n r l n tw r t l f r t v
v l p r's G i
V rsi n: 0.1.9

M S lmid

O to e l4 2 8

e

1. Co on nti on

hapte

e il le fu i

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i g ui eli e

ame eneeall des iptians wh a aiable has a hasen name. his is alid fa the ampliete tallbax... an sa -)
lelene is anll the des iptian af aiable names whi h aaen t isible ta the usea. isible names ae des ibed in the Usea s uldei
he aiable identifiens ae taken faam [4 . ne di eaen e is pupasefull added. lf a aiable has

.1.2 a

Aa is a ellll anna and has ane entu fan ea h lla en.
lln **Aa{il,il}** ane the allues fan the finst hidden lla en. he sil e af this matuilx depends an the numben af neunans used fan this lla en.
lln **Aa{2,il}**

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lg ri

Hene ae sme enealthu hts abut all ulatin pats ae used in all mthm.

.1 L n r Marg ar t

It needs also two sensitivity matrices because the two layers. Actually the input is a column vector with 2 elements. n_1^1 will result in a new vector with 2 elements. n_1^2 will hold only one element and so we have 3 elements in the sensitivity matrix.

We can say the number of hidden neurons is responsible for the dimension of the sensitivity

hapte 5

Fu i I e

5.1 Wh o all ho

```
Funci i n Fil : i    ini
==============================

Funci i n Fil : l g ig
==============================

Funci i n Fil : min max
==============================

Funci i n Fil : n wff
==============================
  ini
  n wn iw rk
ian ig
rain

Funci i n Fil :    i id
==============================

Funci i n Fil :  r  id
==============================

Funci i n Fil :  ur lin
==============================

Funci i n Fil :  a  MLPSiruci
==============================
  ch ckn i iruci
    rini da iFcn
    rini da iParam
    riniB
    riniBia C nn ci
    riniBia
    riniI
    riniIniiFcn
    riniIniiParam
    riniIn uiC nn ci
    riniIn ui  ighi
```

```
    rini#In ui#
    rini#L
    rini#La  rC nn ci#
    rini#La  r  ighi#
    rini#La  r
    rini#MLP  ad r
    rini#N i#w rkT
    rini#Numm In ui#  la
    rini#Numm In ui#
    rini#Numm La  r  la
    rini#Numm La  r
    rini#Numm Oui# ui#
    rini#Numm Targ i#
    rini#Oui# ui#C nn ci#
    rini#Oui# ui#
    rini#P rf rmmFcn
    rini#P rf rmmParam
    rini#Targ i#C nn ci#
    rini#Targ i#
    rini#TrainFcn
    rini#TrainParam

Funci#i n Fil :  im
==============================
  ch ckn i# i#ruci#
l g ig
 ur lin
i#an ig

Funci#i n Fil :  u   i#
==============================
    i#imi  dai#a  i#

Funci#i n Fil : i#an ig
==============================

Funci#i n Fil : i#rain
==============================
  ch ckn i# i#ruci#
  i#rainlm

Funci#i n Fil : i#ra i#d
==============================

Funci#i n Fil :   anal   r w
==============================

Funci#i n Fil :   calc ac  ian
==============================
  dl g ig
  d ur lin
  di#an ig
l g ig
 ur lin
i#an ig
```

```
Functi n Fil :   calc  rf
==============================
  m
l g ig
 ur lin
tan ig

Functi n Fil :   ch ckn t tructt
==============================

Functi n Fil :   c   c lt    l
==============================

Functi n Fil :   dl g ig
==============================

Functi n Fil :   d ur lin
==============================

Functi n Fil :   dtan ig
==============================

Functi n Fil :   g tx
==============================
  ch ckn t tructt

Functi n Fil :   init
==============================
  ch ckn t tructt
n wff

Functi n Fil :   ma
==============================

Functi n Fil :   m
==============================

Functi n Fil :   n wn tw rk
==============================
  ch ckn t tructt
i    int
n wff
train

Functi n Fil :     timi  datta  t
==============================
  anal   r w
  rand mi  c l
  r rang c lumn

Functi n Fil :    rint da tFcn
==============================

Functi n Fil :    rint da tParam
==============================

Functi n Fil :    rintB
==============================
```

