# Notes and News

Best Open-Source Machine Learning Libraries in 2025: The Future of AI Development

The era of machine learning is changing day by day, and innovation is being directed by open-source libraries. Machine learning developers and researchers are using a variety of open-source libraries in 2025 to develop strong AI models. The libraries are instrumental in preprocessing data, training models, and deploying models, and therefore they are extremely precious to industries. This article explores some of the best open-source machine learning libraries of 2025 and what's propelling the future of artificial intelligence.
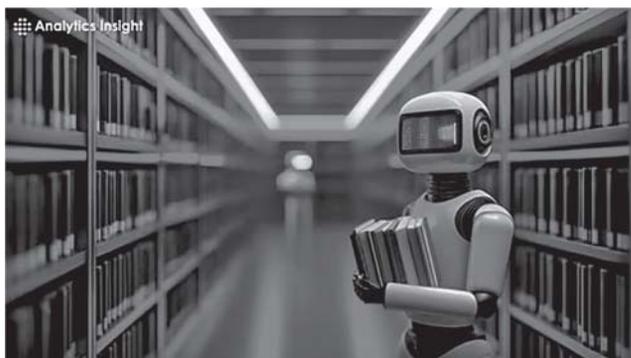
TensorFlow

TensorFlow is still one of the most popular open-source libraries for machine learning. It was created by Google and provides an open space for building deep learning models. It is supported by CPU and GPU, as well as being scalable and flexible. *TensorFlow* has strong tools to develop neural networks such as image classification, natural language processing, and reinforcement learning.

TensorFlow is also enhanced in 2025 with additional features and optimization that simplify developers' work when dealing with complex machine learning tasks. *TensorFlow*'s integration with Google Cloud facilitates easy deployment of AI models to production. Its capability to deal with complex models and big data sets makes it a necessary tool for most machine learning projects.

PyTorch

PyTorch has become the first-line choice for developers and researchers in the field of machine learning because it is easy to use and possesses a dynamic computational graph. *PyTorch* is maintained by Facebook AI Research and is best known for its very high flexibility in working in the field of deep learning research. *PyTorch* is still among the leading open-source machine learning frameworks in 2025 because of its easy-to-use syntax, because of which developers are able to toy around with neural networks easily.

PyTorch is extremely versatile in terms of use, varying from computer vision, natural language processing, to generative models. *PyTorch* seamlessly integrates with the rest of the Python ecosystem so model training and deployment is feasible with ease. As it grows its community and continues to gain abilities, *PyTorch* is among the top choices for researchers and developers.

Scikit-learn

Scikit-learn is a well-established open-source library developed for common machine learning operations like classification, regression, clustering, and dimensionality reduction. *Scikit-learn* provides fundamental and efficient data analysis and data mining capabilities, thus becoming a go-to library for machine learning enthusiasts as well as professionals. *Scikit-learn* remains an essential tool in the data science arsenal in 2025 because of its simplicity and presence of a vast array of algorithms.

Scikit-learn is also renowned for having a clean and well-documented API to aid in quick prototyping and model selection. *Scikit-learn* functions best on small and medium-sized datasets, and it happens to coexist well with other libraries of data science such as Pandas and NumPy. The ongoing development carried out on scikit-learn keeps it refreshed with the changing machine learning algorithms.

Keras

Keras is a deep learning library that allows users to easily develop neural networks. It was initially developed as a high-level *TensorFlow* interface but later grew into its own library in 2025, offering developers an easy method to make and test AI models. Keras is believed to be simple and modular and suitable for quick prototyping and experimentation.

With Keras, one can develop and train very sophisticated models in a matter of a few lines of code. It can support a range of architectures for neural networks such as convolutional neural networks (CNNs), recurrent neural networks (RNNs), and generative adversarial networks (GANs). Keras is perfectly suited for new developers and those who want to start with deep learning as soon as possible without delving into the low-level aspects of *TensorFlow*.

Conclusion

Open-source machine learning libraries like TensorFlow, PyTorch, Scikit-learn, and Keras are still best-in-class tools in AI creation as of 2025. The libraries present the developers with robust functionalities for building, training, and deploying models efficiently. The fact that the libraries are open-source ensures continuous enhancements and innovations driven by communities and thus are central to machine learning project development.

