

# Introduction to Deep Learning (I2DL)

## Exercise 3: Data

# Today's Outline

- Organizational stuff
- Exercises outline
- Contents of
  - Example Datasets & -loader
  - Exercise 3 (Submission #2)

# Organization

# Organization

- Weekly announcements on moodle  
Will replace most of the video announcement content. Let us know if you also want it repeated in the videos
- Office hours have started  
Have mercy with our TAs
  - Office hour schedule is on moodle
  - We will try to allocate more TA hours to office hours later on
  - For now no personal contact with lecturers

# Organization

- New forum: campuswire

Rational behind campuswire is on moodle and a thread on campuswire with more behind the scenes info

- Right now no more forum administration on moodle

The screenshot displays the CampusWire interface. On the left is a sidebar with navigation icons for Notifications (50), DMs, Search, a profile icon, Class feed, Rooms, Files, and a menu icon. The main content area is divided into two sections. The top section, titled 'Class feed' for 'IN2346: Introduction to Deep Learning (I2DL)', shows a list of posts. The first post, 'Exam date' (#15), is highlighted in blue and asks for a preliminary exam date. Below it are two other posts: 'Why does adding non-linearity t...' (#14) and 'Slide 78 - Logistic Regression N...' (#12). The bottom section shows a question thread. An 'Anonymous' user asked a question 3 hours ago: 'Halleo together, is there a (preliminary) date for the exam yet?'. The thread has 4 likes, 0 comments, 55 views, and 32 users. An 'Answer this question' button is visible. Below the question, the 'Instructor answers' section shows a response from 'Andreas Rössler' (starred) answered an hour ago: 'No, we are at the mercy of the informatics department of TUM. Usually, it is one of the earliest exams but we have no control and no more information :(. The thread is marked as 'Resolved'.

# Organization

- Random stats
  - ~2000 registered students on moodle
  - ~1100 submissions for exercise 1

1140	u1779	60.00
1141	u1987	60.00
1142	u1004	60.00
1143	u1055	60.00
1144	u0063	60.00

- Reminder: Use the resources!  
And give us feedback where we can do better

# General Exercise Overview

# Your task for exercise 3-5

Exercise 03: Dataset and Dataloader  
Exercise 04: Solver and Linear Regression  
Exercise 05: Neural Networks  
Exercise 06: Hyperparameter Tuning

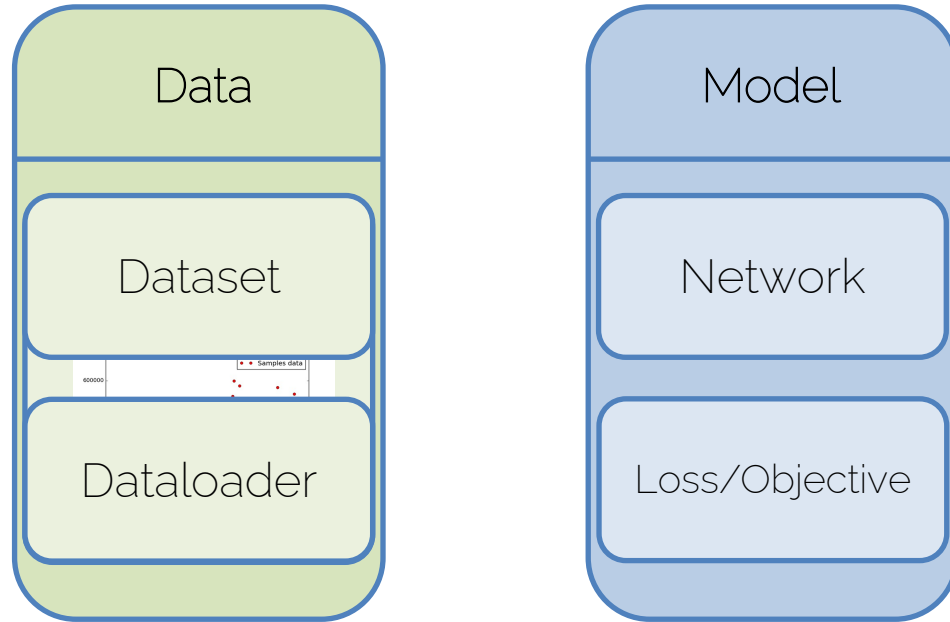
Numpy  
(Reinvent the wheel)

- Implementation of
  - A simple dataset and data loading
  - Regression/classification pipeline using Neural Networks

