

K. S. INSTITUTE OF TECHNOLOGY
DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

**E-resources for AIML (Artificial Intelligence and Machine Learning)
students, categorized by type:**

1. Online Learning Platforms

These platforms offer structured courses, often with certifications.

- **Coursera** – <https://www.coursera.org>
Courses from Stanford, IBM, Google, etc. (e.g., *Machine Learning by Andrew Ng*)
- **edX** – <https://www.edx.org>
Courses from MIT, Harvard (e.g., *CS50's AI, Data Science* series)
- **Udacity** – <https://www.udacity.com>
Offers *Nanodegree* programs in AI, ML, and Deep Learning.
- **Udemy** – <https://www.udemy.com>
Affordable and diverse courses like *Python for Data Science and ML Bootcamp*.

2. Research and Technical Paper Repositories

- **arXiv** – <https://arxiv.org>
Preprints of cutting-edge research papers in AI, ML, NLP, and more.
- **Google Scholar** – <https://scholar.google.com>
Search academic papers, theses, and citations.
- **Semantic Scholar** – <https://www.semanticscholar.org>
AI-powered search for scientific literature.

3. Code and Project Platforms

- **GitHub** – <https://github.com>
Explore open-source AI/ML projects, code examples, datasets.
- **Kaggle** – <https://www.kaggle.com>
Data science competitions, kernels (notebooks), and datasets.
- **Google Colab** – <https://colab.research.google.com>
Free Jupyter notebook environment with GPU support.

4. e-Books & PDFs

- **Deep Learning Book by Ian Goodfellow** – <https://www.deeplearningbook.org/>
Fundamental DL theory.
- **Pattern Recognition and Machine Learning – Christopher Bishop**
[PDF available from university resources]
- **Python Machine Learning – Sebastian Raschka**
Widely used for practical applications.

5. YouTube Channels

- **StatQuest with Josh Starmer** – Great for stats and ML explanations.
- **Two Minute Papers** – Research paper breakdowns in simple terms.
- **Sentdex** – Tutorials on Python, ML, NLP, etc.
- **Krish Naik, Codebasics, Ken Jee** – Indian-based and global tutorials.

6. AI Tools and APIs

- **OpenAI APIs** – GPT, Codex, Whisper
- **Hugging Face** – <https://huggingface.co>
Transformers, NLP models, datasets.
- **TensorFlow** – <https://www.tensorflow.org>
- **PyTorch** – <https://pytorch.org>

7. Free Certifications and Micro-courses

- **Google AI & ML Crash Course** –
<https://developers.google.com/machine-learning/crash-course>
- **AWS Machine Learning University** –
<https://aws.amazon.com/training/learning-paths/machine-learning/>
- **IBM Cognitive Class** – <https://cognitiveclass.ai/>

1. Development & Frameworks

Used to build AI models and systems.

- **TensorFlow** – <https://www.tensorflow.org>
Google's library for deep learning, supports Python and C++.
- **PyTorch** – <https://pytorch.org>
Facebook's flexible deep learning framework; preferred for research.
- **Keras** – <https://keras.io>
High-level API for building neural networks, runs on TensorFlow.
- **Scikit-learn** – <https://scikit-learn.org>
For classic ML algorithms like SVMs, decision trees, clustering, etc.

2. NLP (Natural Language Processing) Tools

- **spaCy** – <https://spacy.io>
Fast NLP library with models for tokenization, NER, POS tagging.
- **Hugging Face Transformers** – <https://huggingface.co>
Pretrained models for BERT, GPT, RoBERTa, etc. with easy-to-use APIs.
- **NLTK** – <https://www.nltk.org>
For educational use and prototyping in NLP.

♦ 3. Computer Vision Tools

- **OpenCV** – <https://opencv.org>
Open-source toolkit for image and video processing.
- **YOLO (You Only Look Once)** – Real-time object detection model.
- **MediaPipe by Google** – Real-time face, pose, and gesture detection.

4. AutoML Tools

- **Google AutoML / Vertex AI** – <https://cloud.google.com/vertex-ai>
- **Microsoft Azure AutoML** – <https://azure.microsoft.com>
- **H2O.ai** – <https://www.h2o.ai>
Open-source and enterprise AutoML platform.

5. Generative AI Tools

- **OpenAI ChatGPT / GPT-4** – <https://chat.openai.com>
- **DALL·E / Sora** – AI image & video generation.
- **RunwayML** – <https://runwayml.com>
Generative video, green screen, editing using AI.
- **Leonardo AI, Midjourney, Stable Diffusion** – AI image creation.

6. Data Science & Visualization

- **Jupyter Notebooks** – <https://jupyter.org>
Web-based interface for running code, visualizing ML output.
- **Google Colab** – <https://colab.research.google.com>
Free cloud-based notebooks with GPU access.
- **Tableau Public** – <https://public.tableau.com>
Visualization for datasets and AI outcomes.

7. AI APIs (No Code or Low Code)

- **IBM Watson** – <https://www.ibm.com/watson>
- **Dialogflow by Google** – <https://dialogflow.cloud.google.com>
AI for building chatbots and virtual agents.
- **AssemblyAI** – Speech-to-text and NLP APIs.
- **OpenAI API** – For accessing GPT, Whisper, Codex models.

8. AI Code Assistance Tools

- **GitHub Copilot** – AI coding assistant from GitHub and OpenAI.
- **Kite** – Autocompletion for Python (discontinued, but used to be popular).
- **TabNine** – AI assistant that integrates with code editors.

E-Resources to Learn & Explore These Tools

Official Docs & Tutorials

- <https://www.tensorflow.org/tutorials>
- <https://pytorch.org/tutorials/>
- <https://scikit-learn.org/stable/tutorial/index.html>
- <https://docs.huggingface.co>

MOOC Courses

- **Google AI Crash Course** – <https://developers.google.com/machine-learning/crash-course>
- **Coursera Specializations** – *AI by Stanford, DeepLearning.AI*
- **edX, Udacity, Udemy** – Skill-focused AI tool training.

GitHub Repositories

- <https://github.com/huggingface/transformers>
- <https://github.com/ultralytics/yolov5>
- <https://github.com/tensorflow/models>

