My Learning Plan

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Contents

Preface

After going up and down in my life, I finally found the way to study and learn well. This document has everything I want to do and resource I want to check. This plan will be started from the summer.

After spending one whole semester in the university, it is got clear to me, that meanwhile studying, learning **new** things, is hard! It's possible but it's hard. So summers are the times which I have to value a lot and to make the most outta 'em.

At the time of writing this, there are 5 days remaining of the year, a long and hard year both for Iran, my love, and myself. I learned and grew a lot during this year. I spend a whole semester in university, experienced a really *Randomly-Generated-but-Related* journey. Studied a lot, learned how to study well and meet many new and nice people.

But after all, I have to create a path to my actual career! After working and searching I've finally made my decision and chosen: *Data Science*. I really like this field, it's very amazing but hard to learn :) Beside this, I wanna learn backend engineering as well, 'cause it is much faster (faster to get result, lol) and has a slightly smaller learning curve.

This plan will be started from the summer of 1402, but I will be working and adding things to this document from time to time; there may be some new chapters or reorganization of the chapter but not now :D

This will be a hot summer. It gets hot because of so many hours I want to study, both with video courses and with reading books. To learn data science I asked someone in our university who already is a data scientist, and he introduced me to the deep learning course of *Jeremy Howard*. This course is freely available on YouTube. Also this course needs a book nearby (written by Jeremy Howard) called *Deep Learning for Coders With Fastai and PyTorch.*

Besides learning data science, learning new things and refreshing my Python skills is something that I would never miss and enjoy a lot. The focus of this summer will be on the CPython implementation itself, so I've chosen some nice books on this field. I have gathered some more general books on Python too, but they would have a lesser priority.

Watching video courses and reading books are the main activities of the summer, but without spending or more precisely, *acquiring* time to rest, nobody can learn anything; listening to music and podcast and watching movies are the main non-active and biking is the main physical activity of my summer.

Some knowledge needs to be learned by video courses in short and then be completed by reading books and researching in a long journey.

Me

1
Courses

Well, the major part of the summer is the courses, in this chapter I will introduce the courses I want to watch and some useful information about them.

Eash course is tagged with these:

- Learning curse
  - `Hard`
  - `Easy`
- Video duration
  - `Long`
  - `Short`
- Video Count: `Many`

1.1 Deep learning

The career I chose, "The sexiest job of the 21st century," "The best job in America," "One of the newest and coolest jobs in IT world"

Hard Long

Well as the quote says, this is exciting, BUT it really needs knowledge and effort to gain, the starting point is here: this nice deep learning course at `https://course.fast.ai/`.

Practical Deep Learning
A free course designed for people with some coding experience, who want to learn how to apply deep learning and machine learning to practical problems.

This free course is designed for people (and bunnies!) with some coding experience who want to learn how to apply deep learning and machine learning to practical problems.

Each lesson of the course has a video and a dedicated page of the website, like Lesson 1.

Notes:

- Each video is pretty long, on average they last one hour and 30 minutes! The longer the video, the more knowledge they contain AND the more attention they need AND the more practice as well.
- Each lesson has a *How to complete lesson N* section (like here,) in which says: *As well as watching the video and working through the notebooks, you should also read the relevent chapter(s) of the fast.ai book, Practical Deep Learning for Coders. Each lesson will tell you what chapter you need to read, just below the video*

After all, the dedicated time and effort must be huge.

1.2 FastAPI

> "FastAPI framework, high performance, easy to learn, fast to code, ready for production"
>
> fastapi.tiangolo.com

`Easy` `Short` `Many`

We all know FastAPI and there is no need for more introduction. The course I wanna watch is `https://youtu.be/0s0vCWFmrtA`

The course is a 19-hour long video which is downloaded and cut already. The important things are:

- The course is created one year ago and it is slightly outdated, so the documentation must be read along the course.
- Course will just show you how to use FastAPI and the real learning happens when doing projects.
- It's good to define nice projects whenever I came to an idea e.g. *The API to send pictures of `https://unsplash.com` to my friends* :)

I find television very educating. Every time somebody turns on the set, I go into the other room and read a book.

