

# Helpful Links & Resources

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Links and resources to different topics related to Machine Learning, Deep Learning, and Images.

## Theory

## PyTorch

[PyTorch internals - Blog Post](#)

## Deep Learning and Computer Vision

[University of Michigan - Deep Learning for Computer Vision](#)

- Sehr gute Vorlesung zum Thema

[University of California, Berkeley - Modern Computer Vision and Deep Learning](#)

- Sehr gute Vorlesung zum Thema

## Neuronale Netzwerke - Basics

[Perceptron Learning Rule S. Raschka](#)

[CS229 Stanford MLP Backpropagation](#)

[Notes on Backpropagation](#)

[3Blue1Brown Gradient Descent](#)

[3Blue1Brown Backpropagation Calculus](#)

[Andrew Ng Backprop](#)

[Andrej Karpathy - Backpropagation from the ground up](#)

## **Model Selection**

Paper von S.Raschka: “Model Evaluation, Model Selection, and Algorithm Selection in Machine Learning”

## **Practical**

Andrej Karpathy - A Recipe for Training Neural Networks

## **ML Best Practices Videos**

Martin Zinkevich - Best Practices for ML Engineering

Andrew Ng - Advice For Applying Machine Learning | Deciding What To Try Next

Andrew Ng - Advice For Applying Machine Learning | Learning Curves

Andrew Ng - Advice For Applying Machine Learning | Deciding What To Do Next (Revisited)

Andrew Ng - Machine Learning System Design | Prioritizing What To Work On

Andrew Ng - Machine Learning System Design | Error Analysis

Andrew Ng - Machine Learning System Design | Data For Machine Learning

## **Tools**

### **Data Science Repository**

Build a Reproducible and Maintainable Data Science Project

- great jupyter book to learn about how to structure a repository and more

[Lightning-Hydra-Template](#)

- template to structure a repository based on experiment configuration with Hydra and Pytorch-Lightning

## **Data Handling**

### [datasets](#)

- Great package to create and manage (large) image datasets

### [img2dataset](#)

- Package to download large image datasets from urls

### [DVC](#)

- Package for data version control

## **PyTorch**

### [Lightning](#)

- boilerplate code to easily train models and use gpu, etc.