HỌC VIỆN NÔNG NGHIỆP VIỆT NAM

GIỚI THIỆU
NHÓM NGHIÊN CỨU MẠNH MÁY VÀ THIẾT BỊ NÔNG NGHIỆP

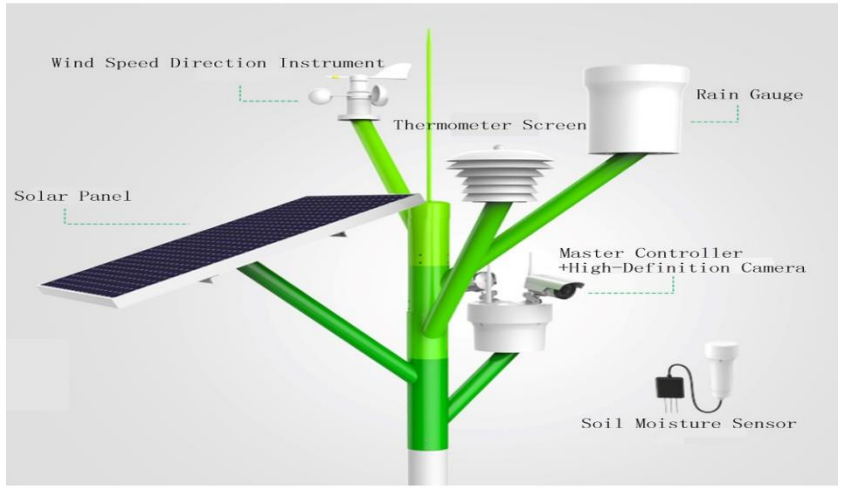
Hà Nội, ngày 21 tháng 5 năm 2025

NỘI DUNG

1. Phần 1: Giới thiệu chung
