

教授證書

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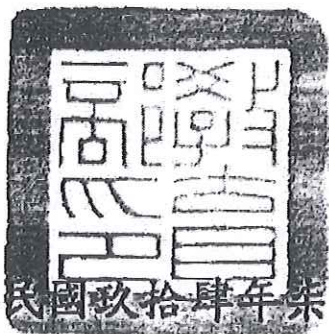
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was elected to

Fellow

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2019 發表之論文 (*表示通訊作者)

- ✓ [1] (C.-J. Lin*) and C.-H. Lin (2019) "An Adaptive-group-based Differential Evolution Algorithm for Inspecting Machined Workpiece Path Planning," *International Journal of Advanced Manufacturing Technology*, Vol. 105, Issue 5–6, Nov. 2019, pp. 2647–2657, DOI <https://doi.org/10.1007/s00170-019-04521-4>. (SCIE)
- ✓ [2] (C.-J. Lin*), X.-Y. Lin, and J.-Y. Jhang (2019) "Unstable System Control Using an Improved Particle Swarm Optimization-Based Neural Network Controller," *Electronics*, Vol. 8, Issue 11, Nov. 2019, pp. 1302; <https://doi.org/10.3390/electronics8111302> (SCIE)
- ✓ [3] C.-H. Lin, S.-H. Wang, and (C.-J. Lin*) (2019) "Using Convolutional Neural Networks for Character Verification on Integrated Circuit Components of Printed Circuit Boards," *Applied Intelligence*, Vol. 49, Issue 11, pp 4022–4032, Nov. 2019, DOI: 10.1007/s10489-019-01486-5. (SCIE)
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Using a Type-2 Neural Fuzzy Controller for Navigation Control of Evolutionary Robots

作者: Lin, CJ (Lin, Cheng-Jian)^[1]; Jhang, JY (Jhang, Jyun-Yu)^[2]; Young, KY (Young, Kuu-Young)^[2]

SENSORS AND MATERIALS

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摘要

In this paper, we present an effective navigation control method for mobile robots in an unknown environment. The proposed behavior manager (BM) switches between two behavioral control patterns, wall-following behavior (WFB) and toward-goal behavior (TGB), on the basis of the relationship between the mobile robot and the unknown environment. A type-2 neural fuzzy controller (T2NFC) with an improved whale optimization algorithm (IWOA) is proposed to provide WFB control and obstacle avoidance for mobile robots. In the WFB learning process, the input signal of a controller is the distance between the wall and the sonar sensors, and its output signal is the speed of two wheels of a mobile robot. A fitness function, which operates on the total distance traveled by the mobile robot, distance from the side wall, angle to the side wall, and moving speed, evaluates the WFB performance of the mobile robot. Experimental results reveal that the proposed IWOA is superior to other methods of WFB and navigation control.

關鍵字

作者關鍵字: [mobile robot](#); [type-2 fuzzy neural controller](#); [whale optimization algorithm](#); [navigation control](#); [wall-following control](#)KeyWords Plus: [WHALE OPTIMIZATION](#); [MOBILE-ROBOT](#); [ALGORITHM](#); [SWARM](#)

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An adaptive-group-based differential evolution algorithm for inspecting machined workpiece path planning

作者: Lin, CJ (Lin, Cheng-Jian)^[1]; Lin, CH (Lin, Chun-Hui)^[2]

INTERNATIONAL JOURNAL OF ADVANCED MANUFACTURING TECHNOLOGY

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摘要

In the precision manufacturing process, accuracy and precision are crucial when designing a workpiece inspection system. An efficient system minimizes inefficiencies caused by workpieces failing to meet customer needs and delays caused by slow workpiece inspection. In this study, a workpiece inspection system for measuring path planning is proposed that uses the given coordinate of inspection points discerned from 3D images. Then, an adaptive-group-based differential evolution (AGDE) algorithm is used to optimize the measuring path. The AGDE algorithm incorporates the grouping concept into conventional differential evolution, and this improves local search ability through referencing the direction of the best solution in each group. By using the proposed method, the shortest non-colliding measuring path is obtained. Moreover, the proposed workpiece inspection system shortens the workpiece inspection time and achieves faster performance than manual measuring path planning under multiple workpiece inspection points.

