	Date J J Page 1	
1/8/2021	Summary: Simplified Sequential Minimal Optimi	ization
	MUNICIPAL DING 2011 VO 10/18/20/01	
	The still algorithm is an optimization alrealithm us	sed
	and the standard of the sound things . In	,
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wo	The SMO algorithmo Anies to optimize that SVKY	,-
	Phonorione et 6 the formeio associona sidi. 2'6	,
6-	l'emarele . ogravnor és	200
	m m	
	(max W(a) =)a; - 1 \(\sum_{i=1}^{2} \frac{1}{2} \fra	\rightarrow (\hat{D}
	Stocked of	683
	- 3.7:	
, (The smoulistisma sign over all distingues	(2)
H.	also time anorthorn Zya: you food travolo in SI	3-)
E	sandom of from the somaining me 1 or's	
	This is the dual of sorted a regularized Sim	
	Classifier (fixe) = WTrc+b).	
000,11	If the Q's hours changed after a few iter	-
	The point of convergence rican beinghetheditusing	9
The second second	the IXXT conditions:	
	Here (a: =0 =>0 14: (w/20: +16) -2 (4)2	
	Coorectly classified points	
	d; = (=> y; (w ^T 3c; + b) < 1 → (5)	
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	(on margin)	

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	8/2021 Summary: Simplified Sequential Minimal Option
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	ad in the city on the completion to
	d's. This processes is repeated
	d's converse.
	< ; x ; ye) = /x; - ; x = (x) \ xx m.
()c	2. 12. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10
	Step 1: Selecting Q:
~;=	The simplified smo likears over all di=1,m.
4	If a: doesn't falfill. RKT conditions, it selects
	madam di from he remains I had
	their to tophnize a path rold and all house
	- (2 + 20 Tw = (22) neifize not)
_	If the ois havent changed after a few iterations
3	in the ealgorish stermingtones to tolog all
	Step 2: Ophmizhy was and as = . 0 = in
	Have bellight usersoll
	(己)倒し 17 (1+1200)ド (一):10
	- We doing or constraints on a; end a; then
	30 to 301 ve the constrained marinization problem.
	5) ~ 1= (d+, xw); y ~ > > ; b > >
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		T.
	Wee degine ! boands Luche Hion Dagen blear	< H.
	which must hold mind diso to satisfying	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\
	O E aj & C. Those being:	1
	45,0 1, 4) = 10	`
	(i) If y: # y: (different classes)	`
	17:00 9: 1	
	L=max(0, aj-ai), H=min(C, C+xj-xi)	-3(7)
	the (ii) I eye = iyo (some blass) grind not A.	
	1,69	
	$1 = mosc(0, \alpha; +\alpha; -c), H = min(C, \alpha; +\alpha;)$	- (S)
	(1x-1x)(d) + 1 + 1 = 10	
		4. 4. 7
	Thow we singlished that maximizes the function	<u>, </u>
	(Vii) 31 no co simino	
	$\alpha_{i} = \alpha_{i} - \gamma_{i} (E_{i} - E_{i}) \rightarrow 9$	
	Step 3 (compulsing threestights b	
	Where 3 Ex = f(30x) - yx 300	
	w 100=12<50000 - (x) x0 > 4x50; 4x93 =	- (i)
	Here Ex is heologonor Between SVM predictions a	^9
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	thought on greater their Hein Hier town didus	
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\$75.50 5 00 00 00 00	d:=	G.R.S.
	- (eizof) handing in but	
	L 16	
(F) L	(: w=: x+2,0) oim=H. ((in-; w,0) xcom=1	
	1 (and Da) and the Compute	
	- After Laving solved for aj . we compute	
S. Page	Ø;	,
(8)-	$(in+ix)_{nim}=H ()-ix+ix (0) > 0 = 1$ $\alpha_i = \alpha_i + y_i y_i (\alpha_i - \alpha_i)$	
	$\alpha' = \alpha' + \alpha' \cdot (\alpha' - \alpha')$	
700 / 3	northone st resiminan unt ? Walter of ed; before	
	opinization.	
	(j;) = (j;)	
	Step 3: Computing threshold b	
100		
- 18	partitions. Fir = f(xx) = y (6)	A. Wan
(,)	- Now that we have - or thrabordi = ord xi, we	
	select b such that KKT conditions are	
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6/1	Schieffed: ford it and ith escamplear in I will	
	Dorbol auch	
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	The state of the s	Ism.

	Dale
	-Now, if
d	- Therefore, we have a the of equation for
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	13/12/13/13/13/13/13/13/13/13/13/13/13/13/13/
	then boxistadid is so
	Oliverso ((Cottid))
	b, = b- E: - y; (x; -x; old) (50; xi> -y; (x; -x; xi>
	(ii) After opinisettein of DS XXX (ii)
	then be is valid.
	61d)
	b_ = b - Ej - y:(\a'; -\a'; \odd) \(>c'; >c'j > - \J_{\alpha}(\a'; \a') \(>c'; >c'j \)
	(iii) II born di and do ene within Bounds O and Co
	then they will be equal.
	10. at the bounds then
	(iv) If both d's are exactly at the bounds then all thresholds between be and be satisfy
	the KKT conditions.
	No can select b = b+ b2 here,
	who can select 2
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	2 sport Page 6	
		_
	diauloh-	
	- Therefore, we have a tohat equation for b	<u>-</u>
	D < 10 07. 8 noito simitao nuyA (1)	
	b = b, if O T xi < C	
	of be if 1050 disk and ment	
	(b) (b) (y- <i>c) c) (b) (b) (b) (b) (c) (c) (c) (d) (d) (d) (d) (d) (d) (d) (d) (d) (d</i>	
$\leq 2 \cdot \cdot \cdot \cdot \cdot \cdot$	p. = p. F A. (0x, -0x, 120, 2012 - A) (0x, 0x)	
	Ti.	
	This completes the SMO algorithming metal (ii)	
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7 :307	ip. 10) L 2(00, 20) (p10) 2- 12 (01, 01)	15
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	o O showed willing on the bound of (iii)	
	the state will be equitable	3
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	Are KKT conditions	
	Select by the select of the se	
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