With their easy-to-use interfaces and increasing capability, these libraries will become increasingly influential in artificial intelligence in the years to come. These libraries may be used by machine learning practitioners to remain competitive and develop successful AI products for organizations worldwide. ❒

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Source: https://www.analyticsinsight.net/machine-learning/best-open-source-machine-learning-libraries-in-2025

Report of the Inaugural Ceremony of XXXVIII Training Programme on Science Communication and Media Practice of ISNA
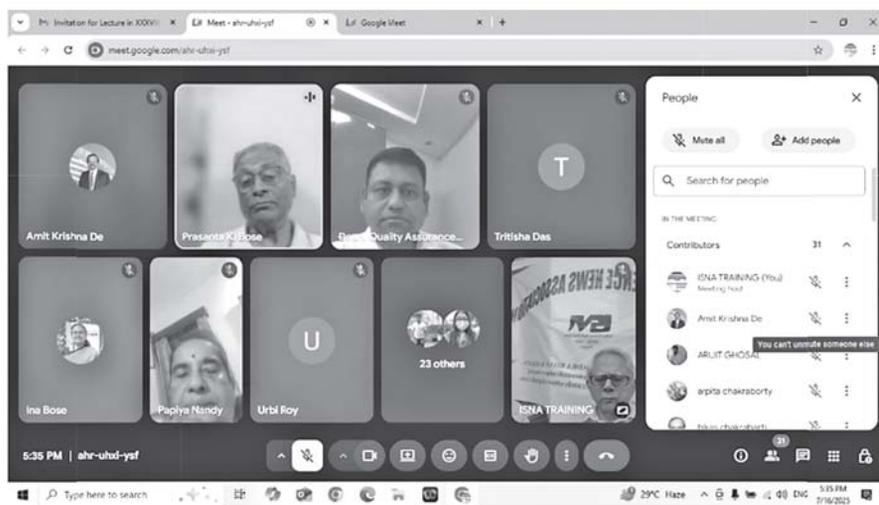
The formal inauguration of the Indian Science News Association's (ISNA) XXXVIII Training Programme (Online) Certificate Course of Basic Training on Course on Science Communication and Media Practice 2025-2026 commenced at 5.30 p.m. *via* Google Meet. The event was graced by the presence Distinguished Guests, Honorable Office-bearers, Council Members and Members of ISNA, both former and current students.

The Welcome Address was delivered by Shri Prasanta K. Bose, the Chairman of the Training Programme. He introduced the distinguished guests and emphasized the importance of cultivating a scientific temperament in the country, highlighting the current gaps in public understanding of scientific concepts. He concluded his speech on an encouraging note, expressing hope that the participating students would play a vital role in promoting scientific awareness through their writing and communication efforts.

Following the welcome address, Prof. Manas Chakrabarty, the Honorary Secretary of ISNA, spoke about the journals published by the institute, encouraged the students to get fully engaged with the course, develop a strong understanding of scientific temperament, and apply this knowledge sincerely in their lives. He also stressed the importance of sharing this understanding with the public. Thereafter, Dr. Amit Krishna De, the Convener of the Training Program and Honorary Secretary of ISNA, spoke about the significance of scientific temperament and elaborated on the course structure and curriculum. He also outlined various awareness programs conducted by the Association.

Subsequently, Shri Biswarup Mukherjee, a prolific writer and veteran journalist delivered an insightful talk covering a wide array of topics. He emphasized the ethical dimensions of scientific communication and its growing importance. He also reflected on how technology is contributing to the globalization of knowledge. In addition, he offered practical advice on writing scientific reports, stressing the importance of paraphrasing, using analogies, and consulting experts, thus emphasizing the need for intellectual honesty and validation of information to ensure accurate and responsible reporting.

Dr. Siddharth Swarup Rautaray, Dean IQAC and Associate Professor, School of Computer Engineering, Kalinga Institute of Industrial Technology, Bhubaneswar delivered an engaging talk on the role of Artificial Intelligence (AI) and Machine Learning (ML) in scientific communication. He highlighted how these technologies enhance content creation, enable effective audience targeting, and streamline the analysis of large data sets. After this, Prof. Bikas K. Chakrabarti, President of ISNA, spoke about the course structure and the institute's vision. He also extended a warm welcome to the new batch of students, encouraging them to make the most of the learning opportunities ahead.

Following the discussions and speeches, Prof. Prabir Kumar Saha, the Honorary Treasurer of ISNA, proposed the Vote of Thanks. The session concluded with a brief introduction by the new students present at the ceremony. The inaugural session was anchored by two ISNA past students Ms. Urbi Roy and Ms. Tritisha Das. ❒

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ISNA Celebration
National Doctors' Day 2025

The National Doctors' Day 2025 was celebrated by the Indian Science News Association (ISNA) on the 1st July, 2025, the birthday of legendary physician Dr. Bidhan Chandra Roy at N.R. Sen Auditorium, University of Calcutta, Rashbehari Siksha Prangan. Noted physicians Prof. Dr. Dwijen Gangopadhyay, former HoD and Professor, Calcutta School of Tropical Medicine, Medical College and Calcutta National Medical College and Hospital and Dr. Dhires Kumar Chowdhury, Geriatrician, Social Activist, Social Entrepreneur, Columnist, Poet, Fellow and Executive Committee Member of Geriatric Society of India delivered erudite lectures on the occasion.