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e

.1 i po int

```
%  har d
%  di  ("i  ing i    ini")
```

```
%  fail("n wff(Pr,[il il], "ian ig"," ur lin" ,"irainlm","unu  d","m  ")",\
```

```
% a   ri(max(mTrain(il,:))==max(mairix(il,:)));
% a   ri(min(mTrain(il,:))==min(mairix(il,:)));
% a   ri(max(mTrain(2,:))==max(mairix(2,:)));
```

```
%  di  ("i  ing   anal   r w ")
%    = [il 0 0 il; il 0 0 0; il 2 0 il];
%  r imai =   anal   r w ( );
% a   ri(r imai(il,il)==il);#% a   ri(r imai(il,il)==il);
% a   ri(r imai(2,il)==il);
% a   ri(r imai( ,il)==0);
%    = [il 0 0 2; il 0 0 0; il il il il];
%  r imai =   anal   r w ( );
% a   ri(r imai(il,2)==0);
% a   ri(r imai(2,2)==0);
% a   ri(r imai( ,2)==il);
%    = [il 0 0 2; il 0 0 0; il il il il];
%  r imai =   anal   r w ( );
% a   ri(r imai(il, )==2);
% a   ri(r imai(2, )==0);
% a   ri(r imai( , )==0);
%  r imai =   anal   r w ( );
% a   ri(r imai(il, )==il);
% a   ri(r imai(2, )==0);
% a   ri(r imai( , )==0);
```

.8 __ opy olltopo 1

```
%  har d a, r imai
%  di  ("i  ing   c   c li    il")
%  a = [0 il 2    ; 5   7 8  ];
%  r imai =   c   c li    il(a, );
% a   ri(r imai(il,il)==2);
% a   ri(r imai(2,il)==7);
%  r imai =   c   c li    il(a,5);
% a   ri(r imai(il,il)== );
% a   ri(r imai(2,il)== );
```

.9 __opti i ata t

```
%  har d r imairix, mairix
%  di  ("i  ing     imi  daia  i ")
%  mairix = [il 2   2 il 2   0 5     2 2 2 2 2 2; \
%   0 il il 0 0 0 0 0 0 0 0 0 0 0 il il 0; \
%   il   2     il il il il il   il il il     0; \
%   2   2   2 2 2 2         il il il il il];
```

```
% a   ri(r imairix(il,il)==5);
% a   ri(r imairix(2,il)==0);
% a   ri(r imairix( ,il)==il);
% a   ri(r imairix( ,il)== );
```

.10 __ran o il o

```
% # n  i  i     i l , c niain  rand  rm which i  u ing
% #   m  rand m  funci i n
```

.11 __r ran o n

```
%  har d mairix,anal   Mairix,nTrainS i , r irnmairix
%  di  ("i  iing   r rang c lumm ")
%  mairix = [0 il 0 0 0 0 il 0 il il;  \
%                        ;  \
%          il.il  il.il 2      .2 il 8   il0; \
%            0 il.il     5 2 il0 il0 2  ; \
%            il il il il il 2     il 5];
%  anal   Mairix = [il 0 0 0; 0 il 0 0; 0            il il(;50ci525(il) 525(0) 525(0) 52il( ) 525( ) 52
```

hapte

lyzi g l fu i

.1 anally in n ff

Lust n will be anall ed fan a - - mllp. his means maxthoumum 3 la eus in ludin the

:

```
numLa  r  la  : 0  (r ad  nl )

 u     ci  ir uci ur  :

        in ui :  ilxil c ll   f in ui
        la  r :  ilxil c ll   f la  r
        ui ui :  ilxil c ll  c ni aining il  ui ui
       iarg i :  ilxil c ll  c ni aining il iarg i
         ia   :  ilxil c ll  c ni aining il  ia
        la    ighic c c l il ( ni aining) 525n g la  il
```

```
    n i  : "Pui    ur cu i m  ui ui inf rmai i n h r ."
n i .iarg i

an  =

    [ilxil  iruci]
n i .iarg i   il

an  =

          i  : il
```

```
n ï.la  r  ighï

an  =

     []

n ï.L

an  =

     []

n ï.I

an  =

    [ïx2 d u l ]

n ï.I  ï

an  =

     0     0

n ï.

an  =

    [0]
```

ppe i

le

i li gr y

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