

100 Days Of Machine Learning (ML) Coursework

Motivation for 100 Days of ML Telegram Group

Machine Learning is the most transformative technology of our time. Whether it's helping us discover new drugs for major diseases, fighting fraud, generating music, improving supply chain efficiency, the list of applications is truly endless. For us as a community to be able to make valuable contributions to the world, we need to master this technology. This is a call to action, a battle cry, a spark that will light a movement to radically improve the state of humanity. **100 Days of ML** Code is a commitment to better your understanding of this powerful tool by dedicating at least 1 hour of your time every day to studying and/or coding machine learning for 100 days.

Eligibility

Everyone is eligible, even people who've never coded before and ready to strive on an awesome journey of learning starting from 1st January , 2019 !!

My Pledge

1. I pledge to dedicate at least one hour of everyday toward coding and/or studying Machine Learning.
2. I pledge to write about my progress (with the #100DaysOfMLCode hashtag).
3. When applicable, I will post all relevant codes to a repository publicly available over GitHub or in a Google Colaboratory Notebook so that others can get helped too !!

At the outset, I thought it would be useful to clarify my interests within the field and the goals I'd like to achieve by engaging with this project.

My Goals

At the end of this **100 Days Of ML** Code journey, I would like to be able to show a rich portfolio of code, analysis, and narrative treating all the above topics and models plus all the additional content , I'll invariably discover over the course of this learning journey.

I'd also like to be able to explain and demonstrate (at a reasonably granular level) the mathematical machinery underpinning machine learning.

Finally — and, I think, most importantly — I'd like to contribute to the plethora of existing resources aimed at encouraging others toward engaging with machine learning. I agree with the quote that, “machine learning is the most transformative and important technology of our time”. My aim throughout this process will be to critically engage with freely accessible materials while always being sure to provide useful links.

I hereby accept **100 Days of ML** Code Challenge! I'd like to thank the community around for such a productive endeavor. I very much look forward to participating in this challenge .

**** Thanks for joining the group - Ayon Roy !! HAPPY LEARNING !!****

If you see anything above violating your privacy/lifestyle , immediately report it to Ayon Roy { Telegram username @ayonroy2000 } .

COURSEWORK

For 100 Days Of ML

To all the members of 100 Days Of ML Telegram Group ,

This is an independent coursework mainly designed for the members of the telegram group for 100 Days of Machine Learning initiated by **Ayon Roy** . All the members are free to move forward by making commitments to this Coursework , however it's not a compulsion to follow the specific path mentioned in the coursework ; you are free to utilize & commit your time for next 100 Days in the field of Machine Learning .

I know that being a student / working professional , sometimes it may not be possible for you to devote 1 hour on a daily basis , due to exams and other life goals like friends , families etc. and it's quite cool to keep learning ML alongside these . But the main point is that “ **PATIENCE , COMMITMENT IS THE KEY TO SUCCESS** ” , keeping this in mind ; you are requested to move forward .

It's not compulsory that you start the course from 1/1/19 only , you may start later due to exams or any unavoidable conditions ; the group and it's members are here to help you even after the suggested end of 100 Days Of ML i.e. 10th April , 2019 . **But do understand that this initiative prompts you to devote 100 hours in total and I hope you all can do this as per your convenience . Don't rush as per the coursework or other group members , take your time and dive into Machine Learning patiently and with full confidence .**

I along with mentors and other members are here to help you along the journey , but do consider asking your doubts only after searching for the same on Google and still if you face any difficulty , then we are here for your support !

Don't worry about the monthly / weekly deadlines , try to understand the concepts well !! Take your time !!

Regards ,

Ayon Roy

(Creator of the 100 Days Of ML Telegram group)

Visit my website : <https://ayonroy.me/>

Email : ayon.roy2000@gmail.com

Telegram Username : ayonroy2000

100 Days Of Machine Learning (ML) Coursework

[B] – *Specially Suggested for Beginners* ; these can be / must be completed by all for better understanding of ML .

Month 1

Mathematics is the prerequisite for Machine Learning. Mathematics subject is crucial for many high demand remunerative career fields such as Computer Science, Data Science and Artificial Intelligence.

Week 1 : Linear Algebra [B]

<https://www.khanacademy.org/math/linear-algebra>

Week 2 : Calculus [B]

<https://www.youtube.com/playlist?list=PLZHQObOWTQDMsr9K-rj53DwVRMYO3t5Yr> or <https://www.mathsisfun.com/calculus/> ; want theoretical notes , find it at <https://the-learning-machine.com/article/machine-learning/calculus> .

Week 3 : Probability [B]

<https://www.edx.org/course/introduction-probability-science-mitx-6-041x-2>

Week 4 : Statistics [B]

<https://alex.smola.org/teaching/cmu2013-10-701/stats.html>

Algorithms (Only if you want to learn proper software development) [Highly optional]

This is an overview of what the students study as the subject Data Structures & Algorithm . So if you are fluent with this part , you can skip this !!

<https://www.edx.org/course/algorithm-design-analysis-pennx-sd3x>

Note :

- * Please try to finish the monthly targets of Month 1 as soon as possible , so that you can get ample amount for time for exploring the courses in Month 2 . They are rock strong courses to work upon which will require a lot of commitment , time and patience !!
- * If you like to get theoretical notes for Mathematical concepts of Month 1 , view it in the Miscellaneous Section .
- * It's not mandatory to do all the courses mentioned above , if you are quite fluent with these parts , you are free to skip them out and move on to Month 2 targets.
- * There are no weekly assignments for the coursework , if you want to do the assignments , check for them in the respective course links shared above .

