

Note from Jeremy: *Do you want to study deep learning with me in person? I'll be teaching the brand new version of this course at the [Data Institute at USF \(https://www.usfca.edu/data-institute\)](https://www.usfca.edu/data-institute) in San Francisco from late-October 2018. For details or to apply, see the [course web site \(https://www.usfca.edu/data-institute/certificates/deep-learning-part-one\)](https://www.usfca.edu/data-institute/certificates/deep-learning-part-one).*

Welcome to the 2018 edition of fast.ai's 7 week course, Practical Deep Learning For Coders, Part 1, taught by Jeremy Howard ([Kaggle's \(http://www.kaggle.com\)](http://www.kaggle.com) #1 competitor 2 years running, and founder of [Enlitic \(http://www.enlitic.com\)](http://www.enlitic.com)). Learn how to build state of the art models without needing graduate-level math—but also without dumbing anything down. Oh one other thing... it's totally free! And there's a whole community of thousands of other learners ready to help you with your journey—just head over to [forums.fast.ai \(http://forums.fast.ai/\)](http://forums.fast.ai) if you need any help, or just want to chat to other deep learning learners.

"fast.ai... can actually get smart, motivated students to the point of being able to create industrial-grade ML deployments"



Harvard Business Review

[The Business of Artificial Intelligence \(https://hbr.org/cover-story/2017/07/the-business-of-artificial-intelligence\)](https://hbr.org/cover-story/2017/07/the-business-of-artificial-intelligence)



This 7-week course is designed for anyone with at least a year of coding experience, and some memory of high-school math. You will start with step one—learning how to get a GPU server online suitable for deep learning—and go all the way through to creating state of the art, highly practical, models for computer vision, natural language processing, and recommendation systems. There are around 20 hours of lessons, and you should plan to spend around 10 hours a week for 7 weeks to complete the material. The course is based on lessons recorded during the first certificate course at [The Data Institute at USF](https://www.usfca.edu/data-institute/) (<https://www.usfca.edu/data-institute/>).



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THE LESSONS / [VIEW DETAILS \(LESSONS/LESSONS.HTML\)](#)

	False Positive Rate	False Negative Rate
	66.3%	7.0%
	47.5%	0.0%

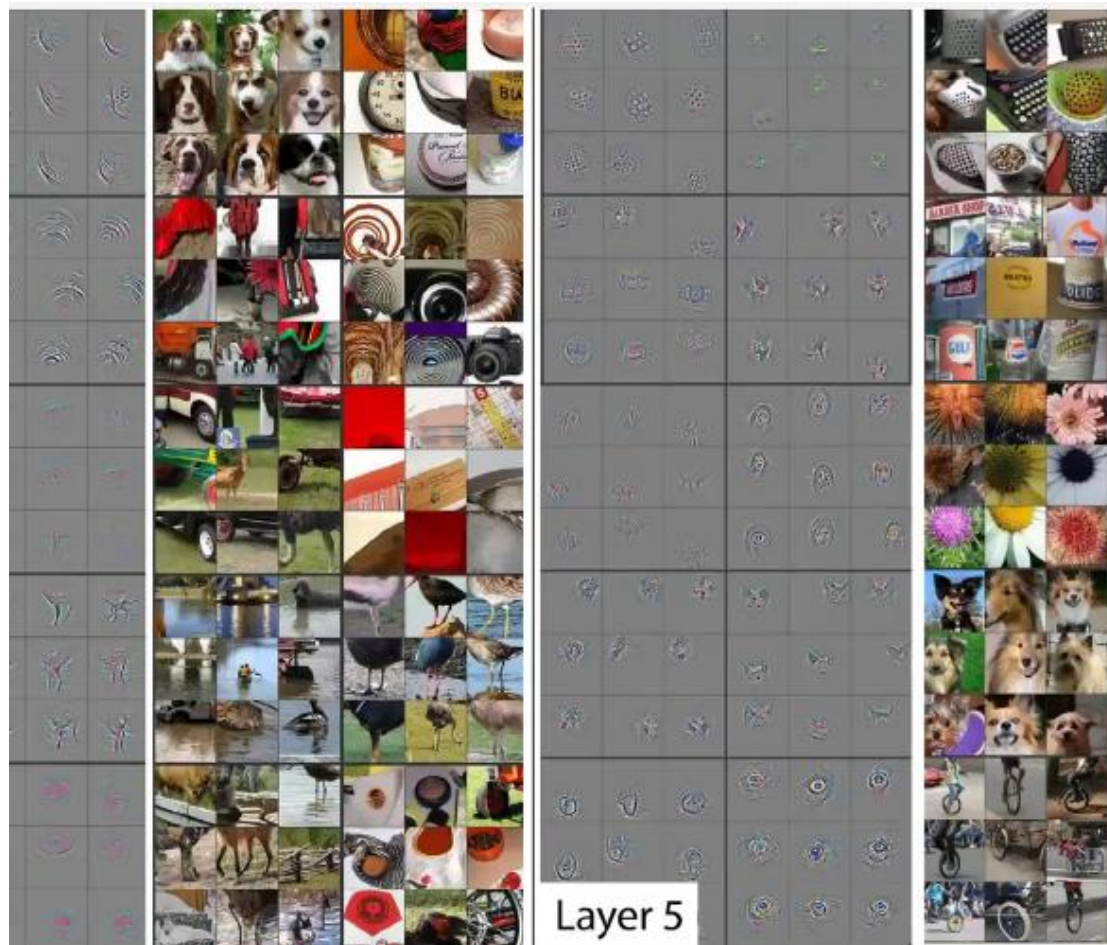
CNN Money Business Markets Tech Personal Finance Small Business

