
Deep Learning Orientation

— Spring 2024 —

Welcome!

- This is a self-paced course focused on deep learning

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 - Suggested pace: 1 week per lesson
 - Meet regularly with teams to keep you on track
 - Fill out [this form](#) for teams, github access, and Slack access

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- **Required to have completed the data science bootcamp**

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- **Required to have completed the data science bootcamp**
 - Not recommended to complete this course and an additional round of the DS bootcamp at the same time
 - If you have equivalent experience (e.g., from another DS bootcamp), we will admit you on a case-by-case basis, following an assessment

Welcome!

- This is a self-paced course focused on deep learning
- Required to have completed the data science bootcamp
- To get a certificate, must complete a project by **May 3, 2024**

Content

Deep Learning Fundamentals

Content

Deep Learning Fundamentals

- SGD
- Classification
- Regression
- Recommender Systems
- Tabular Modeling
- Computer Vision
- Natural Language Processing
- Productionization

Content

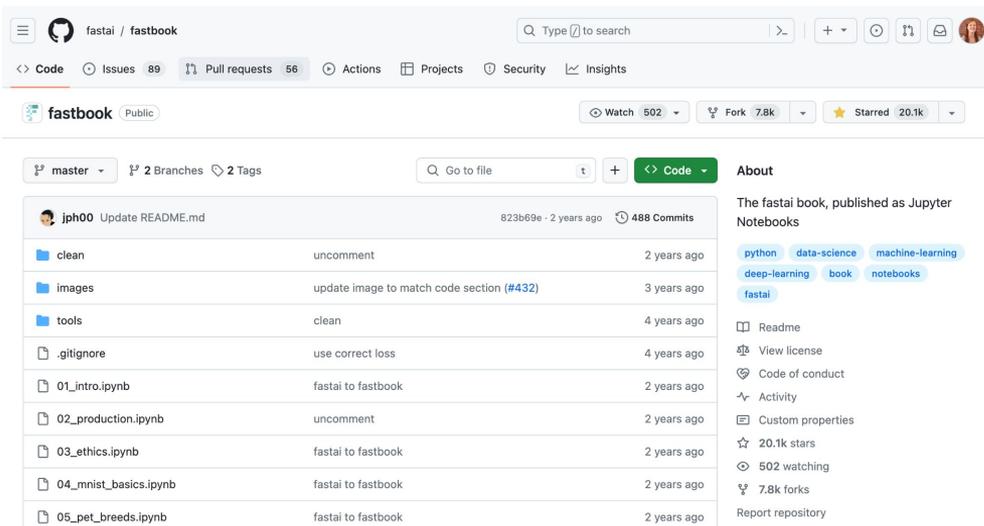
Deep Learning Fundamentals

PyTorch Implementation

Content

Deep Learning Fundamentals

- [fast.ai website](#)
- [fastbook](#)

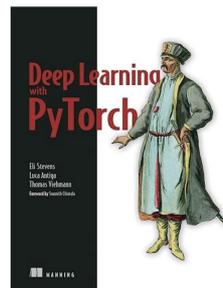


The screenshot shows the GitHub repository page for 'fastai / fastbook'. The repository is public and has 502 watches, 7.8k forks, and 20.1k stars. The commit history shows several updates to the README.md file and various notebooks (ipynb) over the last few years. The repository description states it is published as Jupyter Notebooks and includes tags for python, data-science, machine-learning, deep-learning, book, notebooks, and fastai.

Commit	Message	Author	Time	Commits
jph00	Update README.md	823b69e	2 years ago	488
	clean	uncomment	2 years ago	
	images	update image to match code section (#432)	3 years ago	
	tools	clean	4 years ago	
	.gitignore	use correct loss	4 years ago	
	01_intro.ipynb	fastai to fastbook	2 years ago	
	02_production.ipynb	uncomment	2 years ago	
	03_ethics.ipynb	fastai to fastbook	2 years ago	
	04_mnist_basics.ipynb	fastai to fastbook	2 years ago	
	05_pet_breeds.ipynb	fastai to fastbook	2 years ago	

PyTorch Implementation

- [PyTorch book](#)



Deep Learning with PyTorch: Build, train, and tune neural networks using Python tools

First Edition

by Eli Stevens (Author), Luca Antiga (Author), Thomas Viehmann (Author)

4.4 ★★★★★ 117 ratings

See all formats and editions

4.2 on Goodreads 132 ratings

“We finally have the definitive treatise on PyTorch! It covers the basics and abstractions in great detail. I hope this book becomes your extended reference document.” —Soumith Chintala, co-creator of PyTorch

Key Features

Written by PyTorch's creator and key contributors
Develop deep learning models in a familiar Pythonic way
Use PyTorch to build an image classifier for cancer detection
Diagnose problems with your neural network and improve training with data augmentation

Structure

Course Page

Deep Learning

Spring 2024

Feb 2, 2024 - May 3, 2024

Withdraw

You are registered for this program.