2. Phần 2: Một số kết quả nghiên cứu
3. Phần 3: Định hướng nghiên cứu
4. Phần 4: Chính sách thu hút

GIỚI THIỆU CHUNG

GIỚI THIỆU CHUNG



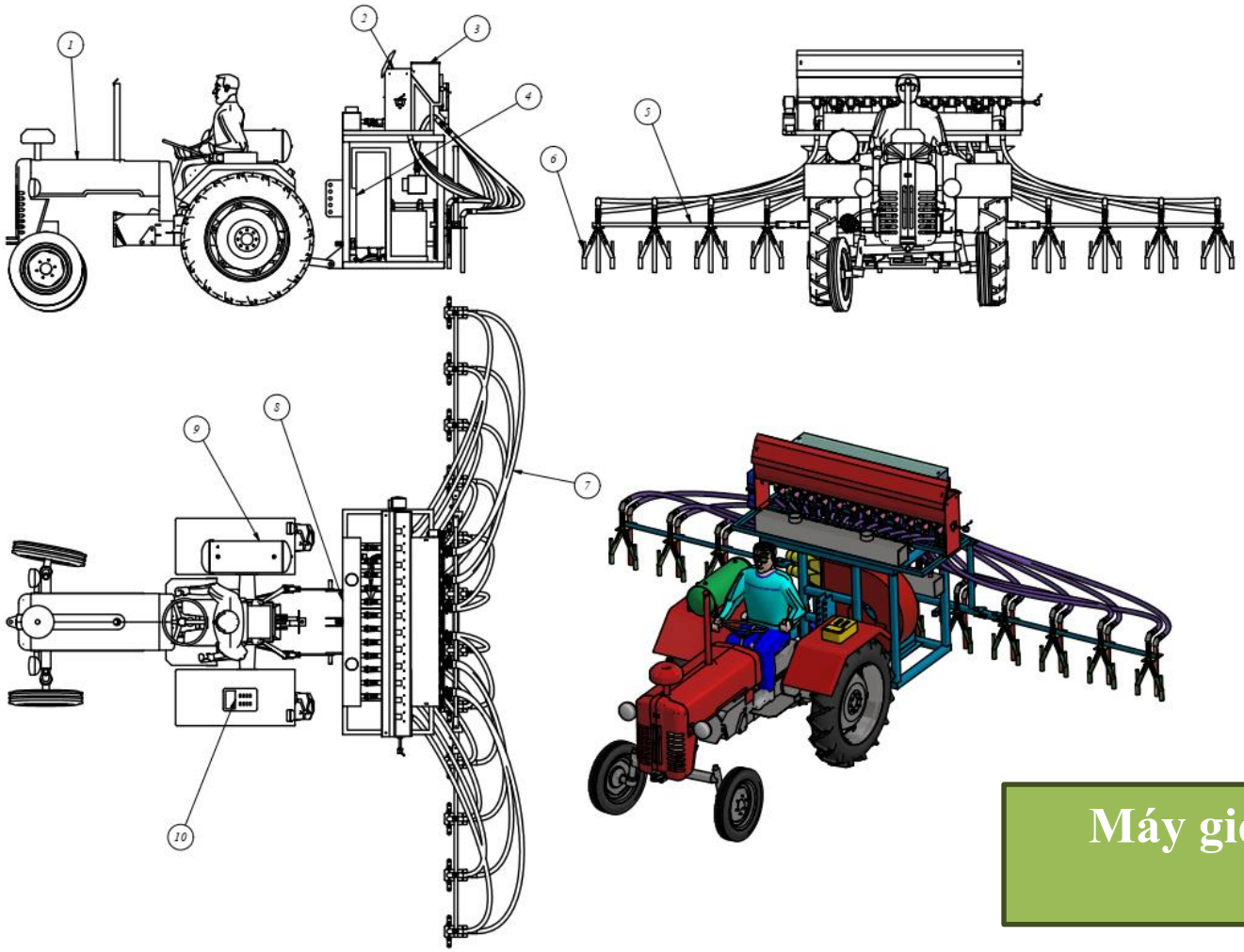
Máy và thiết bị nông nghiệp trong kỷ nguyên số

