1819-108-W11-C3-CW

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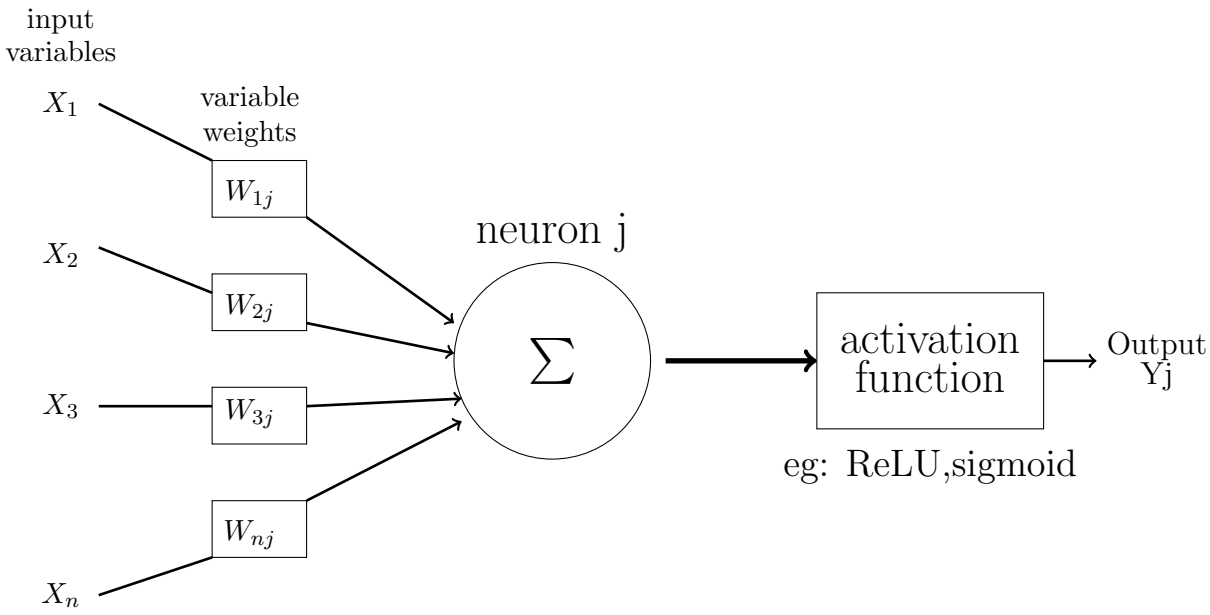
input
variables
X_1
X_2
X_3
X_n
variable
weights
W_{1j}
W_{2j}
W_{3j}
W_{nj}
neuron j
$\sum$
activation
function
Output
Yj
eg: ReLU,sigmoid

```
\documentclass[11pt]{book}
\usepackage{geometry}
\usepackage{amsmath}
\usepackage{amssymb}
\usepackage{pict2e}
\usepackage{ragged2e}
\usepackage{parskip}
\pagenumbering{gobble}
\usepackage{graphicx}
\usepackage{incgraph,tikz}
\usetikzlibrary{shapes.geometric, arrows, automata}
\usetikzlibrary{positioning}
\tikzstyle{arrow} = [thick->,>=stealth]

\title{819-108-W11-C3-CW}
\author{Janis Hodorjonoks}
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\begin{document}

\maketitle

\begin{tikzpicture}[node distance=2cm]

    \node at (1,3.5) (input1) {$X_1$};
    \node at (1,1.5) (input2) {$X_2$};
    \node at (1,-0.5) (input3) {$X_3$};
    \node at (1,-3) (input4) {$X_n$};
    \draw (3,2) rectangle (4.25,2.75);
    \draw (3,0.5) rectangle (4.25,1.25);
    \draw (3,-1) rectangle (4.25,-0.25);
    \draw (3,-2.5) rectangle (4.25,-1.75);
    \draw (7.5,0.1) circle (1.3cm);
    \draw (11,-0.8) rectangle (14,1);
    \draw (3.5, 2.3) node {$W_{1j}$};
    \draw (3.5, 0.8) node {$W_{2j}$};
    \draw (3.5, -0.6) node {$W_{3j}$};
    \draw (3.5, -2.2) node {$W_{nj}$};
    \draw[-,line width=1pt](1.5,3.5)--(3,2.75);
    \draw[-,line width=1pt](1.5,1.6)--(3,1);
    \draw[-,line width=1pt](1.5,-0.5)--(3,-0.5);
```

```
    \draw[-,line width=1pt](1.5,-3)--(3,-2.5);
    \draw[->,line width=1pt](4.25,2)--(6.2,0.6);
    \draw[->,line width=1pt](4.25,0.6)--(6.2,0.2);
    \draw[->,line width=1pt](4.25,-0.5)--(6.3,-0.4);
    \draw[->,line width=1pt](4.25,-1.75)--(6.3,-0.7);
    \draw (7.5, 0.1) node {\LARGE{$\sum$}};
    \draw (7.5, 1.8) node {\LARGE{neuron j}};
    \draw (1,4.6) node {input};
    \draw (1,4.2) node{variables};
    \draw[->,line width=2pt](9,0.1)--(11,0.1);
    \draw (12.5,0.4)node {\LARGE{activation}};
    \draw (12.5,-0.1)node{\LARGE{function}};
    \draw[->,line width=1pt](14,0.1)--(14.7,0.1);
    \draw (15.5, 0.3) node {\large{Output}};
    \draw (15.5, -0.1) node {\large{Yj}};
    \draw (3.5, 3.6) node {variable};
    \draw (3.5, 3.1) node {weights};
    \draw (12.5, -1.3) node {\Large{eg: ReLU,sigmoid}};
\end{tikzpicture}
\pagebreak
```