Groucho Marx

There is more treasure in books than in all the pirate's loot on Treasure Island.

Walt Disney

2 Books

You may argue me about what I want to say, however I found it true: "If you want to learn *something*, the real source is the books about it." This is absolutely true. No video course and no article and nothing else may contain the most valuable information about something. All the video courses and simple article ARE come from the books.

In this chapter I may introduce many invaluable books (most technical books but it may contain other books as well.)

Each section of this chapter has the name of the book which is a link to the post of that book in the store: `Skybooks.ir`, where I buy the books from. Then there maybe some tags under the name of the books, the whole tags are categorized in three categories:

1. Reading priority

    - `must-read`
    - `better-to-read`
    - `later-to-read`

2. Buying considerations:

   (a) Number of pages

   - `near-one-thousand-pages`
   - `near-seven-hundred-pages`
   - `near-five-hundred-pages`
   - `near-two-hundred-pages`

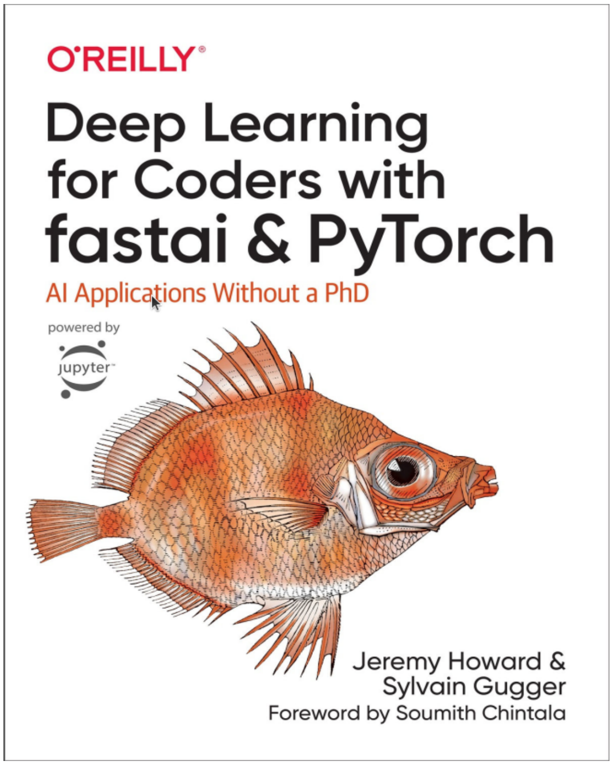
   (b) Price:

   - `number T`
   - `number T`
   - `number T`
   - `number T`
   - `number T`

3. Book read `Read`

2.1 Deep Learning for Coders With Fastai and PyTorch

must-read near-seven-hundred-pages 297 T


O'REILLY
Deep Learning for Coders with fastai & PyTorch
AI Applications Without a PhD
powered by
jupyter
Jeremy Howard & Sylvain Gugger
Foreword by Soumith Chintala

