

MSc Major Project - Final Report – 70%

Student Name:	Hailian Fang
Title of Project:	Gravitational Search Algorithm Applied to Grey Models
Supervisor:	Gordon Dickers
2nd marker:	Tim Bashford
Course:	Applied Computing eCommerce Computer Networks Software Engineering Games and Visualisation (please circle)
Project Type:	Survey Review Analysis Experiment Development (please circle)

	Mark %
<u>First Marker's General Comments and Original Mark</u> Hailian has evaluated the GSA algorithm's performance in finding local optimal parameters for use in various Grey Models. To the best of my knowledge this has not been done before – well done. There are some issues related to language that need addressing here. Evaluation with a set of test data needs to be more explicitly discussed.	68%
<u>Second Marker's General Comments and Original Mark</u> Agreed	68%

Comment After Consultation With Other Marker & Final Agreed Mark	
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Signature: Date:

	Survey	Review	Analysis	Experiment	Development
1. Research-informed Literature					
Introduction	/5	/5	/5	2.5/5	/5
Literature Review	/25	/40	/30	17/25	/15
Comments: A focused introduction and literature review. Key areas addressed and discussed in detail. There are some language issues here that, once resolved would help in the explanation of some ideas. An overview of local search and relevant machine learning ideas could have been more thoroughly and clearly discussed – especially regarding the separation of training and test data and under-fitting and over-fitting. The description of fractional derivatives also could have been longer and clearer.					
	Survey	Review	Analysis	Experiment	Development
2. Knowledge and Understanding of Subject					
Methodology	/5	/5	/5	3/5	/5
Data Collection Process Design	/15	-	-	-	-
Requirements/Design	-	-	-	-	/10

Comments:

The hypothesis is clear. The experiment design and development might have been better structured/organised in the report. However the details are clearly present and described and the experiments to be carried out are well signposted in the experiment itself.

Results for fitting the models are well documented and discussed but how testing against Held back data is not clearly described and is a weakness here.

	Survey	Review	Analysis	Experiment	Development
3. Analysis					
Problem Definition	-	-	/10	-	-
Results and Discussions	/30	/30	/30	23/30	/30
Conclusions and Recommendations	/10	/10	/10	6/10	/10
Comments: The analyses of the results provided are clear and reasonably detailed but again the use of and discussion of testing against held back data is not clear, particularly in the model fitting aspects of the experiment. Reasons for the selection of the MAPE error function are clear but more regarding the limitations of the function could be included. Regression models were included and compared but nothing on residuals here – again little on over-fitting. No discussion of under/over-fitting. Conclusions in general are appropriate and reflect the results.					
	Survey	Review	Analysis	Experiment	Development
4. Practical Application and Deployment					
Development	-	-	-	-	/15
Experimental Design	-	-	-	11/15	-
Comments: The choice of pre-selected MATLAB functions are fair as they allow a comparison with existing research. Use of GSA with Grey model is novel. Grey model coded. The experiment could be a little better described in places but the choices made – what to test, how to quantify accuracy, choices for comparison made for a good set of results BUT, again, little testing of curve fitting against new data apparent in the write-up.					

	Survey	Review	Analysis	Experiment	Development
5. Skills for Professional Practice					
Reflection	/5	/5	/5	2/5	/5
Quality of Report	/5	/5	/5	3.5/5	/5
Comments: Quite well structured. Language an issue at times which hampered explanations and discussions at times. References excellent Reflection could be more detailed.					
TOTAL:	/100	/100	/100	61.5/100	/100