GIỚI THIỆU CHUNG

STT	Họ và tên	Chức vụ
1	TS. Nguyễn Thanh Hải	Trưởng nhóm
2	ThS. Lương Thị Minh Châu	Thư ký
3	PGS.TS. Trần Như Khuyên	Thành viên
4	PGS.TS. Hoàng Đức Liên	Thành viên
5	TS. Lê Vũ Quân	Thành viên
6	TS. Dương Thành Huân	Thành viên
7	TS. Trần Như Khánh	Thành viên
8	TS. Ngô Thị Hiền	Thành viên
9	ThS. Hoàng Xuân Anh	Thành viên
10	ThS. Lê Văn Dũng	Thành viên
11	ThS. Nguyễn Đức Dương	Thành viên
12	ThS. Nguyễn Thị Châu	Thành viên
13	KS. Nguyễn Văn Việt	Thành viên

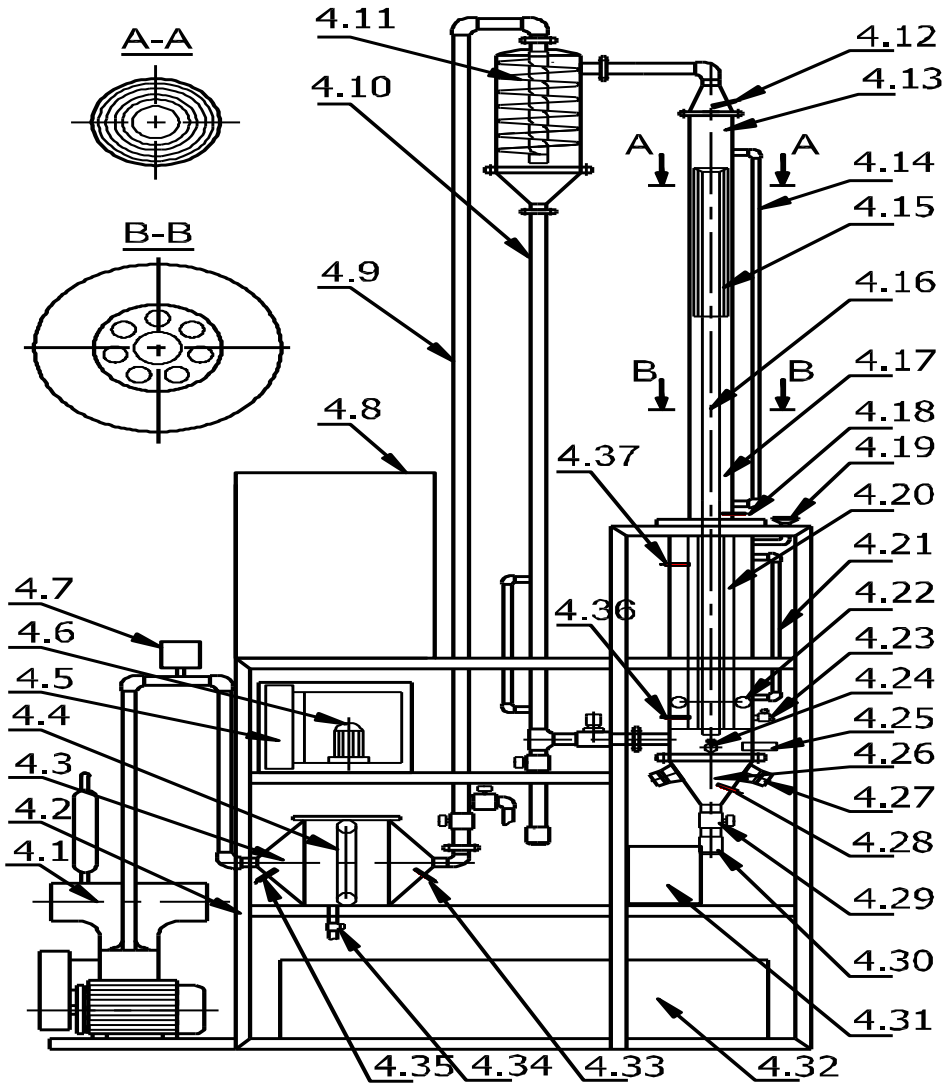
- 2 PGS. TS; 5 TS; 5 ThS 1 KS
- Liên hệ: P201, Khoa Cơ-Điện, HVNNVN
  ĐT: 0938 297 942

MỘT SỐ KẾT QUẢ NGHIÊN CỨU



Máy gieo sạ lúa kết hợp bón phân theo hàng với sự trợ giúp của khí nén

MỘT SỐ KẾT QUẢ NGHIÊN CỨU



QUYẾT ĐỊNH:

Điều 1. Chấp nhận đơn hợp lệ với những ghi nhận sau đây:

Số đơn: 1-2022-08141 Ngày nộp đơn: 13/12/2022

Chủ đơn(*): HỌC VIỆN NÔNG NGHIỆP VIỆT NAM (VN)

Địa chỉ: Trâu Quỳ, Gia Lâm, Hà Nội

Tên sáng chế: THIẾT BỊ CÔ ĐẶC KIỂU CHÂN KHÔNG KẾT HỢP SÓNG SIÊU ÂM

Điều 2. Công bố đơn trên Công báo Sở hữu công nghiệp theo quy định tại điểm 14.2.a và thẩm định nội dung trong trường hợp có yêu cầu theo quy định tại điểm 25.1 của Thông tư số 01/2007/TT-BKHCN.

Điều 3. Chánh Văn phòng, Trưởng phòng Đăng ký và Giám đốc Trung tâm Thông tin sở hữu công nghiệp chịu trách nhiệm thi hành Quyết định này./.

Nơi nhận:
- Người nộp đơn;
- Lưu: VT, HS.

