

Web of Science

Search

Search Results

My Tools ▾

Search History

Marked List

 Look Up Full Text


Save to EndNote online ▾

Add to Marked List

1 of 1

A comparative study of clonal selection algorithm for effluent removal forecasting in septic sludge treatment plant

By: **Chun, TS** (Chun, Ting Sie)^[1]; **Malek, MA** (Malek, M. A.)^[2]; **Ismail, AR** (Ismail, Amelia Ritahani)^[3]

WATER SCIENCE AND TECHNOLOGY

Volume: 71 Issue: 4 Pages: 524-528

DOI: 10.2166/wst.2014.451

Published: 2015

[View Journal Impact](#)

Abstract

The development of effluent removal prediction is crucial in providing a planning tool necessary for the future development and the construction of a septic sludge treatment plant (SSTP), especially in the developing countries. In order to investigate the expected functionality of the required standard, the prediction of the effluent quality, namely biological oxygen demand, chemical oxygen demand and total suspended solid of an SSTP was modelled using an artificial intelligence approach. In this paper, we adopt the clonal selection algorithm (CSA) to set up a prediction model, with a well-established method - namely the least-square support vector machine (LS-SVM) as a baseline model. The test results of the case study showed that the prediction of the CSA-based SSTP model worked well and provided model performance as satisfactory as the LS-SVM model. The CSA approach shows that fewer control and training parameters are required for model simulation as compared with the LS-SVM approach. The ability of a CSA approach in resolving limited data samples, nonlinear sample function and multidimensional pattern recognition makes it a powerful tool in modelling the prediction of effluent removals in an SSTP.

Keywords

Author Keywords: biological oxygen demand; chemical oxygen demand; clonal selection algorithm; least-square support vector machine; septic sludge treatment plant; total suspended solids

KeyWords Plus: WASTE-WATER TREATMENT; ARTIFICIAL IMMUNE-SYSTEMS; NEURAL-NETWORKS; PERFORMANCE; PREDICTION

Author Information

Reprint Address: Chun, TS (reprint author)

+ Univ Tenaga Nas, Dept Civil Engn, IKRAM UNITEN Rd, Kajang 43000, Selangor, Malaysia.

Addresses:

+ [1] Univ Tenaga Nas, Dept Civil Engn, Kajang 43000, Selangor, Malaysia

+ [2] Univ Tenaga Nas, Inst Energy Policy & Res IEPRE, Kajang 43000, Selangor, Malaysia

+ [3] Int Islamic Univ Malaysia, Dept Comp Sci, Kulliyyah Informat & Commun Technol, Kuala Lumpur 50728, Malaysia

E-mail Addresses: sie_chun@hotmail.com

Publisher

IWA PUBLISHING, ALLIANCE HOUSE, 12 CAXTON ST, LONDON SW1H0QS, ENGLAND

Categories / Classification

Citation Network

0 Times Cited

[31 Cited References](#)

[View Related Records](#)



[Create Citation Alert](#)

(data from Web of Science Core Collection)

All Times Cited Counts

0 in All Databases

0 in Web of Science Core Collection

0 in BIOSIS Citation Index

0 in Chinese Science Citation Database

0 in Data Citation Index

0 in Russian Science Citation Index

0 in SciELO Citation Index

Usage Count

Last 180 Days: 1

Since 2013: 6

[Learn more](#)

This record is from:

Web of Science Core Collection
- Science Citation Index Expanded

Suggest a correction

If you would like to improve the quality of the data in this record, please [suggest a correction](#).

Research Areas: Engineering; Environmental Sciences & Ecology; Water Resources

Web of Science Categories: Engineering, Environmental; Environmental Sciences; Water Resources

Document Information

Document Type: Article

Language: English

Accession Number: WOS:000351214400009

PubMed ID: 25746643

ISSN: 0273-1223

eISSN: 1996-9732

Journal Information

Impact Factor: [Journal Citation Reports](#)

Other Information

IDS Number: CD6QP

Cited References in Web of Science Core Collection: 31

Times Cited in Web of Science Core Collection: 0

