**Resources**:

1. **Python**

Free:

* W3schools: [Python Tutorial](https://www.w3schools.com/python/)
* Python complete tutorial with project: <https://www.youtube.com/watch?v=Tp6zv8eCzsA&list=LL&index=57&ab_channel=CompleteCodingbyPrashantSir>
* Python official documentation: <https://docs.python.org/3/tutorial/>
* Harvard CS50’s Introduction to Programming with Python: <https://www.youtube.com/watch?v=nLRL_NcnK-4&t=18270s&ab_channel=freeCodeCamp.org>

Paid:

* Coursera: [Python for Everybody Certificate Program (Michigan) | Coursera](https://www.coursera.org/specializations/python)
* Datacamp:

1. <https://app.datacamp.com/learn/skill-tracks/python-programming-fundamentals>
2. <https://app.datacamp.com/learn/courses/introduction-to-object-oriented-programming-in-python>
3. <https://app.datacamp.com/learn/courses/data-structures-and-algorithms-in-python>
4. **Maths**

Free:

* Mathematics for Machine Learning book: <https://mml-book.github.io/book/mml-book.pdf>
* Visualization-based math tutorials: <https://www.youtube.com/c/3blue1brown>
* Great for statistics and machine learning concepts: <https://www.youtube.com/@statquest/videos>
* DataCamp Blog: <https://www.datacamp.com/tutorial/demystifying-mathematics-concepts-deep-learning>
* Khanacademy: <https://www.khanacademy.org/math>

Paid:

* Coursera: [Mathematics for Machine Learning Certificate Program (IC) | Coursera](https://www.coursera.org/specializations/mathematics-machine-learning)
* Datacamp:

1. <https://www.datacamp.com/tracks/statistics-fundamentals-with-python>

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**3. SQL**

Free:

* <https://mode.com/sql-tutorial>
* [SQLBolt](https://sqlbolt.com/)
* Youtube Playlist: <https://www.youtube.com/watch?v=BPHAr4QGGVE&list=PL9ooVrP1hQOG6DQnOD6ujdCEchaqADfCU&index=3&ab_channel=edureka%21>
* W3schools: https://www.w3schools.com/sql/default.asp

Paid:

* Datacamp: <https://app.datacamp.com/learn/skill-tracks/sql-fundamentals>

4. **Git and Github**:

Free:

* Git cheat sheet datacamp: [Git Cheat Sheet](https://images.datacamp.com/image/upload/v1656573882/Marketing/Blog/git_cheat_sheet.pdf)
* Youtube tutorial in english: <https://www.youtube.com/watch?v=S7XpTAnSDL4&ab_channel=JavaScriptMastery>
* Another english yt tutorial corey schafer: [Git Tutorial for Beginners: Command-Line Fundamentals](https://www.youtube.com/watch?v=HVsySz-h9r4&list=PL-osiE80TeTuRUfjRe54Eea17-YfnOOAx&ab_channel=CoreySchafer)
* Youtube tutorial in nepali: <https://www.youtube.com/watch?v=e1icpIbLNx8&ab_channel=TechnologyChannel>

Paid:

* Datacamp: <https://app.datacamp.com/learn/skill-tracks/github-foundations>

5. **Python libraries**:

Free:

* Pandas documentation: <https://pandas.pydata.org/docs/>
* Pandas tutorial corey schafer: [Python Pandas Tutorial (Part 1): Getting Started with Data Analysis - Installation and Loading Data](https://www.youtube.com/watch?v=ZyhVh-qRZPA&list=PL-osiE80TeTsWmV9i9c58mdDCSskIFdDS&ab_channel=CoreySchafer)
* Matplotlib playlist: [Matplotlib Tutorial (Part 1): Creating and Customizing Our First Plots](https://www.youtube.com/watch?v=UO98lJQ3QGI&list=PL-osiE80TeTvipOqomVEeZ1HRrcEvtZB_&ab_channel=CoreySchafer)
* Numpy documentation: <https://numpy.org/doc/>
* Sci-kit learn: [Scikit-learn Crash Course - Machine Learning Library for Python](https://www.youtube.com/watch?v=0B5eIE_1vpU&ab_channel=freeCodeCamp.org)
* Scikit learn cheatsheet: <https://www.datacamp.com/cheat-sheet/scikit-learn-cheat-sheet-python-machine-learning>
* Sci-kit learn docs: https://scikit-learn.org/stable/
* All in one freecodecamp: [Python for Data Science - Course for Beginners (Learn Python, Pandas, NumPy, Matplotlib)](https://www.youtube.com/watch?v=LHBE6Q9XlzI&ab_channel=freeCodeCamp.org)

Paid:

* Datacamp:

1. Numpy: <https://app.datacamp.com/learn/courses/introduction-to-numpy>
2. Pandas: <https://app.datacamp.com/learn/courses/data-manipulation-with-pandas>
3. Matplotlib : <https://app.datacamp.com/learn/courses/introduction-to-data-visualization-with-matplotlib>
4. Sci-kit learn: <https://app.datacamp.com/learn/courses/supervised-learning-with-scikit-learn>

<https://app.datacamp.com/learn/courses/unsupervised-learning-in-python>

6. **Machine learning data preprocessing**:

Free:

* Youtube playlist: [1. The Complete Machine Learning Process Explained | Data Preprocessing in Machine learning](https://www.youtube.com/watch?v=UoYO-MjqiVQ&list=PLg8h8Ej1e8l2u2Hdt2EIX86SFJpgvUUs3&ab_channel=CodersArts)
* DataCamp slides: <https://campus.datacamp.com/pdf/web/viewer.html?file=https://projector-video-pdf-converter.datacamp.com/6576/chapter1.pdf#page=2>
* Blog: <https://www.analyticsvidhya.com/blog/2021/08/data-preprocessing-in-data-mining-a-hands-on-guide/>

Paid:

* Coursera: [Data Processing and Manipulation | Coursera](https://www.coursera.org/learn/data-processing-and-manipulation)

7. **Machine learning: Model Building**:

Free:

* Google’s machine learning crash course: [Machine Learning Crash Course | Google Developers](https://developers.google.com/machine-learning/crash-course)
* Kaggle: [Learn Intro to Machine Learning Tutorials | Kaggle](https://www.kaggle.com/learn/intro-to-machine-learning)

[Intermediate Machine Learning](https://www.kaggle.com/learn/intermediate-machine-learning)

* TheHundred-pageMachineLearning Book: [Andriy Burkov The Hundred-Page Machine Learning Book - Draft](http://ema.cri-info.cm/wp-content/uploads/2019/07/2019BurkovTheHundred-pageMachineLearning.pdf)
* Hands On Machine Learning with Scikit Learn and TensorFlow.pdf: [ml-road/resources/Hands On Machine Learning with Scikit Learn and TensorFlow.pdf at master](https://github.com/yanshengjia/ml-road/blob/master/resources/Hands%20On%20Machine%20Learning%20with%20Scikit%20Learn%20and%20TensorFlow.pdf)
* Machine learning engineering by [Andriy Burkov](https://www.linkedin.com/in/andriyburkov/) <https://www.mlebook.com/wiki/doku.php>
* Codeacademy: [Machine Learning for Everybody – Full Course](https://www.youtube.com/watch?v=i_LwzRVP7bg&ab_channel=freeCodeCamp.org)

Paid:

* Coursera:<https://www.coursera.org/specializations/machine-learning-introduction>
* Datacamp: https://app.datacamp.com/learn/career-tracks/machine-learning-scientist-with-python

6. **MLOps(Machine learning operations)** :

Free:

* MLOps by Andrew Ng[#1 Machine Learning Engineering for Production (MLOps) Specialization [Course 1, Week 1, Lesson 1]](https://www.youtube.com/watch?v=NgWujOrCZFo&list=PLkDaE6sCZn6GMoA0wbpJLi3t34Gd8l0aK&ab_channel=DeepLearningAI)
* Freecodecamp: [MLOps Course – Build Machine Learning Production Grade Projects](https://www.youtube.com/watch?v=-dJPoLm_gtE&ab_channel=freeCodeCamp.org)
* FastAPI Codecamp: [FastAPI Course for Beginners](https://www.youtube.com/watch?v=tLKKmouUams&ab_channel=freeCodeCamp.org)
* FastAPI Bugbytes playlist: [FastAPI #1 Installation / API Routes / Swagger Docs](https://www.youtube.com/watch?v=Lw-zLopB3o0&list=PL-2EBeDYMIbQghmnb865lpdmYyWU3I5F1&index=1&ab_channel=BugBytes)
* FastAPI Docs: <https://fastapi.tiangolo.com/learn/>
* Docker: <https://www.youtube.com/watch?v=fqMOX6JJhGo&pp=ygUdZGV2b3BzIHR1dG9yaWFsIGZvciBiZWdpbm5lcnM%3D>
* Kubnernetes: https://www.youtube.com/watch?v=X48VuDVv0do&pp=ygUdZGV2b3BzIHR1dG9yaWFsIGZvciBiZWdpbm5lcnM%3D

Paid:

* DataCamp: <https://app.datacamp.com/learn/skill-tracks/mlops-fundamentals>

6. **Deep Learning**:

Free:

* Deep learning with Python Book: [François Chollet](https://sourestdeeds.github.io/pdf/Deep%20Learning%20with%20Python.pdf)
* Grokking Deep Learning by Andrew W. Trask: <https://edu.anarcho-copy.org/Algorithm/grokking-deep-learning.pdf>
* Practical Deep Learning: <https://course.fast.ai/>
* Freecodecamp: [Deep Learning Crash Course for Beginners](https://www.youtube.com/watch?v=VyWAvY2CF9c&ab_channel=freeCodeCamp.org)
* MIT Playlist: [MIT Introduction to Deep Learning | 6.S191](https://www.youtube.com/watch?v=ErnWZxJovaM&list=PLtBw6njQRU-rwp5__7C0oIVt26ZgjG9NI&ab_channel=AlexanderAmini)

Paid:

* Coursera: <https://www.coursera.org/specializations/deep-learning>

7. **LLMs**:

Free:

* Building LLMs Stanford online: [Stanford CS229 I Machine Learning I Building Large Language Models (LLMs)](https://www.youtube.com/watch?v=9vM4p9NN0Ts&list=LL&index=8&ab_channel=StanfordOnline)
* Langchain Freecodecamp: [Learn LangChain.js - Build LLM apps with JavaScript and OpenAI](https://www.youtube.com/watch?v=HSZ_uaif57o&t=248s&ab_channel=freeCodeCamp.org)
* Langchain docs:<https://python.langchain.com/docs/introduction/>
* [Full Stack Deep Learning](https://fullstackdeeplearning.com/)

Paid:

* <https://app.datacamp.com/learn/skill-tracks/developing-ai-applications>
* <https://app.datacamp.com/learn/skill-tracks/developing-large-language-models>