Could this computer save you

Meet the computer diagnosing cancer

Cancer is good at hiding. It's so good that sometimes sick patients are sent home with a clean bill of health. And screenings don't always help: A 2013 study by Oxford University found "no evidence" that screening programs are responsible for the decline in breast cancer, and a study by the Huntsman Cancer Institute last year found that colon cancer is missed in about 8% of colonoscopies. A company is looking to change that margin of error by bringing a super-smart computer into the examination room. "In one panel of scans that we looked at, when you look at the number of times that radiologists sent someone home with a clean bill of health, about 7% of the time that patient was ultimately found to have cancer," said John Zedlewski, a data scientist with Enlitio, a medical technology company.

[\(lessons/lesson1.html\)](#)



([lessons/lesson2.html](#))

Corporación Favorit x lesson3-rosamari x How (and why) to c x Rosamari Store Se x lesson1-sgd x

B8/notebooks/courses/dl1/lesson2-image_models.ipynb#

Insert Cell Kernel Navigate Widgets Help Snippets

a-label classification each sample belongs to one class. In the previous example, each image is either a *dog* c

```
paths = [f"{PATH}train-jpg/train_0.jpg", f"{PATH}train-jpg/train_1.jpg"]
titles = ["haze primary", "agriculture clear primary water"]
from_files(list_paths, titles=titles, maintitle="Multi-label classification")
```