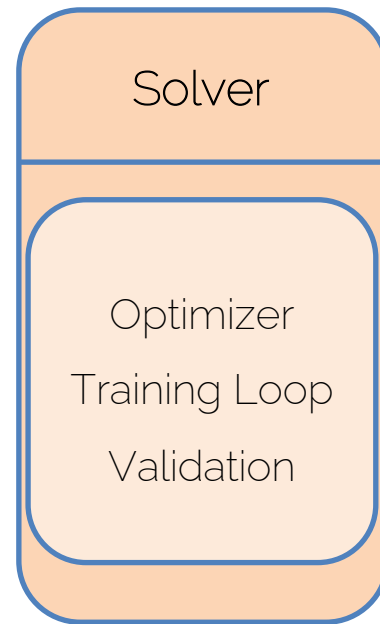
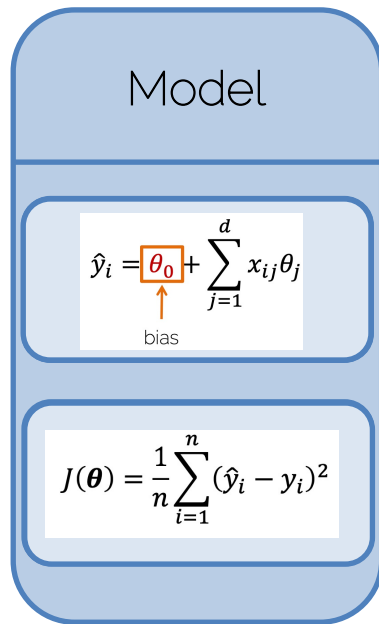
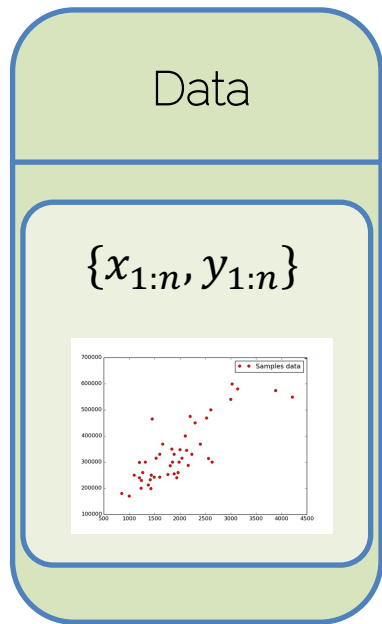