KT. CỤC TRƯỞNG
PHÓ CỤC TRƯỞNG

CỤC SỞ HỮU TRÍ TUỆ

Trần Lê Hồng

Thiết bị Cô đặc kiểu chân không kết hợp sóng siêu âm

MỘT SỐ KẾT QUẢ NGHIÊN CỨU

QUYẾT ĐỊNH:

Điều 1. Chấp nhận đơn hợp lệ với những ghi nhận sau đây:
Số đơn: 1-2023-07267 Ngày nộp đơn: 19/10/2023
Người nộp đơn(*): Học viện Nông nghiệp Việt Nam (VN)
Địa chỉ: Thị Trấn Trâu Quỳ, huyện Gia Lâm, thành phố Hà Nội
Tên sáng chế: THIẾT BỊ SẢN XUẤT MUỐI BIỂN THEO CÔNG NGHỆ BAY HƠI 3 CHIỀU

Điều 2. Công bố đơn trên Công báo Sở hữu công nghiệp theo quy định tại khoản 2 Điều 110 và thẩm định nội dung để đánh giá khả năng cấp văn bằng bảo hộ trong trường hợp có yêu cầu theo quy định tại điểm a khoản 1 Điều 114 của Luật Sở hữu trí tuệ.

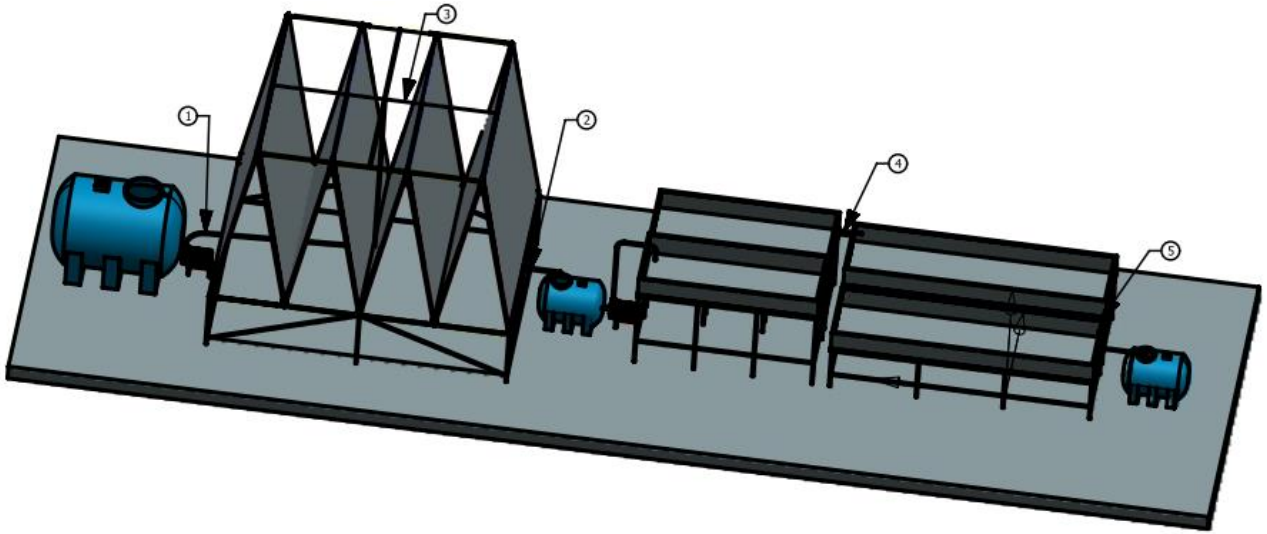
Điều 3. Quyết định này có hiệu lực kể từ ngày ký. Chánh Văn phòng Cục, Trưởng phòng Đăng ký, Giám đốc Trung tâm Thẩm định Sáng chế và Giám đốc Trung tâm Thông tin sở hữu công nghiệp chịu trách nhiệm thi hành Quyết định này./.

Nơi nhận:
- Như Điều 3;
- Người nộp đơn;
- Lưu: VT, HS.