Registration Deadlines

Feb 2, 2024 - Erdős members / alumni who have completed a prior Erdős Data Science Project

Category

Advance, Supplemental, Self-Directed, Mini-Course

Overview

This is a self-paced deep learning boot camp, using the FastAI book as the foundation (<http://course.fast.ai>). It is suggested you take 12-15 weeks to go through the material. If possible, you should meet with others to have a weekly discussion group on the material.

In order to receive a deep learning certificate, you must submit a (team-based) final project by ****May 03, 2024****.



Schedule



Syllabus



Deep Learning

Spring 2024 Schedule

Structure

Course Page

<u>Week</u>	<u>Deep Learning Fundamentals</u>	<u>Learning PyTorch</u>
Week 1	What is Deep Learning? fastbook ch. 1	PyTorch Overview & Tensors PyTorch ch. 1-4
Week 2	Deep Learning Basics fastbook ch. 4	Deep Learning Basics PyTorch ch. 5
Week 3	<i>n/a</i>	Neural Networks PyTorch ch. 6
Week 4	Classification & Regression fastbook ch. 5 & 6	<i>n/a</i>
Week 5	Recommender Systems & Tabular Modeling fastbook ch. 9 & 10	<i>n/a</i>
Week 6	Computer Vision 1: Image Preprocessing fastbook ch. 7	Computer Vision 1: Images PyTorch ch. 7
Week 7	Computer Vision 2: CNNs fastbook ch. 13	Computer Vision 2: CNNs PyTorch ch. 8
Week 8	Computer Vision 3: ResNet fastbook ch. 14	Computer Vision 3: CT scans PyTorch ch. 9
Week 9	NLP 1: Text Preprocessing fastbook ch. 12	<i>n/a</i>
Week 10	NLP 2: RNNs fastbook ch. 13	<i>n/a</i>
Week 11	NLP 3: Transformers details in GitHub	<i>n/a</i>
Week 12	Productionization fastbook ch. 2 & 3	Deployment PyTorch ch. 15
May 3, 5 PM	Final Project Due	

Structure

- Read through each week's lesson on your own

Structure

- **Read through each week's lesson on your own**
 - The fast.ai and PyTorch book chapters
 - Github study guides

Aside about our GitHub

These notebooks are study guides I made of the fast.ai chapters when I first learned deep learning to help consolidate the material in my brain

The Erdős Institute: Deep Learning

Spring 2024

Welcome! This is the repo we will be using for the self-paced deep learning course. You will be learning from two sources: [Deep Learning with PyTorch](#) and [FastAI's main book](#). To learn the material well, you will also meet regularly with a team, who will serve as a study group and a project team. You can form your group on our course page, under "Project/Homework Instructions".

To get a Deep Learning certificate, you must complete a project by *May 3, 2024*.

Please note that all of the Jupyter notebooks are based on the content in Jeremy Howard and Sylvain Gugger's [fastai course](#) and corresponding [fastai book](#).

The copyright of the fastai material is:

```
@book{
  howard2020deep,
  title={Deep Learning for Coders with Fastai and Pytorch: AI
  author={Howard, J. and Gugger, S.},
  isbn={9781492045526},
  url={https://books.google.no/books?id=xd6LxgEACAAJ},
  year={2020},
  publisher={0'Reilly Media, Incorporated}
}
```



The notebooks in this repo are summaries I created of the fastai content in order to consolidate the material and serve as a good review.

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I uploaded these study guides simply to provide you with another way of looking at the material.

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Aside about our GitHub

You need to fork the original fast.ai data and use this as your main learning source

I suggest you create your own study guides

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ALL of the materials belong to
fast.ai

None of these materials belong to
me or to Erdős

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- **Meet with your group to have weekly discussions based on the readings**

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- **Read through each week's lesson on your own**
- **Meet with your group to have weekly discussions based on the readings**
 - Learn from each other
 - Create your team project for the deep learning certificate

Structure

- **Read through each week's lesson on your own**
- **Meet with your group to have weekly discussions based on the readings**
- **Submit team project at the end of the semester**

Questions?