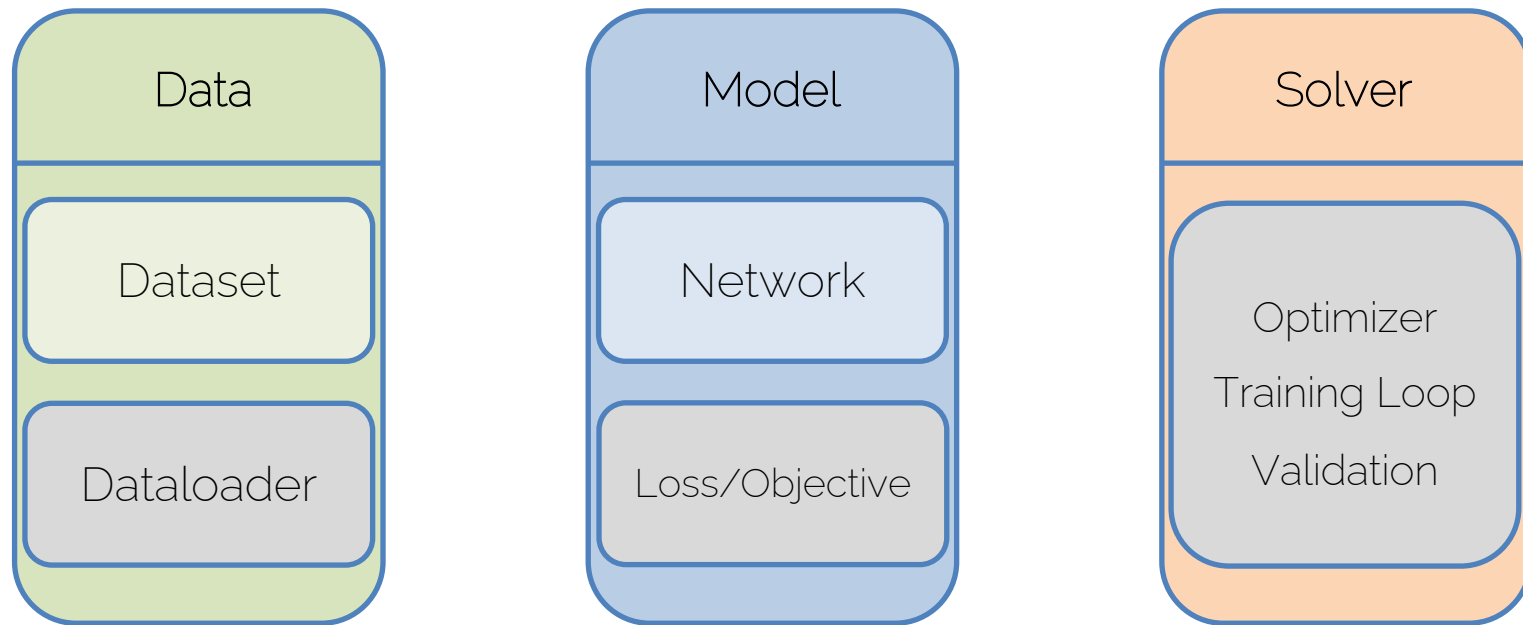
# The Pillars of Deep Learning



# The Pillars of Deep Learning



# The Pillars of Deep Learning

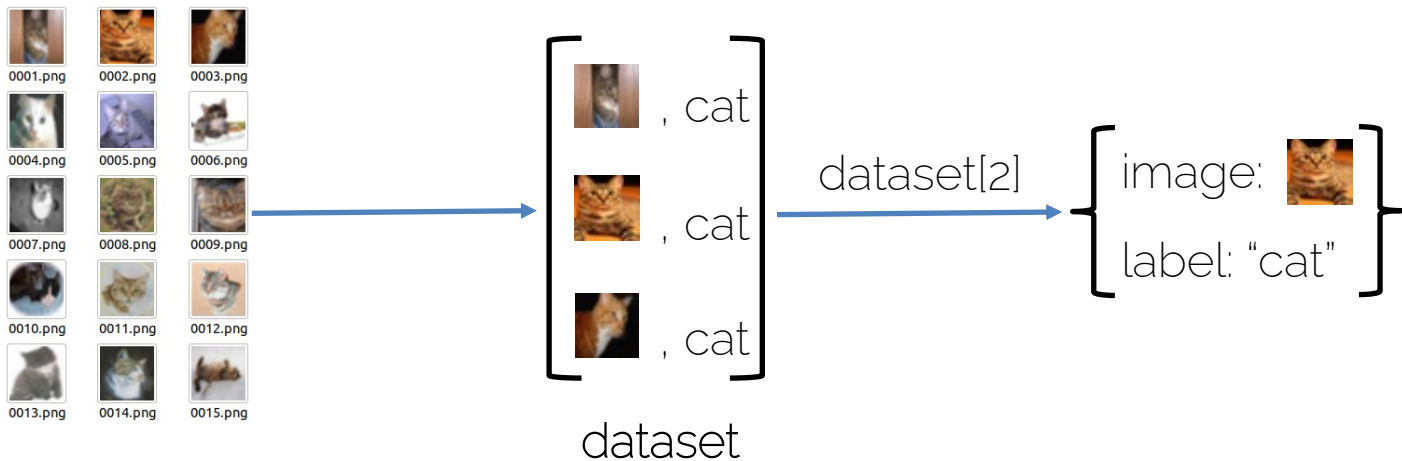


Can be implemented once and used in multiple projects

# Exercise 3

# Exercise 3: Dataset

- Reads data and provides a simple way to access it
- Performs data preprocessing steps using Transforms
- Example: Image Folder Dataset



# Exercise 3: Dataset

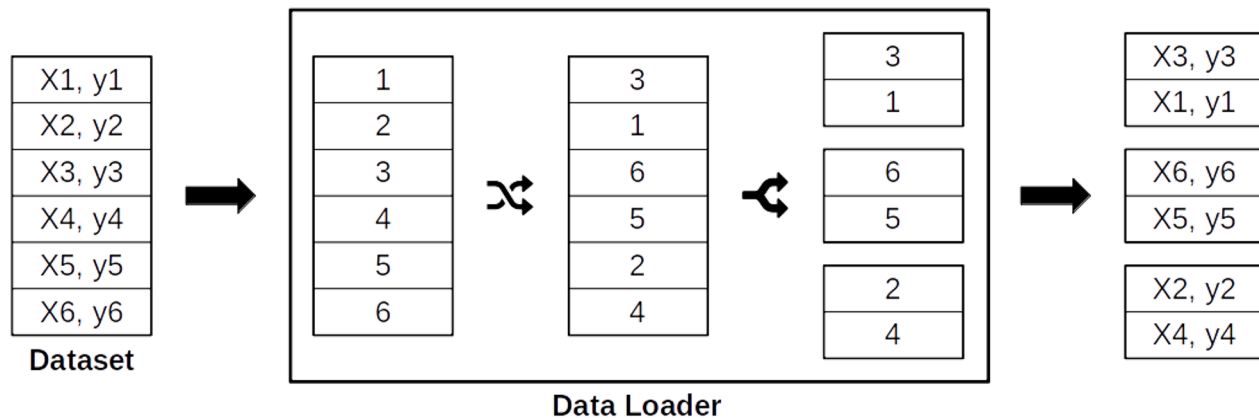
- What we excluded
  - Low level “scripting” details using operating system calls

Actually important!  
(For later, not the class)

- Newly included this semester
  - Memory only datasets vs actually reading every file from disk  
Usually you can't do the former but it provides exceptional performance boosts when applicable

# Exercise 3: DataLoader

- Defines how to load the dataset for model training
- Shuffles the dataset
- Splits the dataset into small subsets



# Overview Exercise 3

- Two notebooks
  - Dataset: CIFAR10
  - Dataloader
- First “real” Submission
  - Have to implement parts of both objects
  - Single submission file creation in Dataloader notebook

Fixed Deadline!  
May 23, 2022 23:59



See you next week

