

BACKPROPAGATION IN RNN

	Backpropagation	Through	Time			
	0					Y
	Text		***************************************	Y T	7 5	
	cat most rad			07 [001]		
	tat tat mat	1 -			[010] [10	•
	mad mad cat	0	Xg	10] [010]	[001] [0	0
	•					
			rat			
	[100]	1 [010]	001]			
		101 (00				
		Wn (3,3				
	001	0 01 02	03			
	010	70	30-	\rightarrow \hat{g}		
	100	-O wo				
	X, (3,3)	(3,1)				
		0,	7 02		03	
	O - tanh -	> tanh	W	· > tanh		T Wo y
	Wh	Wh 1		1	h	
	Wi	W	1	Wi		
	XII	7/12		713		
					Minimize	loss through
	O, = tanh (xi, w	+ 0, w,			gradient	
	02 = tanh (x12 W				0	
	Oz = tanh (x, w				W= W -1	n or
	i = o (Dzwo)	1 2 4/				Jwo .
	9 0 (1/3/00)				w; = w; -	n aL
	1 - 1 - 1 - 1	11-(21)	- 400 00	g(1-G)		Jan!
	Loss F=-Aigh	9.81	give	g di	w, = w, -	n dL
*					N N	Jam ^r
de la desarra de		1				



	— a vision beyond —
9F = 9F 98	
ome bé some	
2g = o(1-o)	
DW.	
DL = -4 (1-4) = 44-	1. 1.2. A A
	$\frac{g - 2g + g}{\zeta(1 - \hat{y})} = \frac{g - g}{\zeta(1 - \hat{y})}$
	301-95
 ⇒ DL = y-y x o(1-0) Dwo y((1-4))	
200 8(1-8)	
L > y -> (03) > x +3	
Swellsw:	
(> O2 > Y12	
walls w:	
0,	$\rightarrow \gamma_1$
W _n	w:
	> 0.
) W.
	n=time steps
3L = 3L, 3g, 302, 302, 301	$\partial L = \frac{1}{2} \partial L \partial \hat{y} \partial O_{j}$ $\partial w_{i} \dot{y}^{2} \partial V_{j} \partial V_{j}$
gm; gå gos gos go' gm!	dw; j=1 dý do; dw;
+ 31, 38, 803, 802	$\Rightarrow \frac{\partial \hat{y}}{\partial 0_1} = \frac{\partial \hat{y}}{\partial 0_2} = \frac{\partial \hat{y}}{\partial 0_2} = \frac{\partial \hat{y}}{\partial 0_1} = \frac{\partial \hat{y}}$
98 303 302 JM!	30, Jw; 303 302 30, Jw;
39 303 DW;	30^{2} 30^{2} 30^{3} 30^{2} 30^{2} 30^{2} 30^{2}
	→ 98 ~ 901
	30' 9m' → 98 × 90'.



	DL - 21 212	— a vision beyond —
	203 200 20	
	+ 3L 29 303 302 + 3L 29 303 302	
	39 303 302 3Wh	
	+ 9r 303 som	
	G 33 John	
	るし = るし デ るら るの。	
	JWH 38 j=1 30; DWH	
	⇒ 96 500 = 96 B0€ € €	
	312 212 20 "	1
	$\Rightarrow \partial \hat{y}$ $\partial 0_2 = \partial \hat{y}$ $\partial 0_2$ $\partial 0_3$	
	302 DWn 303 302 DWn	
	⇒ 28 , 20g €	
-	303 DWh	
1		

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