1819-108-W10-C1-HW

Agneta Apałka

8 April 2019

Sigmoid:

$$f_1(x) = \frac{1}{1+exp-x}$$

tanh:

$$f_2(x) = \frac{2}{1+exp-2x} - 1$$

ReLu

$$f_3(x) = max(0, x)$$

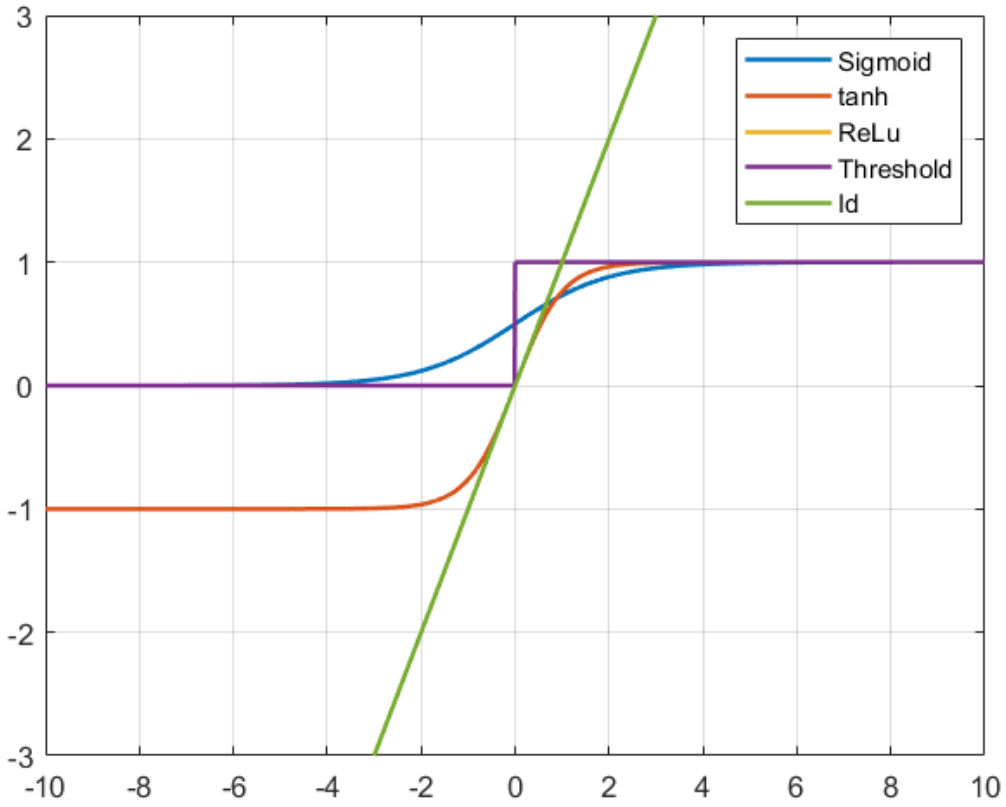
Threshold $f_4(x)0 \quad (x < 0)$
$f_4(x) = x \quad (x >= 0)$

Id

$$y_5(x) = x$$

Kodi
Matlab -

```
x = -10:0.01:10;
y1 = 1./(1+exp(-x)); %sigmoida
y2 = 2./(1+exp(-2*x))-1; %tanh
y3 = max(0,x); %ReLu
y4 = (x>=0); %threshold
y5 = x; %identity
h = plot(x,y1,x,y2,x,y3,x,y4,x,y5)
legend ('Sigmoid', 'tanh', 'ReLu', 'Threshold', 'Id')
ylim ([-3 3])
set(h,'LineWidth', 1.5)
grid on
```