關鍵字

作者關鍵字: [Path planning](#); [Workpiece inspection](#); [Differential evolution](#); [Grouping](#); [Measurement](#)KeyWords Plus: [GENETIC ALGORITHM](#)

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Unstable System Control Using an Improved Particle Swarm Optimization-Based Neural Network Controller

作者: Lin, CJ (Lin, Cheng-Jian)^[1]; Lin, XY (Lin, Xin-You)^[1]; Jhang, JY (Jhang, Jyun-Yu)^[1]

檢視 Web of Science ResearcherID 和 ORCID

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摘要

In this study, an improved particle swarm optimization (IPSO)-based neural network controller (NNC) is proposed for solving a real unstable control problem. The proposed IPSO automatically determines an NNC structure by a hierarchical approach and optimizes the parameters of the NNC by chaos particle swarm optimization. The proposed NNC based on an IPSO learning algorithm is used for controlling a practical planetary train-type inverted pendulum system. Experimental results show that the robustness and effectiveness of the proposed NNC based on IPSO are superior to those of other methods.

關鍵字

作者關鍵字: neural networks; chaos; nonlinear control; inverted pendulum system; particle swarm optimization

KeyWords Plus: INVERTED PENDULUM

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Using a Reinforcement Q-Learning-Based Deep Neural Network for Playing Video Games

作者: Lin, CJ (Lin, Cheng-Jian)^[1]; Jhang, JY (Jhang, Jyun-Yu)^[2]; Lin, HY (Lin, Hsueh-Yi)^[1]; Lee, CL (Lee, Chin-Ling)^[3]; Young, KY (Young, Kuu-Young)^[2]

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摘要

This study proposed a reinforcement Q-learning-based deep neural network (RQDNN) that combined a deep principal component analysis network (DPCANet) and Q-learning to determine a playing strategy for video games. Video game images were used as the inputs. The proposed DPCANet was used to initialize the parameters of the convolution kernel and capture the image features automatically. It performs as a deep neural network and requires less computational complexity than traditional convolution neural networks. A reinforcement Q-learning method was used to implement a strategy for playing the video game. Both Flappy Bird and Atari Breakout games were implemented to verify the proposed method in this study. Experimental results showed that the scores of our proposed RQDNN were better than those of human players and other methods. In addition, the training time of the proposed RQDNN was also far less than other methods.

關鍵字

作者關鍵字: convolution neural network; deep principal component analysis network; image sensor; reinforcement learning; Q-learning; video game

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Evolutionary-Fuzzy-Integral-Based Convolutional Neural Networks for Facial Image Classification

作者: [Lin, CJ](#) (Lin, Cheng-Jian)^[1]; [Lin, CH](#) (Lin, Chun-Hui)^[2]; [Sun, CC](#) (Sun, Chi-Chia)^[3]; [Wang, SH](#) (Wang, Shyh-Hau)^[2]

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摘要

Various optimization methods and network architectures are used by convolutional neural networks (CNNs). Each optimization method and network architecture style have their own advantages and representation abilities. To make the most of these advantages, evolutionary-fuzzy-integral-based convolutional neural networks (EFI-CNNs) are proposed in this paper. The proposed EFI-CNNs were verified by way of face classification of age and gender. The trained CNNs' outputs were set as inputs of a fuzzy integral. The classification results were operated using either Sugeno or Choquet output rules. The conventional fuzzy density values of the fuzzy integral were decided by heuristic experiments. In this paper, particle swarm optimization (PSO) was used to adaptively find optimal fuzzy density values. To combine the advantages of each CNN type, the evaluation of each CNN type in EFI-CNNs is necessary. Three CNN structures, AlexNet, very deep convolutional neural network (VGG16), and GoogLeNet, and three databases, computational intelligence application laboratory (CIA), Morph, and cross-age celebrity dataset (CACD2000), were used in experiments to classify age and gender. The experimental results show that the proposed method achieved 5.95% and 3.1% higher accuracy, respectively, in classifying age and gender.