KT. CỤC TRƯỞNG
PHÓ CỤC TRƯỞNG

CỤC SỞ HỮU TRÍ TUỆ

Lê Huy Anh



Thiết bị sản xuất muối biển theo công nghệ bay hơi 3 chiều (E3D)

MỘT SỐ KẾT QUẢ NGHIÊN CỨU

Máy sấy lạnh STH -2

Máy sấy vỉ ngang

Máy sấy phun

Máy trồng và chăm sóc cây sắn

MỘT SỐ KẾT QUẢ NGHIÊN CỨU

Neural Computing and Applications
https://doi.org/10.1007/s00521-021-06238-6

ORIGINAL ARTICLE

Assessment of critical buckling load o using artificial neural network modeli

Huan Thanh Duong[1] · Hieu Chi Phan[2] · Tu Minh Tran[3]

Received: 17 October 2020 / Accepted: 13 June 2021

Abstract
Predicting the critical buckling loads of functionally graded solving complex equations with various modes of deforma complex for application in engineering practice. In this pa (ANN) is proposed for the critical buckling load of FGM plat is first developed for randomly selected inputs using an analyt simply supported FGM plates. The database is then divided in with 20% of the data for developing and validating, respecti hidden layers with 32 nodes in each layer is found to match t the ANN model, the stochastic characteristic of the critical b input parameters. The study reveals that along with the dime affected by the randomness of the volume fraction ratio and r

Keywords Functionally graded material · Buckling analysis Artificial neural network · Monte Carlo simulation

applied sciences
MDPI

Article

Application of a Similarity Measure Using Fuzzy Sets to Select the Optimal Plan for an Air-Assisted Rice Seeder

Nguyen Thanh Hai [1,*], Tadashi Chosa [2,*], Seishu Tojo [2] and Ngo Thi-Hien [1]

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2 Institute of Agriculture, Division of Environmental and Agricultural Engineering, Tokyo University of Agriculture and Technology, 3-5-8 Saiwai-cho, Fuchu-shi, Tokyo 183-8538, Japan; tojo@cc.tuat.ac.jp
* Correspondence: nthai@vnua.edu.vn (N.T.H.); chosa@cc.tuat.ac.jp (T.C.)

Abstract: Air-assisted rice seeders were designed to perform sowing while ensuring the alignment and depth of seeds within the allowable standard range of 5–10 mm. Their performance varies on the basis of different specifications; thus, it is necessary to evaluate them to select the best one. Fuzzy set theory allows us to flexibly handle practical problems, especially applied problems in engineering. In this paper, a new similarity measure using fuzzy sets is proposed, and its advantages were tested using the technique for order preference by similarity to ideal solution (TOPSIS) method to select technical parameters for the sowing machines. The experiments allowed identifying the best results. The correlations between input attributes and decision variables were determined on the basis of their correlation coefficients with technical factors. The influence of technical factors on output results was also examined to determine the technical factors providing superior product quality.

Keywords: sowing machines; air-assisted rice seeder; rice direct seeding; similarity measure of fuzzy sets; optimal plan

check for updates

Citation: Hai, N.T.; Chosa, T.; Tojo, S.; Thi-Hien, N. Application of a Similarity Measure Using Fuzzy Sets to Select the Optimal Plan for an Air-Assisted Rice Seeder. *Appl. Sci.* **2021**, *11*, 6715. https://doi.org/10.3390/app11156715

1. Introduction

Rice direct seeding is used in paddy cultivation due to its low labor requirements and reduced production cost [1,2]. Air-assisted direct seeding machines were studied by

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Structures

journal homepage: www.elsevier.com/locate/structures

sign of rectangular concrete-filled steel tube short columns Composite Motion Optimization and data-driven model

, Hieu Chi Phan[b,*], Tien-Thinh Le[c,e], Nang Duc Bui[d]

ational University of Agriculture, Trau Quy, Gia Lam, Hanoi 100000, Viet Nam
236 Hoang Quoc Viet, Hanoi 100000, Viet Nam
y Institute (PRATI), A&A Green Phoenix Group, 167 Hoang Ngan, Hanoi 11313, Viet Nam
236 Hoang Quoc Viet, Hanoi 100000, Viet Nam
and Mechatronics, Phenikaa University, Hanoi 12116, Viet Nam