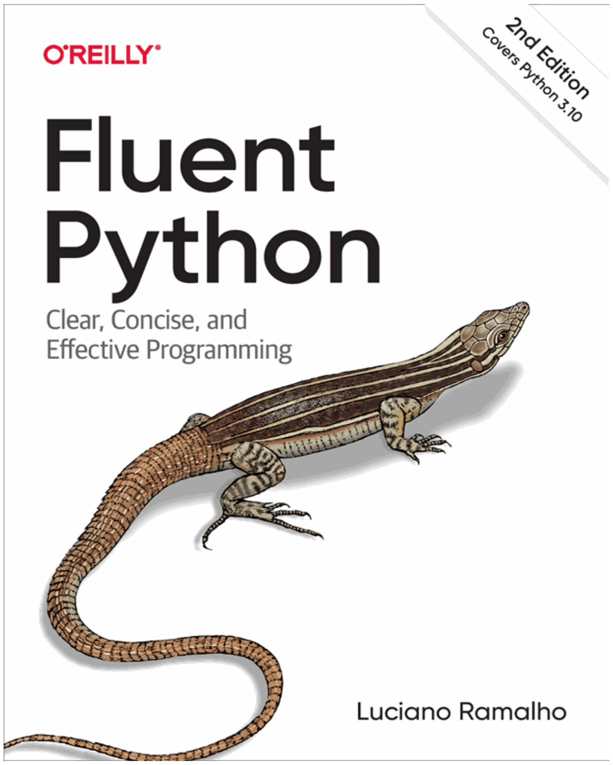
Deep learning is often viewed as the exclusive domain of math PhDs and big tech companies. But as this hands-on guide demonstrates, programmers comfortable with Python can achieve impressive results in deep learning with little math background, small amounts of data, and minimal code. How? With fastai, the first library to provide a consistent interface to the most frequently used deep learning applications show you how to train a model on a wide range of tasks using fastai and PyTorch.

You'll also dive progressively further into deep learning theory to gain a complete understanding of the algorithms behind the scenes. Train models in computer vision, natural language processing, tabular data, and collaborative filtering Learn the latest deep learning techniques that matter most in practice Improve accuracy, speed, and reliability by understanding how deep learning models work Discover how to turn your models into web applications Implement deep learning algorithms from scratch Consider the ethical implications of your work.

As a 622-page and comprehensive book, it needs attention and time. The book may get printed, just to be read easily.

2.2 Fluent Python

`later-to-read` `near-one-thousand-pages` `505 T`



Python's simplicity lets you become productive quickly, but often this means you aren't using everything it has to offer. With the updated edition of this hands-on guide, you'll learn how to write effective, modern Python 3 code by leveraging its best ideas. Don't waste time bending Python to fit patterns you learned in other languages. Discover and apply idiomatic Python 3 features beyond your past experience. Author Luciano Ramalho guides you through Python's core language features and libraries and teaches you how to make your code shorter, faster, and more readable.

Featuring major updates throughout the book, Fluent Python, second edition, covers:

1. Special methods: The key to the consistent behavior of Python objects

2. Data structures: Sequences, dicts, sets, Unicode, and data classes

3. Functions as objects: First-class functions, related design patterns, and type hints in function declarations

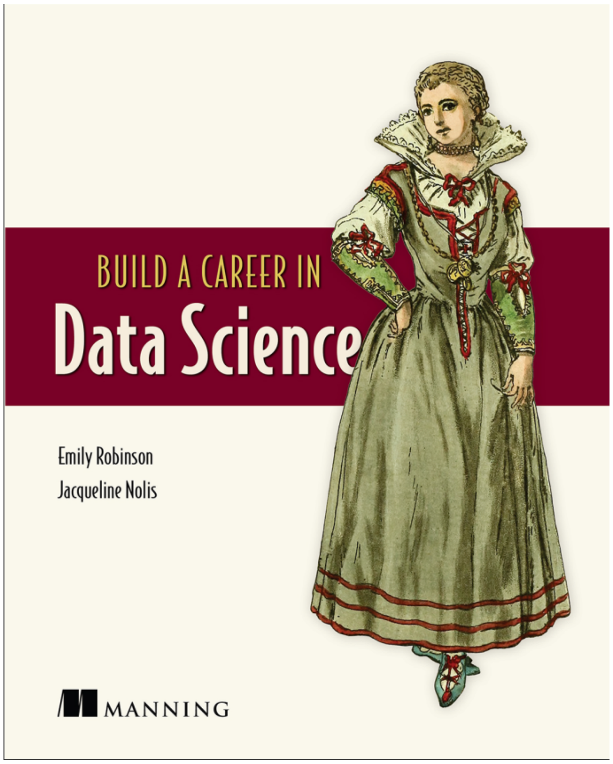
4. Object-oriented idioms: Composition, inheritance, mixins, interfaces, operator overloading, static typing and protocols

5. Control flow: Context managers, generators, coroutines, async/await, and thread/process pools

6. Metaprogramming: Properties, attribute descriptors, class decorators, and new class metaprogramming hooks that are simpler than metaclasses

2.3 Build a Career in Data Science

`later-to-read` `near-five-hundred-pages` `194 T`



What are the keys to a data scientist's long-term success? Blending your technical know-how with the right ”soft skills” turns out to be a central ingredient of a rewarding career.