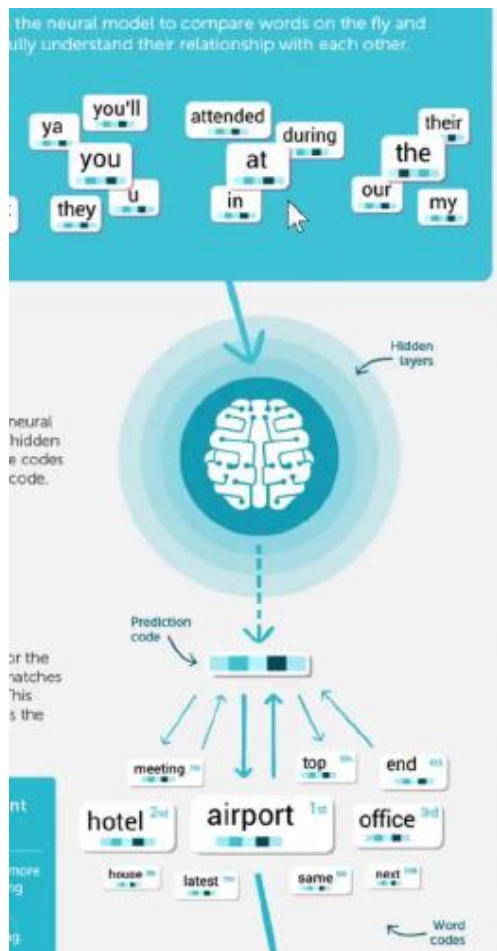
Multi-label classification

haze primary

agriculture clear primary water

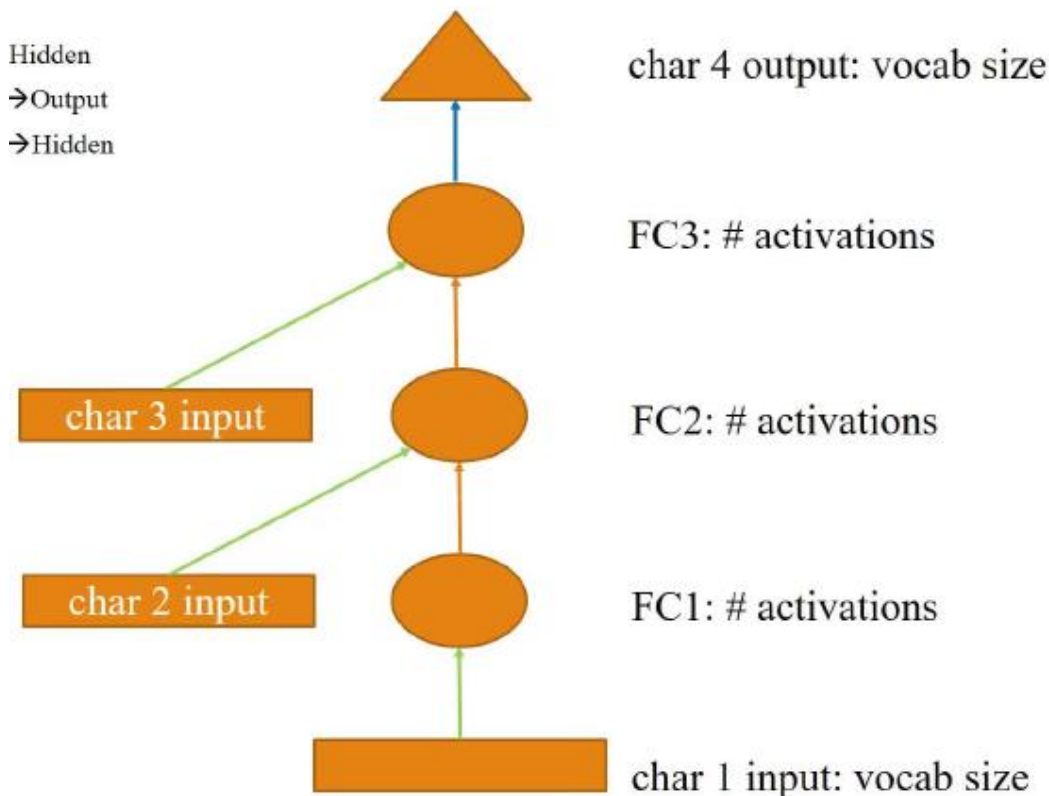
Windows taskbar: Chrome, File Explorer, Edge, Word, PowerPoint, Outlook, Task View, Network, Volume, Battery, Time.

([lessons/lesson3.html](#))



([lessons/lesson6.html](#))

char 4 using chars 1, 2 & 3



([lessons/lesson7.html](#))

Proof. Omitted.

Lemma 0.1. Let \mathcal{C} be a set of the construction.

Let \mathcal{C} be a gerber covering. Let \mathcal{F} be a quasi-coherent sheaf. Have to show that

$$\mathcal{O}_{\mathcal{O}_X} = \mathcal{O}_X(\mathcal{L})$$

Proof. This is an algebraic space with the composition have

$$\mathcal{O}_X(\mathcal{F}) = \{ \text{morph}_1 \times_{\mathcal{O}_X} (\mathcal{G}, \mathcal{H}) \}$$

where \mathcal{G} defines an isomorphism $\mathcal{F} \rightarrow \mathcal{F}$ of \mathcal{O} -modules

Lemma 0.2. This is an integer \mathbb{Z} is injective.

Proof. See Spaces, Lemma ??.

Lemma 0.3. Let S be a scheme. Let X be a scheme covering. Let $U \subset X$ be a canonical and locally of finite type. Let X be a scheme which is equal to the formal completion. The following to the construction of the lemma follows.

Let X be a scheme. Let X be a scheme covering. Let

$$b : X \rightarrow Y' \rightarrow Y \rightarrow Y' \times_X Y$$

be a morphism of algebraic spaces over S and Y .

Proof. Let X be a nonzero scheme of X . Let X be an quasi-coherent sheaf of \mathcal{O}_X -modules. The following are

- (1) \mathcal{F} is an algebraic space over S .
- (2) If X is an affine open covering.

Consider a common structure on X and X the function of finite type.

begin{proof} We may assume that \mathcal{F} is a \mathcal{O}_X -module. Given a morphism $\Delta : \mathcal{F} \rightarrow \mathcal{F}$ is an injective and let \mathfrak{q} be an abelian sheaf. Let \mathcal{F} be a fibered complex. Let \mathcal{F}

RESOURCES



FORUMS

Ask and answer questions on the forums - most discussion happens here

(<http://forums.fast.ai/>)



WIKI

Be sure to check the wiki first if you have a question - and help contribute too

(<http://wiki.fast.ai/>)



FAST.AI BLOG

fast.ai announcements and articles will be posted to the blog

(<http://www.fast.ai/>)



PART 2

When you're done here, head over there!

(<http://course.fast.ai/part2.html>)

WHAT YOU NEED TO SUCCEED

Pragmatic Coding 95%

Tenacity 85%

An Open Mind 80%

High School Math 60%

WHAT OUR GRADUATES SAY / [VIEW ALL \(TESTIMONIALS.HTML\)](#)

I've tried (and if I'm honest) failed to scale the steep deep learning curve many times. I realise with hindsight it was the equations that were preventing me from becoming a deep learning practitioner. Jeremy brought me up to speed with the state-of-the-art, and within two weeks I was in the top half of the leaderboard for three Kaggle competitions.



- Christopher Kelly , CEO- Nourish, Balance, Thrive

If you are looking to venture into the Deep learning field, look no further and take this course. It is very hands-on and adopts a top-down approach, which means everyone irrespective of varying knowledge can get started with implementing Deep learning models immediately. Another major factor why this course is very appealing is its emphasis on social relevance. That is, how can we use this awesome technology to serve the world better?



- Sravya Tirukkovalur , Vice President, Apache Sentry

PARTICIPANTS FROM:





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