UAlg FCT
UNIVERSIDADE DO ALGARVE
FACULDADE DE CIÊNCIAS E TECNOLOGIA

UNIVERSIDADE DO ALGARVE

DESIGN OF NEURO-FUZZY MODELS BY EVOLUTIONARY AND GRADIENT-BASED ALGORITHMS

Cristiano Lourenço Cabrita

(Mestre em Engenharia de Sistemas e Computação)

Dissertação para obtenção do

Grau de Doutor em Engenharia Electrónica e Telecomunicações

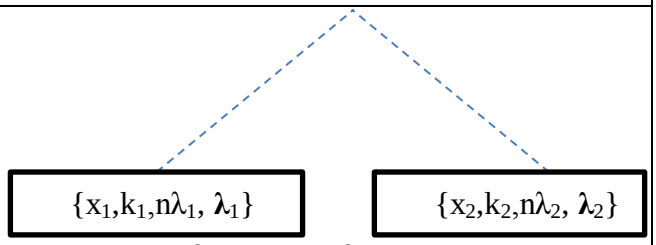
(Ramo especialização em Sistemas Inteligentes)

Trabalho efetuado sob a orientação de:

António Eduardo Barros Ruano

2013

ERRATA

Page	Line	Reads/incorrect	Should read/correct
1	-3	models must be used	models **could** be used
7	5	to mate most of the time.	to mate.
19	11	Nevertheless, clustering does not take into account the complexity of process	Nevertheless, clustering does not take into account the complexity of **the** process
19	-3	Givens transformation can used	Givens transformation can **be** used
22	-7	$\left[x_{1_{\min}}, x_{1_{MAX}}\right]\times\left[x_{2_{\min}}, x_{2_{MAX}}\right]=\left[\lambda_{1,0},\lambda_{1,2}\right]\times\left[\lambda_{2,0},\lambda_{1,2}\right]$	$\left[x_{1_{\min}}, x_{1_{MAX}}\right]\times\left[x_{2_{\min}}, x_{2_{MAX}}\right]=\left[\lambda_{1,0},\lambda_{1,2}\right]\times\left[\lambda_{2,0},\lambda_{2,2}\right]$
25	-8	in dimension x_1 the knot vector has two interior knots, i.e.:	in dimension x_1 the knot vector has **one** interior knot, i.e.:
25	-6	in dimension x_2 there is only one interior knot	in dimension x_2 there **are zero** interior knots
26	5	BSNN models offer interesting properties, such as:	**Should be removed**
30		a,b in x dimension in fig. 2.11	a,b,c in x dimension in fig. 2.11
39	6	data belonging to one cluster as similar	data belonging to one cluster **is** as similar
43	5	(2.79)	(2.**58**)
47	14	**Φ**	**Γ**
49	-2	the proximity of $\psi[k]$	the proximity of $\Omega[k]$
71	-6	The following figure … (*figure is missing*)	 Fig.2.27 Information of the terminal nodes.
93	-13	defining which points lye	defining which points l**i**e
99	-4	the weights depend	the weights depend**ent**
100	-9	The Simpsons composite	The Simpson's composite
121	1	For the *paraboloid* function, there are 5 input	For the *paraboloid* function, there are **4** input
126	8	By an error criterion	By an **optimization** criterion
126	9	The error criterion used is	The **optimization** criterion used is
137	2	algorithm (BP)	Algorithm (BP**A**)
146	6	evolutionary algorithm (BP)	evolutionary algorithm (BP**A**)
154	12	as *domain contiguity*)	as *domain contiguity*
163	2	Considering … each dimension	**Should be Removed**
164	-6	this is true one	this is true **if** one
182	-6	Ψ_v	**MSEv**

Page	Line	Reads/incorrect	Should read/correct
182	-1	Ψ_v	**MSEv**
186	-3	representing the lowest BIC and MSEt criterions	representing the lowest BIC and MSE criteria
192	4	respect to the p^{th} interior knot	respect to the $\boldsymbol{j}^{th}$ interior knot
192	11	Jacobian for the p^{th} interior knot	Jacobian for the $\boldsymbol{j}^{th}$ interior knot
196	-6	1.5.3.3.3	**6**.5.3.3.3
197	-1	(lower MSEv values)	(lower MSE values)
198		5.43e-4 (value in table 6.23)	5.43e-**3**
198	4	Table 6.23. parameters estimation for the full grid using LM	Table 6.23. parameters estimation for the **partitioned** grid using LM
201	8	Conjuction	Conjun**c**tion
204	-3	numerator of (7.6)	numerator of (**2.45**)
233	2	Equation (8.13)	Equation (8.1**2**)
233	3	$O(Nn_u^2)$	$O(mn_u^2)$
286	-9	(Table 8.48 and Table 8.49)	(Table 8.4**9** and Table 8.**50**)