ABSTRACT

Concrete-filled steel tube (CFT) are widely used as critical members for various types of structures such as bridges, high-rise buildings etc. However, there is a lack of proper models in standards to calculate the capacity of CFT members especially for high strength steel and concrete. This leads to various experiments and simulations conducted and provided in literature and a data-driven is a potential candidate with such plenty of data. The developed model used Artificial Neural Network, ANN, and this model well performed on the test set with R^2 is up to 0.9899. Consequently, the ANN model is incorporated with a novel optimization algorithm, the Balancing Composite Motion Optimization - BCMO, recently proposed by Le-Duc et al. This new algorithm is compared with other existing algorithms including: Differential Evolution, Dual Annealing and Second-harmonic generation, to observe the differences among these algorithms. The parameter study of the number of individuals and the maximum generations of the BCMO also conducted for further investigations. Finally, taking the advantage of computationally cost saving of the BCMO, the ANN is again conducted with the inputs is the length and the load applied on the short columns and the output is the objective functions. This ANN is a high accuracy model with R^2 is 0.9984, which aimed to provide the designer a rough prediction of the Objective function, which especially useful when the monetary unit cost of materials used is available.

imization

e (CFT) members are widely used in various
ers or bridges [1–3] because of the strength of
proved and the local buckling of the outside
th the inside concrete. The interacting effect
ed concrete and the steel plate with concrete
ne side or the properties of the concrete-steel
ful to be examined. This uncertainty leads to
nd simulation with Finite Element Analysis
haracteristic for not only short columns with
so other structural members under various
nding, torsion or combined loads [4,16–20].
ome drawbacks from codes that constrained
mbers. (I) Many studies such as [5] and [21]
of available standards due to the limitation
AISC 360-16 [22] or Eurocode 4 [23]. The

models for high strength steel and concrete for CFT member thus formally unavailable even though there is a plenty of data from experiment and Finite Element Analysis (FEA) in literature. Fortunately, the lack of conventional model from standard can be ease by data-driven models. Based on the database labeled by the interested variables, a machine learning model such as Artificial Neural Network (ANN) can well predict the unfamiliar input data.

Introduced in 1943 by McCulloch and Pitts [24], ANN is a system where neurals or nodes are weightedly connected and the weights is optimized through the training process. With various successes such as image recognition [25], Restricted Boltzmann Machines [26], Deep Belief Net [27], auto-encoders [28], ANN is as an important tool in machine learning [29] and becomes a critical member of soft computing [30–32]. For CFT, many studies available in literature taking the advantage of data-driven model and the existing database to develop the estimation on the behaviour of CFT structural members [33–43]. For instance, Ahmadi et al. [34] developed an ANN model to predict the

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ed in revised form 29 July 2020; Accepted 3 September 2020

MỘT SỐ KẾT QUẢ NGHIÊN CỨU

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Structures and Stress Analysis

Analysis and optimization for buc behavior of functionally graded fa layers and porous core sandwich resting on pasternak elastic foun

Duong Thanh Huan[1] and Le Tien Thinh[2,3]

Abstract

In this paper, the first-order shear deformation theory (FSD buckling analysis of functionally graded material—porous—fun plate resting on Pasternak elastic foundation. The top and bc materials that vary according to the exponential law along the a porous material. The governing equations are derived by usir on the Navier's solution, the displacements are obtained to compared with existing published literature showing the acc studies investigate the effects of material parameters, geometr thickness ratios on the critical buckling load of the rectangular loading, the critical bucking load is almost twice for the case index. For all the cases of face-core-face thickness ratio, t porosity coefficient. The porosity coefficient is crucial wher times bigger than the volume of the face layer. Optimizatior critical buckling load and (ii) optimize the input variables cc The proposed study aims to provide valuable insights into plates in various engineering fields, contributing to the components.