關鍵字

作者關鍵字: [convolutional neural network](#); [fuzzy integral](#); [particle swarm optimization](#); [image processing](#); [classification](#)

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Efficient hybrid group search optimizer for assembling printed circuit boards

作者: Lin, CJ (Lin, Cheng-Jian)^[1]; Huang, ML (Huang, Mei-Ling)^[2]

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AI EDAM-ARTIFICIAL INTELLIGENCE FOR ENGINEERING DESIGN ANALYSIS AND MANUFACTURING

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摘要

Assembly optimization of printed circuit boards (PCBs) has received considerable research attention because of efforts to improve productivity. Researchers have simplified complexities associated with PCB assembly; however, they have overlooked hardware constraints, such as pick-and-place restrictions and simultaneous pickup restrictions. In this study, a hybrid group search optimizer (HGSO) was proposed. Assembly optimization of PCBs for a multihead placement machine is segmented into three problems: the (1) auto nozzle changer (ANC) assembly problem, (2) nozzle setup problem, and (3) component pick-and-place sequence problem. The proposed HGSO proportionally applies a modified group search optimizer (MGSO), random-key integer programming, and assigned number of nozzles to an ANC to solve the component picking problem and minimize the number of nozzle changes, and the place order is treated as a traveling salesman problem. Nearest neighbor search is used to generate an initial place order, which is then improved using a 2-opt method, where chaos local search and a population manager improve efficiency and population diversity to minimize total assembly time. To evaluate the performance of the proposed HGSO, real-time PCB data from a plant were examined and compared with data obtained by an onsite engineer and from other related studies. The results revealed that the proposed HGSO has the lowest total assembly time, and it can be widely employed in general multihead placement machines.

關鍵字

作者關鍵字: Component pick-and-place sequence; group search optimizer; multihead placement machine; PCB assembly; surface mount technology

KeyWords Plus: PARTICLE SWARM OPTIMIZATION; SCHEDULING PROBLEM; ECONOMIC-DISPATCH; GENETIC ALGORITHM; OPERATION; DESIGN

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Multiple Convolutional Neural Networks Fusion Using Improved Fuzzy Integral for Facial Emotion Recognition

作者: Lin, CJ (Lin, Cheng-Jian)^[1]; Lin, CH (Lin, Chun-Hui)^[2]; Wang, SH (Wang, Shyh-Hau)^[2,3]; Wu, CH (Wu, Chen-Hsien)^[1]

APPLIED SCIENCES-BASEL

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DOI: 10.3390/app9132593

出版: JUL 1 2019

文件類型: Article

檢視期刊影響力

摘要

Facial expressions are indispensable in human cognitive behaviors since it can instantly reveal human emotions. Therefore, in this study, Multiple Convolutional Neural Networks using Improved Fuzzy Integral (MCNNs-IFI) were proposed for recognizing facial emotions. Since effective facial expression features are difficult to design; deep learning CNN is used in the study. Each CNN has its own advantages and disadvantages, thus combining multiple CNNs can yield superior results. Moreover, multiple CNNs combined with improved fuzzy integral, in which its fuzzy density value is optimized through particle swarm optimization (PSO), overcomes the majority decision drawback in the traditional voting method. Two Multi-PIE and CK+ databases and three main CNN structures, namely AlexNet, GoogLeNet, and LeNet, were used in the experiments. To verify the results, a cross-validation method was used, and experimental results indicated that the proposed MCNNs-IFI exhibited 12.84% higher accuracy than that of the three CNNs.

關鍵字

作者關鍵字: Facial emotion recognition; convolutional neural network; fuzzy integral; particle swarm optimization

作者資訊

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Rojas-Albarracin, Gabriel; Angel Chaves, Miguel; Fernandez-Caballero, Antonio; 等. [Heart Attack Detection in Colour Images Using Convolutional Neural Networks](#). APPLIED SCIENCES-BASEL (2019)

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Deployment and navigation of multiple robots using a self-clustering method and type-2 fuzzy controller in dynamic environments

作者: Lin, CJ (Lin, Cheng-Jian)^[1]; Lee, CL (Lee, Chin-Ling)^[2]

JOURNAL OF INTELLIGENT & FUZZY SYSTEMS

卷冊: 37 期: 2 頁數: 2181-2195

DOI: 10.3233/JIFS-182003

出版: 2019

文件類型: Article

檢視期刊影響力

摘要

In recent years, multiple robots have been successfully applied in various fields, including the handling of logistics factories, agriculture, and disaster relief. This study proposes a novel method for multi-robot deployment and navigation in dynamic environments. To address the problem of location deployment, a grid-based method was used to simplify environmental input information, and a self-clustering method was used to adjust location deployment. To address the problem of navigation, a behavior manager was used as a navigation strategy to control the towards-goal behavior and wall-following behavior (WFB) of mobile robots. An interval type-2 fuzzy controller based on improved particle swarm optimization (IPSO) was proposed to implement the WFB control. The proposed IPSO improved the search ability and enhanced the convergence speed of traditional PSO. Additionally, an escape mechanism was proposed to avoid a dead cycle. Experimental results show that the proposed IPSO is superior to other methods used for WFB and navigation control.