The program started with the felicitation of Prof. Gangopadhyay with a presentation of tree sapling by Dr. Amit Krishna De, Honorary Secretary of ISNA, who welcomed the audience and then introduced Dr. Gangopadhyay. In his speech, Prof. Gangopadhyay mentioned that we pay our tribute to legendary luminary Dr. B.C. Roy on this day. He said that during his younger days, the Doctor had an exalted place in the society of hope and compassion, which is missing now. He shared some heart-warming anecdotes of his experiences with his family physician and how he looked after the wellbeing of the entire family. He also observed that previously the clinical examination-based British medical system was prevalent, which has now shifted to investigation-dependent American system which put an enormous pressure on the monetary situation of the patients. He ended his excellent speech on a philosophical note highlighting that the society has shifted from referring a doctor as 'Doctor Babu' to simply 'Doctor' now.

Professor Sudhendu Mondal, Editor-in-Chief, *Science and Culture*, former Director, National Library (Govt. of India), former UGC Professor and Head of the Department of Botany, Visva-Bharati also spoke on the immense contribution of Dr. B.C. Roy, the first Chief Minister of independent West Bengal (1950-1962) on creating the townships of Kalyani, Durgapur and the prestigious IIT Kharagpur with the support of the then Prime Minister Pandit Nehruji. He also reminded the audience of the role of another great legendary physician on pre-independence era Dr. Mahendra Lal Sarkar, founder of IACS (Indian Association for the Cultivation of Science) in Kolkata in 1876 in furthering the cause of medical education and science in the country.

The speaker Dr. Dhires Kumar Chowdhury was felicitated Prof. Prabir Kumar Saha, Honorary Treasurer ISNA. Prof. Manas Chakrabarty, Honorary Secretary, ISNA introduced the speaker to the audience. Dr. Chowdhury started his lecture by paying homage to the memory of legendary Bharat Ratna Dr. B.C. Roy on his birth and death

From L to R: Prof. Manas Chakrabarty, Dr. Amit Krishna De, Dr. Dhires Kumar Chowdhury, Prof. Prabir Kumar Saha, Prof. Dwijen Gangopadhyay, Prof. Bikas K. Chakrabarti

anniversary on this day. In his exhaustive and illuminating speech, Dr. Chowdhury shared his vast experience in geriatric care and touched upon different aspects of healthy ageing which he described as a process of sustaining highest achievable physical ability and fostering positivity through the ideal integration of physical, mental, societal, emotional and spiritual wellbeing. He emphasized on the importance of societal wellbeing looking at the vast 15 crore senior citizen population of the country. He urged the senior citizens (persons above 60 yrs) for early preparedness for leading a healthy productive life for almost 1/3 of the lifespan of an individual and this preparation should start at least 5 years before retirement. He categorized those within 60 to 70 years as younger old (having cognitive and mental abilities almost similar to 50-60 age group people), 70-80 years as middle old and more than 80 years as older old. He outlined that elder citizens should engage in productive and intellectual activities and should shed their ego to embrace the new advancements of technology from the young generation to enhance their mental wellbeing and shared his real-life experience in this regard. He ended his captivating speech by quoting revered Swami Ranganathananda, "Forenoon of life has one objective, afternoon has another, do not take the forenoon to afternoon of old age, otherwise there will be great diminishing of personality and loss of inner quality enrichment."

The lectures were followed by the Mrinal Kanti Dewanjee Award function where the two selected students, Sri Sitanshu Sekhar Manna and Sri Suprakash Mitra from National Gems High Secondary School, Kolkata and Ramkrishna Mission Boys' Home High School (H.S), Rahara, Kolkata, respectively delivered their power-point presentations on the topic "Importance of Basic and Translational Research". Then Prof. Bikas K. Chakrabarti, President, ISNA was felicitated by Prof. Manas Chakrabarty. The President then addressed the gathering and presented Certificates and Awards money of Rs 10,000.00 to the awardee.

The program ended with a vote of thanks by Prof. Prabir Kumar Saha, Honorary Treasurer, ISNA. The entire program was anchored by two past ISNA students Ms. Urbi Roy and Ms. Priyanka Saha. ❐

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