Matplotlib -

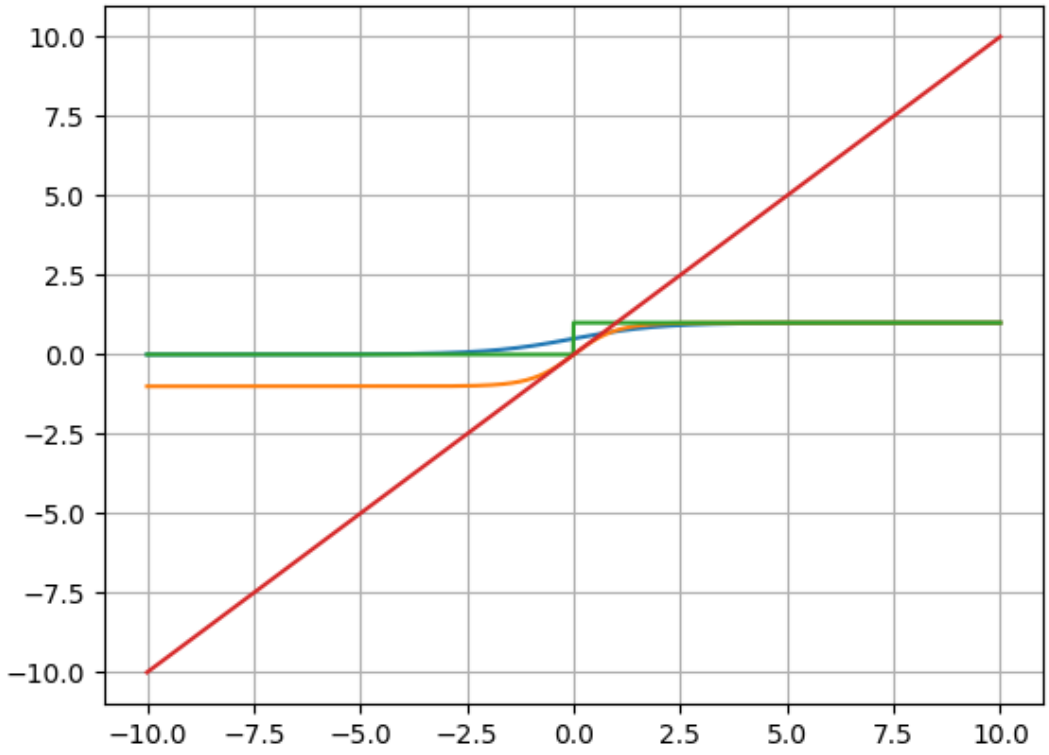
```
    import sys
sys.path.append("/usr/lib/python2.7/dist-packages/numpy/")
sys.path.append("/usr/lib/python2.7/dist-packages/matplotlib/")
from numpy import exp, linspace
from matplotlib import pyplot as plt

x = linspace(-10,10,2001);
y1 = 1./(1+exp(-x));
y2 = 2./(1+exp(-2*x))-1;
y4 = (x>=0);
y5 = x;
plt.grid()
plt.plot(x,y1)
plt.plot(x,y2)

plt.plot(x,y4)
```

```
plt.plot(x,y5)

plt.show()
```



Realizācijas kods

```
\documentclass{report}
\usepackage[utf8]{inputenc}
\usepackage{graphicx}

\title{1819-108-W10-C1-HW}
\author{Agneta Apa ka }
\date{8 April 2019}

\begin{document}
\maketitle
```

```
\begin{center}
    Sigmoid:
\vspace{5mm}

$f_1(x) = \frac{1}{1+exp{-x}}$
\vspace{5mm}

tanh:
\vspace{5mm}

$f_2(x) = \frac{2}{1+exp{-2x}}-1$
\vspace{5mm}

ReLu
\vspace{5mm}

$f_3(x) = max (0,x)$
\vspace{5mm}

Threshold
$f_4(x) 0 \hspace{5mm} (x<0)$

$f_4(x) = x \hspace{5mm} (x>=0) $
\vspace{5mm}

Id
\vspace{5mm}

$y_5(x) = x$
 \vspace{5mm}

\textbf{Kodi}

Matlab -
 \begin{verbatim}
x = -10:0.01:10;
y1 = 1./(1+exp(-x)); %sigmoida
y2 = 2./(1+exp(-2*x))-1; %tanh
y3 = max(0,x); %ReLu
y4 = (x>=0); %threshold
y5 = x; %identity
h = plot(x,y1,x,y2,x,y3,x,y4,x,y5)
legend ('Sigmoid', 'tanh', 'ReLu', 'Threshold', 'Id')
ylim ([-3 3])
set(h,'LineWidth', 1.5)
grid on
```

```
 \end{verbatim}

 \includegraphics[width=16cm, height=12cm]{untitled1.png}

 Matplotlib -
 \begin{verbatim}
     import sys
sys.path.append("/usr/lib/python2.7/dist-packages/numpy/")
sys.path.append("/usr/lib/python2.7/dist-packages/matplotlib/")
from numpy import exp, linspace
from matplotlib import pyplot as plt

x = linspace(-10,10,2001);
y1 = 1./(1+exp(-x));
y2 = 2./(1+exp(-2*x))-1;
y4 = (x>=0);
y5 = x;
plt.grid()
plt.plot(x,y1)
plt.plot(x,y2)

plt.plot(x,y4)
plt.plot(x,y5)

plt.show()
 \end{verbatim}
 \includegraphics[width=16cm, height=12cm]{Figure_1.png}
\end{center}
```