Build a Career in Data Science is your guide to landing your first data science job and developing into a valued senior employee. By following clear and simple instructions, you'll learn to craft an amazing resumé and ace your interviews.

In this demanding, rapidly changing field, it can be challenging to keep projects on track, adapt to company needs, and manage tricky stakeholders. You'll love the insights on how to handle expectations, deal with failures, and plan your career path in the stories from seasoned data scientists included in the book.

What's Inside: • Creating a portfolio of data science projects • Assessing and negotiating an offer • Leaving gracefully and moving up the ladder • Interviews with professional data scientistsFor readers who want to begin or advance a data science career.

Emily Robinson is a data scientist at Warby Parker.Jacqueline Nolis is a data science consultant and mentor.

2.4 Inside the Python Virtual Machine

better-to-read near-two-hundred-pages 108 T

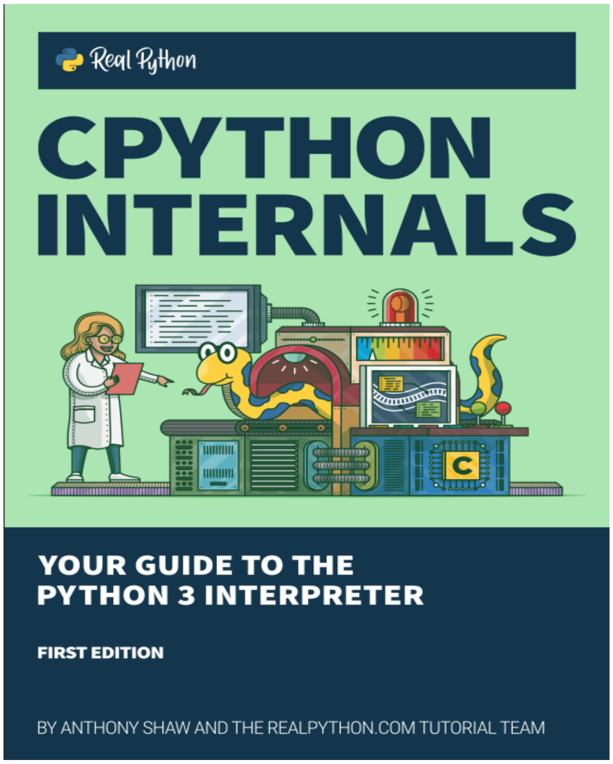
Inside the Python Virtual Machine provides a guided tour under the covers of the Python interpreter for the curious pythonista. It attempts to show the user what happens from the moment the user executes a piece of Python code to the point when the interpreter returns the result of executing the piece of code.

This book will provide the readers with an understanding of the various processes that go into compiling and executing a python program removing most of the mystery surrounding how the python interpreter executes source code.

The books starts out with a description of the compilation phase with emphasis on the less generic parts of the compilation phase. It then proceeds to discuss python objects and their implementation in CPython. This is followed by a discussion of various objects types that are central to the interpreter such as frame objects and code objects. The process of evaluating code objects by the interpreter loop is also discussed as well as how to extend the Python programming language with your own constructs.

