Neural Networks Spring 2023

Farhad Kamangar kamangar@uta.edu

Links to related sites

Books:

- [Neural Network Design Martin T. Hagan, Howard B. Demuth, Mark H. Beale](#)
- [Deep Learning](#) (Free online)
- [Neural Networks and Deep Learning](#) (Free online book)
- [Deep Learning Tutorial](#) (Free online)
- [Neural Networks and Learning Machines](#) (3rd edition)

- Deep Learning Step by Step with Python: A Very Gentle Introduction to Deep Neural Networks for Practical Data Science, [N D Lewis](#), 2016, ISBN-10: 1535410264, ISBN-13: 978-1535410267
- Make Your Own Neural Network, [Tariq Rashid](#), 2016, ISBN-10: 1530826608, ISBN-13: 978-1530826605
- Artificial Intelligence for Humans, Volume 3: Deep Learning and Neural Networks, [Jeff Heaton](#), 2015, ISBN-10: 1505714346, ISBN-13: 978-1505714340

Sites with links to neural Network resources:

[IEEE Neural Networks Council (NNC)](#)

[Neural Network Warehouse](#)

[Convolutional Neural Networks for Visual Recognition (Stanford)](#)

Numpy:

[Numpy tutorial by Jay Prakash Thakur](#)

Computational Graphs:

[The Multilayer Perceptron - Theory and Implementation of the Backpropagation Algorithm](#)

[Tutorialspoint (Computational Graphs)](#)

[Teb's Lab (Computational Graphs)](#)

[Calculus on Computational Graphs](#)

[Tensor backpropagation](#)

TensorFlow:

Getting Started With TensorFlow

TensorFlow 2.0 + Keras Crash Course

Multilayer perceptrons for digit recognition with Core APIs

Keras:

Introduction to Python Deep Learning with Keras

Develop Your First Neural Network in Python With Keras Step-By-Step

5 Step Life-Cycle for Neural Network Models in Keras

How to Grid Search Hyperparameters for Deep Learning Models in Python With Keras

Time Series Prediction With Deep Learning in Keras

Multi-Class Classification Tutorial with the Keras Deep Learning Library

Regression Tutorial with the Keras Deep Learning Library in Python

Keras tutorial build a convolutional neural network in 11 lines

Keras Optimizers

K-fold cross validation with Keras

Convolutional Neural Networks:

Image Kernels

But what is convolution

An Intuitive Explanation of Convolutional Neural Networks

Convolutional Neural Networks

Convolutional Neural Networks from Scratch

Simple Introduction to Convolutional Neural Networks

Convolutional Neural Network (Tensorflow tutorial)

GAN:

Generative Adversarial Networks for beginners

Deep Convolutional Generative Adversarial Network

A Gentle Introduction to Generative Adversarial Networks (GANs)

How to Develop a 1D Generative Adversarial Network From Scratch in Keras

How to Implement GAN Hacks in Keras to Train Stable Models

GAN Introduction

Loss functions for GAN

Understanding Generative Adversarial Networks (GANs)

GAN Lab

Generative Adversarial Networks – Key Milestones and State of the Art

18 Impressive Applications of Generative Adversarial Networks (GANs)

Build an app to generate photorealistic faces using TensorFlow and Streamlit

Play with Generative Adversarial Networks (GANs) in your browser!

How to code a Generative Adversarial Network (GAN) in Python

Autoencoder:

Intro to Autoencoders (Google Colab)

Variational autoencoders

Intuitively Understanding Variational Autoencoders

Hierarchical Variational Autoencoders for Music

Understanding Variational Autoencoders (VAEs) from two perspectives: deep learning and graphical models.

Generating Large Images from Latent Vectors

RNN and LSTM:

TensorFlow Tutorial - RNNs (Google Colab)

Understanding LSTM Networks

Recurrent neural networks and LSTM tutorial in Python and TensorFlow

Recurrent Neural Networks (RNN) with Keras

Time series forecasting with RNN

Text generation with an RNN

The Unreasonable Effectiveness of Recurrent Neural Networks

How to Develop LSTM Models for Time Series Forecasting

Building your Recurrent Neural Network - Step by Step

Recurrent Neural Networks (RNNs) Implementing an RNN from scratch in Python.

The Complete LSTM Tutorial With Implementation

Recurrent Neural Networks cheatsheet

Transformers:

Illustrated Guide to Transformers Neural Network: A step by step explanation

Let's build GPT: from scratch, in code, spelled out (Karpathy)

Stable Diffusion:

High-performance image generation using Stable Diffusion in KerasCV

Hopfield:

Hopfield tutorial

Visualizations and Demos:

[A Neural Network Playground](#)

[Taylor series with geogebra](#)

[Interactive Gradient Descent Demo](#)

[An Interactive Tutorial on Numerical Optimization](#)

[CNN Explainer](#)

[ConvNetJS Deep Learning in your browser](#)

[tutorialzine](#)

[Demos with Keras.js](#)

[Visualizing what ConvNets learn](#)

[How convolutional neural networks see the world](#)

[3D Visulization of CNN](#)

[Visualization of neural networks](#)

[Feature Visualization](#)

[Visualizing Neural Networks with the Grand Tour](#)

[Deep Visualization Toolbox](#)

[Neural Networks, Manifolds, and Topology](#)

[TensorFlow js Demos](#)

[Visualizing Autoencoders with Tensorflow.js](#)

[Interactive Visualization for Autoencoders with Tensorflow.js](#)

[Autoencoder anomagram](#)

[Convolutional Variational Autoencoder, trained on MNIST](#)

[variational autoencoder interactive demos with deeplearn.js](#)

[Tinker With a Neural Network Right Here in Your Browser](#).

Models and Datasets:

[Google Research Datasets](#)

[DEep MOdel GENeralization dataset (DEMOGEN)](#)

Youtube:

[But what is a neural network? | Chapter 1, Deep learning](#)

[Gradient descent, how neural networks learn | Chapter 2, Deep learning](#)

[What is backpropagation really doing? | Chapter 3, Deep learning](#)

[Backpropagation calculus | Chapter 4, Deep learning](#)

Interesting:

[A Few Useful Things to Know About Machine Learning](#)

Misc.:

[An overview of gradient descent optimization algorithms](#)

[Geogebra](#)

[Plot3d](#)

[Math3d](#)

⚒ Top

Computer Science and Engineering @ UTA

<div align="right">

Farhad Kamangar
Last updated: 2023-04-22

</div>