

step 1: Input and Initial weights. Input: X, = 0.05, X2 = 0.10 Taget Output EEP2.0 = T= 10,00hord + (pa. ax) + (ga. xx) = en lon Initial weights From Input to Hidden W, = 0.15 W2=0.20, W3=0.25 W4=0.30 From Hidden to poutput! W5 = 0.40, W6 = 0.45 1+6-10-3925 Biases! Hidden = 0.35, Output = 0.60 Output layer step 2: Forward pan. WHidden layer collabor (200, 11-20). net har-Outhout) + (our wa) = + obias hidden =(0.05 + 0.15)+(0.10 + 0.20) +0.35 = 0.3775 (pto1.1) biampia WET. O = CERON- SIN

= Sigmoid (o. 3775) hox. bugat $= \frac{1}{1+e^{-0.3775}}$ = 0.5933 net $h_2 = (x_1 \cdot w_3) + (x_2 \cdot w_4) + bias hidden$ = (6.05 * 0.25) + (0.10 * 0.30) + 0.3508.02 hing 043925 00 1000 2000 20.0 1000 out $h_2 = Sigmoid (0-3925)$ $= \frac{1}{1+e^{-0.3925}}$ = COL9= 0.5969: Juglio (28.0= Malls: 4) Output layer and broand : syon nety = (outh, vws) + (outher. wb) + bias output ~ (0.5969. 0.45) + (0.5969. 0.45) + 0.60 TIE. 01 Guy. 9059 00-1 (-21.0 & 20.0) outypi = sigmoid (1.1059) 1+e-140 59) = 0.7514.

step 3: Calculate Error produce layon with = total = \(\frac{1}{2} \pi \(\tau \text{get} - \text{output}^2 \) = 1/2 4 (0.01-10.75/4)2 (8870.3748. SEP2. 01 X0 4.0 X 2381.0 = step y: Backpropogation up dating the neuron values (step 4) Output layer Sy = (Outy-Toagel) x [outy) (outy) (routy) 6 bhio . 0 = J'(x) 2 >(C1-x) Hidden layer III SH = Sy xw xo (out H) Olp layer:

Sy = (out y + ranger) x o (out y) = 1(0.7514=0.01) x (0.7514 (1=0.7514)) ESS 2.0 % 0-13851 X 2.0 . 011.0 =

rearra stalustro il a Hidden layer 84 = 8y x w x d" (out #) Shi = Soix ws x o' (out hi) -> out hi (1-outhi) = 0.1385x 0.40x 0.5933 (1-0.5933) es A: Borches Sodaffor 20.01337 De goting the newson Notuce (Philo 1) Sh2 = Son XW6X or (out ha) () out h2 (1-out h2) = 0.1385 x 0.45 x 0.5969 (1-0.5969) = 0.01499 (x-1)0 : (x) + steps: weight e blas update (Hidden to wnew = word - 12 x Sy xout H biasoutput new = biasoutput old - 2 x Sy ?! (wsnew; wsold - 2 x S o1 x out hi = 0.40 - 0.5 × 0.1386 × 0.5933 = 0.3589

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Wholen = whold - n x Sorxouthand any wow
       = 01:45 +10.5, × 0.1385 10:5969
       = 0.40866
                          - QPP.Q. OF =
0.60-0.50x.0.13.85 mbbilaoid
  (PRUID. 0.4 18810.01) x 7.0 - 78-0 -
Input to hidden layer.
 wnew = wold - 2 x (x)33288.0=
bienshidden new = bienshidden old - k-1x & (SH)
                    weightheron updatat water.
w, new = w, old-2 x 8h, x 20,000 cush is
 = 0.15 = 0.5 × 0.01337 × 0.05
                                 wy rieus
 wanew 5 waold + 12 x 8h, x x2
                                icolidam.
                     4 8 8 8 B
         = 0.20 - 0.5 × 0.9337 × 0.10
                                  and sound
(1) acid)
                                  a warr year
         = 0.19933 1083-0 Cuan 5.10000
0.5 30
          10 - R& 5 68
        waold-2x Shexx,
Wznew
         : 0-25- 0.5 x 0.01439 x 0.05
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= 0.2496

Wy new = W4 01d1-12 x 8h2 x 2 2 0 100 = 6.00 del

= 0.2992

brashidden = biashidden - 2 x 2 LSH) l'acres

= 0.35 - 0.5 x (0.01337 + 0.01499)

12801.0 =

= 0.33582x.) x y - b/our = 0.00 w

Step 6: Summary Table 2 up dated diagram.

T	weight/bias	updated value	
1	winew	0.1496	13 x - 2 - 610, in = war, cu
	w ₂ new	0.1993	0.65
and the	wa new	0.2496	(x1) 0.14 (x1) 6.3589
	Wy new	0.2992	6)
	siashidden new	0.3358	0.19 0 2438 0 248
	W5 new	0.3589	×2 0.2992 h2 0.4086
	w6 new	1 E 0 . 4086	(box of P)
	saso/Pnew	0.5307	0.5301
			0.3358
-		-1, 24, -1	Should sell same will

0.25-0.5 x0.0164 x 0.05

JPHS. O :