2.5 CPython Internals

`better-to-read` `near-five-hundred-pages` `209 T`


Real Python
CPYTHON INTERNALS
C
YOUR GUIDE TO THE PYTHON 3 INTERPRETER
FIRST EDITION
BY ANTHONY SHAW AND THE REALPYTHON.COM TUTORIAL TEAM

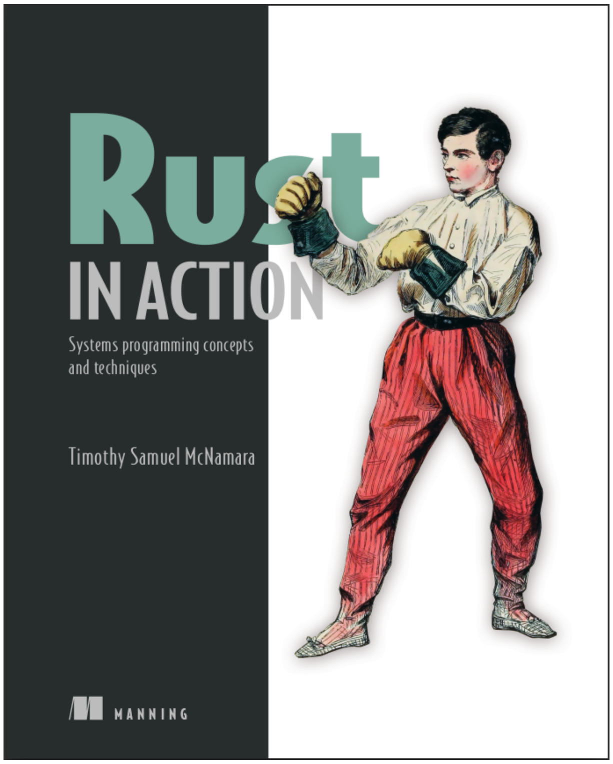
CPython Internals: Your Guide to the Python 3 Interpreter.

Are there certain parts of Python that just seem like magic? Once you see how Python works at the interpreter level, you'll be able to optimize your applications and fully leverage the power of Python.

In CPython Internals, you'll unlock the inner workings of the Python language, learn how to compile the Python interpreter from source code, and cover what you'll need to know to confidently start contributing to CPython yourself!

2.6 Rust in Action

later-to-read near-five-hundred-pages 234 T

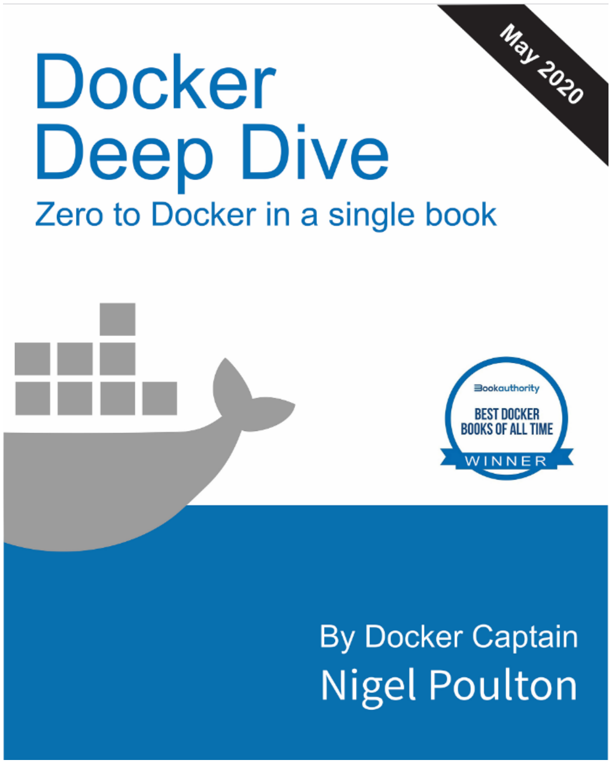


Rust in Action introduces the Rust programming language by exploring numerous systems programming concepts and techniques. You'll be learning Rust by delving into how computers work under the hood. You'll find yourself playing with persistent storage, memory, networking and even tinkering with CPU instructions. The book takes you through using Rust to extend other applications and teaches you tricks to write blindingly fast code. You'll also discover parallel and concurrent programming. Filled to the brim with real-life use cases and scenarios, you'll go beyond the Rust syntax and see what Rust has to offer in real-world use cases.

