



< Back to results | < Previous 21 of 34 Next >

Download Print Save to PDF Save to list More... >

Journal of Ambient Intelligence and Humanized Computing • Volume 12, Issue 2, Pages 3177 - 3188 • February 2021

Document type

Article

Source type

Journal

ISSN

18685137

DOI

10.1007/s12652-020-02476-z

View more

An efficient parameter optimization of software reliability growth model by using chaotic grey wolf optimization algorithm

Dhavakumar P.^a ; Gopalan N.P.^b

Save all to author list

^a Department of Computer Science and Engineering, Periyar Maniammai Institute of Science and Technology, Thanjavur, Tamil Nadu, India

^b Department of Computer Applications, National Institute of Technology, Trichy, India

14 93th percentile
Citations in Scopus

3.2
FWCI

18
Views count

[View all metrics >](#)

Full text options Export

Abstract

Author keywords

Indexed keywords

SciVal Topics

Metrics

Abstract

Software reliability growth model (SRGM) with modified testing-effort function (TEF) is a function to evaluate and foresee the parameters of the data. Reliability of software is portrayed as the distinct possibility that for a predefined time, a software package will continue to run on an advance domain without frustration. SRGM utilized a few optimization procedure algorithms to advance the parameters by bifurcating them into a few stages however to upgrade the technique by using all of the parameters at the same time, the algorithm utilized is the chaotic grey wolf optimization algorithm (CGWO). CGWO is an advanced heuristic system for portraying the execution by achieving complex parameter optimization and designing application issues. Different parametric reliabilities rely upon the attributes or characteristics of the data. The parameters are predicted using the Pham–Zhang (PZ) model. Tandem computer software dataset DS1 and DS2 are used to compare the predicted parameter of SRGM obtained by Pham–Zhang (PZ) model using testing effort functions (TEFs) based on the evaluation metrics mean square error (MSE), relative error (RE) and coefficient of determination (R^2). To enhance the reliability of SRGM, the parameters of SRGM estimated using TEF and enhanced using chaotic maps to improve search performance. By using

Cited by 14 documents

Software reliability prediction: A survey

Oveisi, S. , Moeini, A. , Mirzaei, S. (2023) *Quality and Reliability Engineering International*

A Novel Optimized Recurrent Network-Based Automatic System for Speech Emotion Identification

Koppula, N. , Rao, K.S. , Nabi, S.A. (2023) *Wireless Personal Communications*

Software reliability prediction and optimization using machine learning algorithms: A review

Yadav, N. , Yadav, V. (2023) *Journal of Integrated Science and Technology*

[View all 14 citing documents](#)

Inform me when this document is cited in Scopus:

[Set citation alert >](#)

Related documents

A hybrid Harris hawks–Nelder–Mead optimization for practical nonlinear ordinary differential equations

Rizk-Allah, R.M. , Hassanien, A.E. (2022) *Evolutionary Intelligence*

Application of embedded computer and improved genetic algorithm in the strategy of community of human destiny: the development of artificial intelligence in the context of Covid-19

Liu, Y. , Zhang, Y. , Liu, X. (2021) *Journal of Ambient Intelligence and Humanized Computing*

Software reliability growth model based on nonlinearity and test coverage | 基于非线性和测试覆盖率的软件可靠性增长模型

Xu, R. , Yuan, H. , Wang, Q. (2020) *Xi Tong Gong Cheng Yu Dian Zi Ji Shu/Systems Engineering and Electronics*

[View all related documents based on references](#)

Find more related documents in Scopus based on:

Authors > Keywords >

the constrained benchmark functions the results of chaotic maps are obtained. Based on the chaotic graph results, the Chebyshev graph shows a good convergence rate of 78%. Overall, 86% of the results revealed an association between the choice variable and fitness criteria for CGWO. In the SRGM using CGWO, the expected result is completely mechanized and does not require any client necessity. © 2020, Springer-Verlag GmbH Germany, part of Springer Nature.

Author keywords

Chaotic grey wolf optimization algorithm; Coefficient of determination; Mean square error; Relative error; Software reliability growth model; Testing effort functions

Indexed keywords

SciVal Topics 

Metrics

References (29)

[View in search results format >](#)

☐ All

[CSV export](#)   [Print](#)  [E-mail](#)  [Save to PDF](#) [Create bibliography](#)

- ☐ 1 Abd-Elkader, A.G., Saleh, S.M., Magdi Eiteba, M.B.
A passive islanding detection strategy for multi-distributed generations

(2018) *International Journal of Electrical Power and Energy Systems*, 99, pp. 146-155. Cited 61 times.
doi: 10.1016/j.ijepes.2018.01.005
[View at Publisher](#)
- ☐ 2 Cascone, A., Manzo, R., Piccoli, B., Rarità, L.
Optimization versus randomness for car traffic regulation

(2008) *Physical Review E - Statistical, Nonlinear, and Soft Matter Physics*, 78 (2), art. no. 026113. Cited 11 times.
http://oai.aps.org/oai?verb=GetRecord&Identifier=oai:aps.org:PhysRevE.78.026113&metadataPrefix=oai_apsmeta_2
doi: 10.1103/PhysRevE.78.026113
[View at Publisher](#)
- ☐ 3 Cheng, M., Wu, G., Yuan, M., Wan, H.
Semi-supervised software defect prediction using task-driven dictionary learning

(2016) *Chinese Journal of Electronics*, 25 (6), pp. 1089-1096. Cited 11 times.
http://www.ejournal.org.cn/web_cje/EN/article/downloadArticleFile.do?attachType=PDF&id=9868
doi: 10.1049/cje.2016.08.034
[View at Publisher](#)
- ☐ 4 Choudhary, A., Baghel, A.S., Sangwan, O.P.
Efficient parameter estimation of software reliability growth models using harmony search

(2017) *IET Software*, 11 (6), pp. 286-291. Cited 4 times.
www.ietdl.org/IET-SEN
doi: 10.1049/iet-sen.2015.0171
[View at Publisher](#)