Keywords

Functionally graded materials (FGM), Porous material, Sa Buckling analysis, Pasternak elastic foundation, Optimizatior

Date received: 7 August 2024; accepted: 3 December 2024

Research Article

Advances in Mechanical Engineering

Advances in Mechanical Engineering 2023, Vol. 15(5) 1–17
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Sage

Optimization of Neural Network architecture and derivation of closed-form equation to predict ultimate load of functionally graded material plate

Tien-Thinh Le[1,2], Huan Thanh Duong[3] and Hieu Chi Phan[4]

Abstract

Functionally Graded Material (FGM) plate is a complicated structure with complex allocation of spatially changing proportions of ceramic and metal within the matter. Various analytical and numerical methods have been applied with a view to evaluating the critical load of FGM plate. However, these conventional methods struggle when the computational complexity is significant, which represents an obstacle to incorporation with other advanced techniques where computational power is required (e.g. optimization or random simulations). The Neural Network (NNet) model has been successfully applied to resolve this issue. However, the conventional NNet requires proper configuration to take advantage of the model, and thus, careful parameter tuning is required. Furthermore, the NNet is typically a "black box," where the prediction mechanism is hidden. This paper establishes an optimized architecture for NNet, with parametric study of the model's hyperparameters. Variance propagation is also applied to observe the variation of the model's performance on random sub-databases splintered from the database. To this end, the explicit expression of the trained NNet model is provided after mathematically deploying the hidden algebra behind an NNet prediction. The developed model has very promising evaluation metrics: R^2, MAE, and RMSE on the test set are 0.999925, 0.067516, and 0.146438, respectively.

Keywords

Functionally graded material, buckling analysis, Neural Network, Monte Carlo simulation

Date received: 17 January 2023; accepted: 21 April 2023

Handling Editor: Chenhui Liang

Introduction

Originating in Japan in the 1980s as thermally resistant material for aerospace vehicles,[1,2] Functionally Graded Material (FGM) plate is an advanced structure which has a spatially changing mixture of ceramic and metal constituents. This mixture improves the material's fire resistance and stiffness, due to the inclusion of ceramic as compared to a purely metal material. Conversely, the ductility of metal compensates for the brittleness of ceramic. The history of the FGM and its applications

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[4]Department of Civil Engineering, Faculty of Engineering and Applied Science, Memorial University of Newfoundland, St. John's, NL, Canada

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International Journal of Pressure Vessels and Piping

journal homepage: www.elsevier.com/locate/ijpvp

Vibration characteristics of rotating functionally graded circular cylindrical shell with variable thickness under thermal environment

Tran Huu Quoc[a], Duong Thanh Huan[b,*], Hoang Thu Phuong[a]

[a] National University of Civil Engineering, 55 Giai Phong, Hanoi, 100000, Viet Nam
[b] Vietnam National University of Agriculture, Gia Lam, Hanoi, 100000, Viet Nam

ARTICLE INFO

Keywords:
Rotating cylindrical shells
Free vibration analysis
FGM
FSDT
Variable thickness
Thermal environment

ABSTRACT

This paper deals with the vibration characteristics of rotating functionally graded circular cylindrical shells (FG-CS). The thickness of the shell varies linearly along the longitudinal direction. The material properties are graded continuously with a power law (P-FGM) in the radial direction and depend on the temperature. The system of motion equation is established by using the first-order shear deformation theory (FSDT) and Hamilton's principle. The model considers the effects of centrifugal forces, Coriolis forces, and initial hoop tension due to rotation. The natural frequencies of the shells with various boundary conditions are obtained by Galerkin's method. Several competition examples validated the accuracy of the present model. Some numerical studies are then conducted to identify the effects of rotational speed, material properties, geometrical parameters, and boundary conditions (BCs) on the vibration response of rotating FG-CS in detail.

1. Introduction

Functionally graded materials (FGMs) are advanced materials designed to possess properties varying continuously and smoothly within the structure. Typically, the FGMs are composed of metal and ceramic. The ceramic constituent of FGMs provides an excellent heat-resistant property thanks to its low thermal conductivity, and the metal constituent provides crack-resistant wealth. Because of these beneficial properties, the FGMs are used in many engineering applications, especially in applications under the thermal environment. The rotating cylindrical shells (RO-CS) have a widespread application in many industrial applications, such as high-speed centrifugal separators, marine, aerospace, locomotive engines, gas turbines, rotor system … In practical applications, the cylindrical shell (CS) may be designed with variable thickness because it can help achieve a weight reduction. Thus, research on rotating FG-CS with variable thickness under the thermal environment is of great value in engineering.