Rust in Action is a hands-on guide to systems programming with Rust. Written for inquisitive programmers, it presents real-world use cases that go far beyond syntax and structure. You'll explore Rust implementations for file manipulation, networking, and kernel-level programming and discover awesome techniques for parallelism and concurrency. Along the way, you'll master Rust's unique borrow checker model for memory management without a garbage collector.

2.7 Docker Deep Dive

`later-to-read` `near-two-hundred-pages` `155 T`



Most applications, even the funky cloud-native microservices ones, need high-performance, production-grade infrastructure to run on. Having impeccable knowledge of Docker will help you to thrive in the modern cloud-first world. With this book, you'll gain the skills you need to work with Docker and its containers.

The book begins with an introduction to containers and explains its functionality and application in the real world. You'll then get an overview of VMware, Kubernetes, and Docker and learn to install Docker on Windows, Mac, and Linux. Once you've understood the Ops and Dev perspective of Docker, you'll be able to see the big picture and understand what Docker exactly does. The book then turns its attention to the more technical aspects, guiding your through practical exercises covering Docker engine, Docker images, and Docker containers. You'll learn techniques for containerizing an app, deploying apps with Docker Compose, and managing cloud-native applications with Swarm. You'll also build Docker networks and Docker overlay networks and handle applications that write persistent data. Finally, you'll deploy apps with Docker stacks and secure your Docker environment.

By the end of this book, you'll be well-versed in Docker and containers and have developed the skills to create, deploy, and run applications on the cloud.

What you will learn:

- Become familiar with the applications of Docker and containers
- Discover how to pull images into Docker host's local registry
- Find out how to containerize an app
- Build and test a Docker overlay network in the swarm mode
- Use Docker compose to deploy and manage multi-container applications
- Securely share sensitive data with containers and Swarm services

Replacing just a few key negative habits with a few positive habits can easily be the difference between being mostly unhappy and being happy almost all of the time.

Tynan, Superhuman by Habit

3
Habits

To continue to live and rest I found some ways to spend my leisure time, just like the books they've got small tags to make them more clear.

The tags:

1. `always` which says this item has no specific time.
2. `weekends` the weekends are good for this item
3. `time-to-time` you can do it whenever you want to
4. `activity` needs body activity
5. `rest` is done to rest and NOT to think about anything else

3.1 Podcast

> "Listening to podcast, reading a book, listening to an audiobook and watching films isn't waste of time. It's how somebody becomes wise!"
>
> Deyth Banger

`time-to-time` `activity`

Talk Python to Me is a weekly podcast hosted by developer and entrepreneur Michael Kennedy. We dive deep into the popular packages and software developers, data scientists, and incredible hobbyists doing amazing things with Python. If you're new to Python, you'll quickly learn the ins and outs of the community by hearing from the leaders. And if you've been Pythoning for years, you'll learn about your favorite packages and the hot new ones coming out of open source.

Listening to old and new Python podcasts, specially from *Talk Python to Me* channel helps a lot, It provides many information, introduces mane new technologies and brings many good people to the show.

3.2 Music

> "Music doesn't lie. If there is something to be changed in this world, then it can only happen through music."
>
> Jimi Hendrix

`always`

As always: *I live because of my musics* :)

3.3 Films

> "Movies are like an expensive form of therapy for me. "
>
> Tim Burton

`weekends` `rest`

Watching new films and series, enjoys a LOT. The dedicated series which I want to watch is *The Mentalist*. A TV show which remembers me of Sherlock!

Also I will download the films which I haven't watch in 1080p quality and enjoy the leisure :)

3.4 Biking

> "Life is like riding a bicycle. To keep your balance you must keep moving"
>
> Albert Einstein

`time-to-time` `activity`

Physical activity to become fresh again, and to empty the mind outta the learned stuff is really important and Biking has to be done in summer.