

Full Stack Deep Learning

Full Stack Deep Learning helps you bridge the gap from training machine learning models to deploying AI systems in the real world.

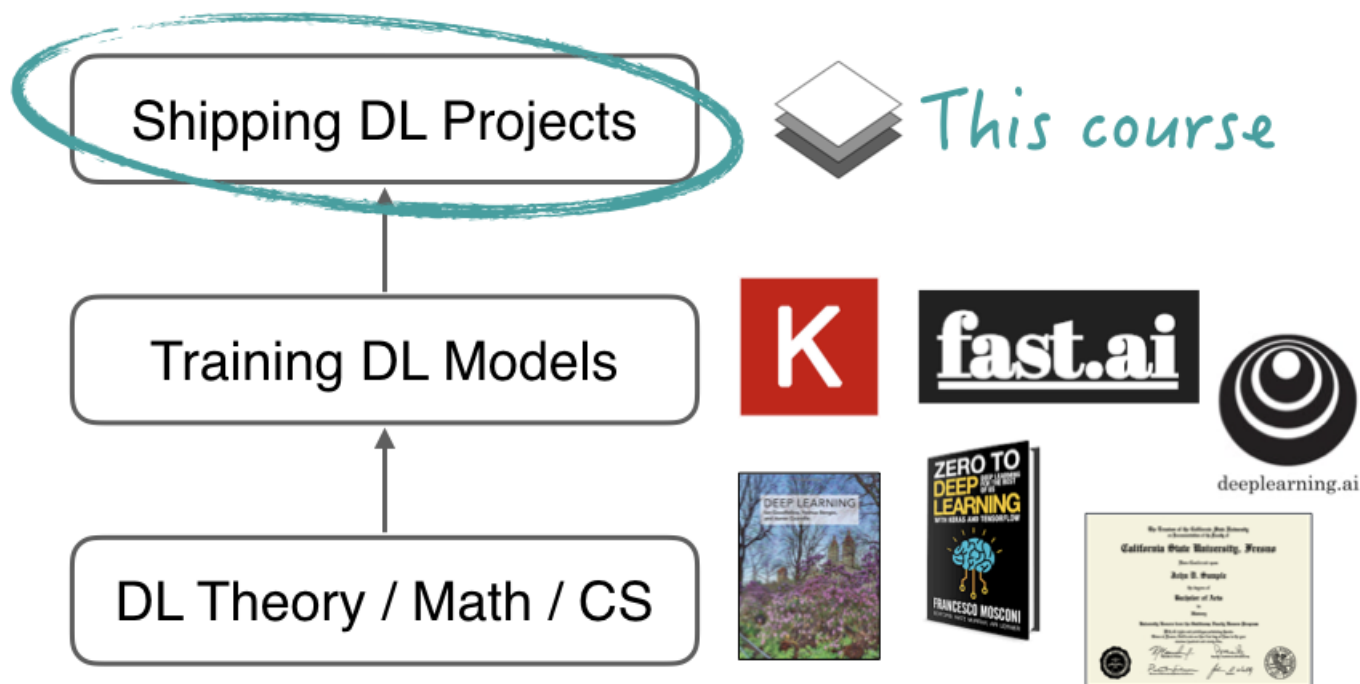
chat on [gitter](#)

About this course

Since 2012, deep learning has lead to remarkable progress across a variety of challenging computing tasks, from image recognition to speech recognition, robotics, and audio synthesis. Deep learning has the potential to enable a new set of previously infeasible technologies like autonomous vehicles, real-time translation, and voice assistants and help reinvent existing software categories.

There are many great courses to learn how to train deep neural networks. However, training the model is just one part of shipping a deep learning project. This course teaches **full-stack production deep learning**:

- Formulating the **problem** and estimating project **cost**
- Finding, cleaning, labeling, and augmenting **data**
- Picking the right **framework** and compute **infrastructure**
- **Troubleshooting** training and ensuring **reproducibility**
- **Deploying** the model at scale



This course was originally taught as an in-person boot camp in Berkeley from 2018 - 2019. It was also taught as a University of Washington Computer Science [PMP course](#) in Spring 2020.

The discussion page for the course on [Gitter](#).

The course project is on [Github](#).

i Please [submit a pull request](#) if any information is out of date or if you have good additional info to add!

Who is this for

The course is aimed at people who already know the basics of deep learning and want to understand the rest of the process of creating production deep learning systems. You will get the most out of this course if you have:

- At least one-year experience programming in Python.
- At least one deep learning course (at a university or online).
- Experience with code versioning, Unix environments, and software engineering.

We will not review the fundamentals of deep learning (gradient descent, backpropagation, convolutional neural networks, recurrent neural networks, etc), so you should review those materials first if you are rusty.

Organizers



Josh Tobin

Founder at Stealth Startup,
Formerly Research at OpenAI



Sergey Karayev

Head of AI for STEM at Turnitin,
Co-founder Gradescope



Pieter Abbeel

Professor at UC Berkeley,
Chief Scientist at Covariant.AI



Stephanie Sher

Formerly at Weights & Biases,
Kindred.ai, Datadog



James Le

Data Science Journalist,
Master's Student at RIT

Guest Lectures



Jeremy Howard

Co-founder and Researcher at fast.ai, Previously Founder/CEO at Enlitic, President of Kaggle



Chip Huyen

ML Production at Snorkel, Formerly Engineer at Nvidia, Instructor at Stanford



Xavier Amatriain

Co-founder and CTO at Curai, Formerly VP at Quora, Netflix



Lukas Biewald

Co-founder CEO at Weights & Biases, Formerly co-founder and CEO of Figure Eight



Raquel Utrason

Chief Scientist and Head of Uber ATG, Professor at University of Toronto



Richard Socher

Chief Scientist at Salesforce, Professor at Stanford



Yangqing Jia

VP AI / Big Data at Alibaba, Formerly Director at Facebook AI Platform



Andrej Karpathy

Senior Director of AI at Tesla, Formerly Research Scientist at OpenAI



Franziska Bell

Senior Director at Toyota Research Institute, Formerly Director of Data Science at Uber



Jai Ranganathan

SVP Product at KeepTruckin, Formerly VP at Uber

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Course Content

→ **Setting up Machine Learning Projects**

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→ **Infrastructure and Tooling**

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→ **Data Management**

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→ **Machine Learning Teams**

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→ **Training and Debugging**

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→ **Testing and Deployment**

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→ **Research Areas**

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Guest Lectures

→ **Xavier Amatriain (Curai)**

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→ **Chip Huyen (Snorkel)**

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→ **Lukas Biewald (Weights & Biases)**

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→ **Jeremy Howard (Fast.ai)**

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→ **Richard Socher (Salesforce)**

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→ **Raquel Urtasun (Uber ATG)**

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→ **Yangqing Jia (Alibaba)**

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→ **Andrej Karpathy (Tesla)**

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→ **Jai Ranganathan (KeepTruckin)**

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→ **Franziska Bell (Toyota Research)**

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