關鍵字

作者關鍵字: Robot navigation control; location deployment; particle swarm optimization; type-2 fuzzy controller; self-clustering

KeyWords Plus: MOBILE-ROBOT; OPTIMIZATION

作者資訊

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Jhang, Jyun-Yu; Lee, Chin-Ling; Lin, Cheng-Jian; 等.
Using a Self-Clustering Algorithm and Type-2 Fuzzy Controller for Multi-robot Deployment and Navigation in Dynamic Environments.
ASIAN JOURNAL OF CONTROL (2020)

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Mobile robot wall-following control using a behavior-based fuzzy controller in unknown environments

作者: Lin, TC (Lin, T. C.)^[1]; Lin, HY (Lin, H. Y.)^[2]; Lin, CJ (Lin, C. J.)^[2]; Chen, CC (Chen, C. C.)^[1]

IRANIAN JOURNAL OF FUZZY SYSTEMS

卷冊: 16 期: 5 頁數: 113-124

出版: OCT 2019

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檢視期刊影響力

摘要

This paper addresses a behavior-based fuzzy controller (BFC) for mobile robot wall-following control. The wall-following task is usually used to explore an unknown environment. The proposed BFC consists of three sub-fuzzy controllers, including Straight-based Fuzzy Controller (SFC), Left-based Fuzzy Controller (LFC), and Right-based Fuzzy Controller (RFC). The proposed wall-following controller has three characteristics: the mobile robot keeps a distance from the wall, the mobile robot has a high moving velocity, and the mobile robot has a good robustness ability of disturbance. The proposed BFC will be used to control the real mobile robot. The Pioneer 3-DX mobile robot has sonar sensors in front and sides, and it is used in this study. The inputs of BFC are sonar sensors data and the outputs of BFC are robots left/right wheel speed. Experimental results show that the proposed BFC successfully performs the mobile robot wall-following task in a real unknown environment.

關鍵字

作者關鍵字: Mobile robot; fuzzy control; wall-following control; sonar sensor

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Impact Factor: Journal Citation Reports

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1. Guiding mobile robot by applying fuzzy approach on sonar sensors

By: Al-Sahib, NKA; Ahmed, RJ.

Al-Khwarizmi Eng J Volume: 6 Pages: 36-44 Published: 2010

Times Cited: 4

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Using convolutional neural networks for character verification on integrated circuit components of printed circuit boards

作者: Lin, CH (Lin, Chun-Hui)^[1]; Wang, SH (Wang, Shyh-Hau)^[1,2]; Lin, CJ (Lin, Cheng-Jian)^[3]

檢視 Web of Science ResearcherID 和 ORCID

APPLIED INTELLIGENCE

卷冊: 49 期: 11 頁數: 4022-4032

DOI: 10.1007/s10489-019-01486-5

出版: NOV 2019

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檢視期刊影響力

摘要

Manufacturers of printed circuit boards (PCBs) typically use automated optical inspection (AOI) machines to test their PCBs. However, AOI machines employ conventional image-processing methods. If the integrated circuit (IC) components are not identical to the golden samples, then the AOI machine registers those IC components as flaws. Conventional image-processing methods cause misjudgments and increase the cost of manual reviews. Character-verification and image-classification systems are proposed in this paper for detecting misplaced, missing, and reversed-polarity parts. The regions of IC components can be identified on PCBs by using the contour border-detection method. Through the proposed convolutional neural network (CNN) structure and refinement mechanism, the characters can be successfully recognized. The image-classification system was applied only to images with blurry characters. Different CNN learning structures were used in both systems, and the refinement mechanism was used in both systems to improve the results. The proposed character-verification and image-classification methods achieved 98.84% and 99.48% passing rates, and the amount of required training time was less than that of other methods, demonstrating the proposed methods' greater effectiveness.