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Month 2

Introduction to python for data science [B]

<https://www.datacamp.com/courses/intro-to-python-for-data-science>

* Want to dive deeper into Data Visualization & Pre-Processing ? Look into Data Visualization & Pre-Processing section in miscellaneous resources . [**Highly optional**]

Machine Learning A-Z™: Hands-On Python & R in Data Science [B]

Download the course from - <https://www.freetutorials.eu/machine-learning-a-z-hands-on-python-r-in-data-science-5/>

* Want to explore the field of Deep Learning ? See the Deep Learning Section in miscellaneous resources . [**Highly optional**]

* Want to explore the field of Natural Language Processing [NLP] ? See the Natural language Processing Section in miscellaneous resources . [**Highly optional**]

See how ML codes are written and made to work at - >

<https://github.com/maykulkarni/Machine-Learning-Notebooks> or

<https://github.com/GokuMohandas/practicalAI/blob/master/README.md> . [**Highly optional**]

* Find useful resources here at <https://github.com/ujjwalkarn/Machine-Learning-Tutorials/blob/master/README.md> . [**Highly optional**]

Note :

* No weekly commitments have been set for this month as completing the courses of Month 2 requires immense concept clearing and that highly varies from person to person . Do try to finish the courses patiently with all doubts getting cleared as these form the basics for ML applications .

* If you are not able to finish the courses within Month 2 , it's all okay . Do take your time in Month 3 and then start with projects . The coursework is independent as per your comfort .

* There are no weekly assignments for the coursework , if you want to do the assignments , check for them in the respective course links shared above .

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Month 3

(Month of Projects)

Beginners Section [B]

Brush your basic concepts and revise them to start doing projects

- 1) Titanic Dataset
- 2) Iris Dataset
- 3) Stock Price Prediction
- 4) Stores Sales Forecasting
- 5) Housing Price Prediction

Guide for Beginner Projects:

First of all see Below 2 videos to get an idea on how to make projects of Data Science and Machine Learning And then Move to Kaggle for Making your own project.Its is Good if you Make Minimum 2-3 Projects on your on own.

[Titanic Survivor](#)

[Credit Card Fraud Detection](#)

Intermediate & Advanced Section

Learn libraries like Opencv , Tensorflow , SkLearn

- 1) Natural Language Processing : MNIST Handwritten Digit Classification
Twitter Sentiment Analysis
- 2) Email Spam Classifier
- 3) Fraud Detection System
- 4) Computer Vision : Face Recognition
Face Detection

Note :

- * It`s not necessary to do all the projects mentioned above , you may choose them as per your comfort zone and commitment . Apart from that , you can also choose a project not mentioned above . Main motive is to do things , independent of the sources !!
- * Beginners , if you are fluent with the concepts by Month 2 end , you can consider picking up any 2 projects from the beginners section and then try to pick a project from Intermediate & Advanced Section .
- * If you are completing the courses mentioned (in Month 2) still in Month 3 , then no worries . Complete the courses fully and patiently , then try doing the projects .
- * Details of the projects like what to do , how to do , datasets required etc. will be shared by the mid / end of Month 2 . Some more projects may be added and projects currently mentioned above may be removed as per the majority demands of the members .

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Miscellaneous Resources

- If you wanna have a look into Coursera Andrew Ng`s course , check it at https://www.youtube.com/playlist?list=PLLssT5z_DsK-h9vYZkQkYNWcltqhIRJLN .
- For awesome & cool Python videos , do check <http://www.youtube.com/pylenin> (This channel is maintained by one of our mentors of the group)
- Suggested notes for Month 1 (Except Algorithms) , download it at - <https://gwthomas.github.io/docs/math4ml.pdf>
- Deep Learning (Do the courses as per your comfort zone)

[MIT Introduction to Deep Learning](#)

Must read book on Deep Learning: [Free HTML book](#)

[Deep Learning course by Andrew Ng](#) It has 5 courses, search them and enroll if you want to audit all the 5 courses for free.

- Natural Language Processing (Do the courses as per your comfort zone)

[Introduction to Natural Language Processing UMichigan](#)

[Natural Language Processing by Stanford](#)

- Practical Python Coding . Check at <https://github.com/GokuMohandas/practicalAI> .
- Check out study materials at <https://www.dropbox.com/sh/ytdwn0ny0oo3qou/AADiW-0mvwxPWG1yK7HQSIXNa?dl=0> .
- Wanna solve assignments for the concepts learned . Try it as per the concepts you (click on the assignment section) - <https://www.nptel.ac.in/downloads/106106139/>
- See ML concepts implementation with Python – <https://github.com/eriklindernoren/ML-From-Scratch#supervised-learning>
- Data Preprocessing and Data Visualization

Data Preprocessing :

Numpy - (<https://www.youtube.com/watch?v=rvY0MskPps0>) ,
https://www.youtube.com/watch?v=P_3MyPMXN0Y)

Pandas: (<https://www.youtube.com/watch?v=lgjy9UgKKuo&list=PLQVvva0QuDc-3szzjeP6N6b0aDrrKyL->) (<https://www.youtube.com/watch?v=yzIMircGU5I&list=PL5-da3qGB5ICCsgW1MxlZ0Hq8LL5U3u9y>)

Data Visualization :

(https://www.youtube.com/watch?v=q7Bo_J8x_dw&list=PLQVvva0QuDfefDfXb9Yf0la1fPDKluPF)

- Want to upload any study material for group . Upload it at <https://www.dropbox.com/request/onQMRpWhlm6l5b2uskq3> .

Happy Learning !!