In the literature, vibration responses of RO-CS have been focused on research by scientists. Chen et al. [1] investigated vibration presented responses of high-speed rotating shells of revolution using both analytical and finite element formulation. Based on Love's shell theory (LST), Lam and Loy [2] analyzed vibration of thin laminated RO-CS, including centrifugal, initial hoop tension, and Coriolis forces. Lam and his colleague also published another study about laminated RO-CS based on Donnell, Flugge, Love, and Sander's theories in Ref. [3]. Using the Rayleigh-Ritz procedure and LST, Lee and Kim [4,5] investigated the free vibration responses of rotating composite orthogonally stiffened CS with some general BCs. Lam and Qian [6], Zhang [7], and Zhao et al. [8] investigated vibration characteristics of the rotating cross-ply laminated composite CS by using the Navier method, wave propagation method, and an energy approach, respectively. Tu and Loi [9] applied smeared stiffeners technique for an analytical model based on LST to investigate the rotating FG-CS vibration problem reinforced by orthogonal stiffeners. Xuan-Hung Dang et al. [10] used Love's shell theory and Hamilton's principle to derive the governing equations and investigate vibration response of the rotating FG porous CS with different boundary conditions. In Ref. [11], another model based on LST for vibration characteristics of thin fibre–metal laminate RO-CS has been carried out by Ghasemi and Mohandes. Talebitooti [12] investigated the free vibrations of rotating FG-CS. In which, the three-dimensional theory (3D), and Hamilton's principle are used for deriving equations of motion. Recently, an analytical approach based on the FSDT, Chebyshev polynomials, and Rayleigh-Ritz method is proposed by Qin et al. [13] for free vibration behavior of rotating laminated FG-CS reinforced by carbon nanotubes with arbitrary boundary condition. Besides, the vibration behavior of RO-CS has been examined by several researchers, using

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Available online 10 June 2021
0308-0161/

HVN Học viện Nông nghiệp Việt Nam

Chung kết cuộc thi Ý tưởng khởi nghiệp APEC INNOVATION đã xuất sắc đạt giải 3 chung cuộc

CÁC HƯỚNG NGHIÊN CỨU CHÍNH

- **Cơ giới hóa sản xuất trồng trọt**: Thiết kế, chế tạo máy móc phục vụ sản xuất quy mô lớn (lúa, ngô, rau quả...) và vùng đồi núi, nhà kính.
- **Chế biến & bảo quản nông sản**: Máy và thiết bị sơ chế, bảo quản, chế biến sâu lúa gạo, sắn, rau quả, thịt, thủy sản... Chế biến và giảm tổn thất sau thu hoạch.
- **Cơ giới hóa chăn nuôi**: Máy móc phục vụ chăn nuôi, vệ sinh chuồng trại, chế biến và bảo quản thức ăn (tươi, bột, viên).
- **Trang bị chuồng trại & xử lý chất thải**: Thiết bị phù hợp vùng nông thôn, công nghệ xử lý chất thải hiệu quả.

CHÍNH SÁCH THU HÚT HỢP TÁC & SINH VIÊN THAM GIA NGHIÊN CỨU

◆ Tăng cường hợp tác đa chiều

- ❖ Kết nối với viện nghiên cứu, doanh nghiệp trong & ngoài nước
- ❖ Phối hợp phát triển sản phẩm, chuyển giao công nghệ, thương mại hóa kết quả nghiên cứu

◆ Thu hút & hỗ trợ sinh viên, học viên, NCS

- ❖ Tham gia nhóm nghiên cứu từ năm nhất đại học
- ❖ Hỗ trợ kinh phí nghiên cứu, giới thiệu thực tập tại doanh nghiệp
- ❖ Hướng dẫn trực tiếp qua đề tài ứng dụng thực tiễn

◆ Phát triển môi trường nghiên cứu hiện đại

- ✓ Tổ chức seminar khoa học, khóa đào tạo ngắn hạn
- ✓ Hình thành đội ngũ kỹ sư, nhà khoa học trẻ năng động, sáng tạo