts show complex hydrogeological setup because of the multi-layered aquifer system and change in the thickness of lava flows. Many areas of the Deccan basaltic terrain experienced groundwater level depletion due to excessive groundwater withdrawal, particularly for irrigating perennial crops. There is not enough groundwater available for irrigation and drinking in the northern part of Amravati district of Maharashtra state due to overexploitation of the resource. The severe lack of drinking water in the area is caused by the unfavourable hydrogeological conditions and rising demand for drinking and domestic water. In the Dhodana mini-watershed, Amravati district, groundwater recharge structures are suggested as a solution to this issue. This mini-watershed is located in the run-off zone of the Chargarh River Basin and on a topographic high. Many groundwater recharge facilities, such as cement plugs, recharge shafts, gabion structures, underground bandharas (UGB) and desilting of village tanks, are built to address this problem. Both the nearby agricultural wells and public water supply sources have shown a significant increase in groundwater level followed by the construction of these artificial recharge facilities. In order to address the issue of water shortage in the Deccan basaltic terrain, an integrated strategy that incorporates clusters of artificial recharge structures is therefore essential.

Keywords: Artificial recharge, Groundwater, Deccan basalt, Recharge structures.


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Hypsometric integral analysis of Asirgarh Deccan volcanics, Burhanpur district, Madhya Pradesh: A remote sensing and GIS approach

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The hypsometric analysis is a useful technique for identifying both the tectonic development of a river basin and the susceptibility of the watershed to erosion. It is also used to define integrated watershed management which includes water conservation, soil conservation and the selection of suitable sites for artificial groundwater recharge structures. The landform development of the watershed is described using this concept. The primary objective of this work was to examine the use of software from a Geographic Information System to identify and evaluate the hypsometric integrals of Asirgarh deccan volcanics in the Burhanpur district of Madhya Pradesh. Data from the SRTM-DEM as well as topographical maps generated by the Survey of India have been used during this process. This demonstrated that the primary causes of soil erosion in these sub-watersheds were the incision of channel beds, the movement of topsoil and bedrock material down slope, the removal of the soil mass and the cutting of stream banks. These alterations in the landforms were also shown in the study area. The hydrologic response of Asirgarh Deccan volcanic that have reached their mature stages will have a low rate of erosion unless there are very high intensity storms that contribute to high runoff peaks.

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शिक्षकगण

सत्र 2022–23

ISBN: 978-93-91248-63-5

OP 58

Medicinally Important Leeches in Churani Region Melghat

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Department of Zoology Science College Pauni

Abstract: Leeches have traditionally been used for bloodletting. The use of medicinal leeches is preferred because of their ability to bite deeply and cause prolonged bleeding,even after detachment.Different species of leeches secrete varying compounds with differing hematological actions.In 2004 the FDAapproved the use of medicinal leeches in reconstructive and plastic surgery.The medicinal leech is an excellent example of the use of invertebrates in the treatment of human disease.leeches secrete more than 20 identified bioactive substances such as antistasin,eglins,guamerin,hirudin,saratin,bdellins.they have analgesic,anti-inflammatory,platelet inhibitory, anticoagulant and thrombin regulatory functions.hirudotherapy technique is cheap,effective,easy to apply. Leeches can be found almost anywhere in churani region where there are suitable damp areas.mostly they are sanguivorous, that is they feed as blood sucking parasites on preferred hosts.these leeches can ingest several times their own weight in blood at one meal.after feeding the leech retires to a dark spot to digest its meal.Digestion is slow and this enables the leech to survive during very long fasting periods.

Keywords: Medicinal leeches, Hirudotherapy, bioactive compound.

Abstract ID: A58 Certificate Number: 20230407069

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This is to Certify that Dr. Shital Deshmukh, Assistant professor, Zoology, Science College Pauni has successfully delivered Oral Presentation on the Title *"Medicinally Important Leeches in churani region Melghat"* during the 2nd International Conference on Advance Interdisciplinary Research (ICAIR-2023), Jointly organised by Digvijai Nath Post Graduate College, Gorakhpur, UP & Science Tech Institute, Lucknow, UP, India on April 07-09, 2023. His/her credit hours is 14.75.

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