



SDI Review Form 1.6

Journal Name:	<u>British Journal of Mathematics & Computer Science</u>
Manuscript Number:	Ms_BJMCS_28955
Title of the Manuscript:	Two Hidden Layer Multiconnected Boltzmann Machine for Controlling Moving Objects
Type of the Article	Original Research Article

General guideline for Peer Review process:

This journal's peer review policy states that **NO** manuscript should be rejected only on the basis of '**lack of Novelty**', provided the manuscript is scientifically robust and technically sound.

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PART 1: Review Comments

	Reviewer's comment	Author's comment (if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)
Compulsory REVISION comments	Generally, the Boltzmann machine is a type of stochastic recurrent neural network and Markov Random Field invented by Geoffrey Hinton and Terry Sejnowski in 1985. It is a very interesting tool. However, I have a few comments to this manuscript: 1. Page 1, abstract, line 8: "a new artificial neural network" – I cannot agree. Why authors say that it is a new ANN? 2. Tests should be more complete. 3. There is sentence that the voice is the most attractive remote control approach – why? 4. Algorithm should be presented in the appendix. 5. There is no emphasis enough about aims of paper. What is new? 6. The list of references is very short. I think too short. However, this section is timely (but not enough numbers of references). The paper is too curt. The paper should be rewritten to be more scientific connotation.	1. We transformed this sentence to We obtain and study a new classification Deep Boltzmann Machine. We assert that such Boltzmann Machine is not investigated before. 2. Test section is essentially expanded. 3. We transformed this sentence to Voice control assures hands free and fast communication between human and controlled object. 4. The algorithm for training the new DBM is essential part of our investigation. We read all papers on DBMs but we have never seen an algorithm for training a DBM in an appendix. 5. The main goal of the present paper is to improve the stochastic model of voice control system obtained by Ilarionov et al. [16] designing a new deep classifier. The paper contains the following new results. (i) A new classification DBM is obtained. We check all papers on DBMs and assert that our classifier have not been studied before. (ii) Training our original DBM we found the following difficulties. There are a class of MFA problems without solutions. The convergence of the fixed-point iteration depends on the weight matrices. A bad choice of the weight matrices leads to divergences of the fixed-point iteration and confusions in the process of deep learning. Note that this problem arises in all DBMs published in the cited papers, but not



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		only for our DBM. We mean that to avoid this difficulty is of considerable practical importance. We successfully solve the problem working with normalized and positive definite weight matrices. (iii) Training our DBM we use an original algorithm of Gauss-Seidel type for solving the MFA problem. The new algorithm essentially increase the rate of convergence. 6. We doubled our list of references. All references are after year 2009. Extending the list of references from this point is possible but artificial.
<u>Minor</u> REVISION comments		
<u>Optional/General</u> comments		