關鍵字

作者關鍵字: Printed circuit board; Convolutional neural networks; Component testing; Contour detection; Deep learning

KeyWords Plus: RECOGNITION; IMAGES

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Impact Factor: Journal Citation Reports

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Using Deep Principal Components Analysis-Based Neural Networks for Fabric Pilling Classification

作者: Yang, CS (Yang, Chin-Shan)^[1]; Lin, CJ (Lin, Cheng-Jian)^[2]; Chen, WJ (Chen, Wen-Jong)^[1]

檢視 Web of Science ResearcherID 和 ORCID

ELECTRONICS

卷冊: 8 期: 5

文獻號碼: 474

DOI: 10.3390/electronics8050474

出版: MAY 2019

文件類型: Article

檢視期刊影響力

摘要

A manufacturer's fabric first undergoes an abrasion test and manual visual inspection to grade the fabric prior to shipment to ensure that there are no defects present. Manual visual classification consumes a considerable amount of human resources. Furthermore, extended use of the eyes during visual inspection often causes occupational injuries, resulting in a decrease in the efficiency of the entire operation. In order to overcome and avoid such situations, this study proposed the use of deep principal components analysis-based neural networks (DPCANNs) for fabric pilling identification. In the proposed DPCANN, the characteristics of the hairball were automatically captured using deep principal components analysis (DPCA), and the hairball class was identified using the neural network and the support vector machine (SVM). The experimental results showed that the proposed DPCANN has an average accuracy of 99.7% at the hairball level, which is in line with the needs of the industry. The results also confirmed that the proposed hairball classification method is superior to other methods.

關鍵字

作者關鍵字: fabric pilling; principal component analysis; support vector machine; neural network; classification

KeyWords Plus: OBJECTIVE EVALUATION; SYSTEM

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Automatic Text Recognition in Natural Scene Using Neural Network Classifier with Dynamic-group-based Hybrid Particle Swarm Optimization

作者: Tang, KH (Tang, Kuang-Hui)^[1,2]; Huang, CK (Huang, Chuan-Kuei)^[1]; Lin, CJ (Lin, Cheng-Jian)^[3]

JOURNAL OF INFORMATION SCIENCE AND ENGINEERING

卷冊: 35 期: 3 頁數: 555-575 特刊: SI

DOI: 10.6688/JISE.201905_35(3).0005

出版: MAY 2019

文件類型: Article

檢視期刊影響力

摘要

This paper presents a two-stage algorithm for automatic text detection and recognition. In the first stage, using a stroke width transform and an improved connected component, an edge analysis method detects a candidate character region. Subsequently, a text region is located by filtering and linking characters with similar font sizes and colors. For the second stage, a histogram of oriented gradient is employed as a feature descriptor, and a neural network classifier is built with dynamic-group-based hybrid particle swarm optimization (DGHPSO) for character recognition. In DGHPSO, each group's threshold value of similarity depends on the threshold values of fitness and distance. In addition, a local search algorithm is used to improve the search for a global optimum. The proposed algorithm was experimentally validated; it outperformed a number of recently published studies in terms of the text recognition rate when tested on the ICDAR 2003 database and the Street View Text database.

關鍵字

作者關鍵字: text detection; text recognition; neural network classifier; particle swarm optimization; natural scene

KeyWords Plus: FUZZY RULES; SEGMENTATION; PATTERNS; SYSTEMS; IMAGES

作者資訊

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Cooperative Carrying Control for Multi-Evolutionary Mobile Robots in Unknown Environments

作者: Jhang, JY (Jhang, Jyun-Yu)^[1]; Lin, CJ (Lin, Cheng-Jian)^[2]; Young, KY (Young, Kuu-Young)^[1]

檢視 Web of Science ResearcherID 和 ORCID

ELECTRONICS

卷冊: 8 期: 3

文獻號碼: 298

DOI: 10.3390/electronics8030298

出版: MAR 6 2019

文件類型: Article

檢視期刊影響力

摘要

This study provides an effective cooperative carrying and navigation control method for mobile robots in an unknown environment. The manager mode switches between two behavioral control modes-wall-following mode (WFM) and toward-goal mode (TGM)-based on the relationship between the mobile robot and the unknown environment. An interval type-2 fuzzy neural controller (IT2FNC) based on a dynamic group differential evolution (DGDE) is proposed to realize the carrying control and WFM control for mobile robots. The proposed DGDE uses a hybrid method that involves a group concept and an improved differential evolution to overcome the drawbacks of the traditional differential evolution algorithm. A reinforcement learning strategy was adopted to develop an adaptive WFM control and achieve cooperative carrying control for mobile robots. The experimental results demonstrated that the proposed DGDE is superior to other algorithms at using WFM control. Moreover, the experimental results demonstrate that the proposed method can complete the task of cooperative carrying, and can realize navigation control to enable the robot to reach the target location.

關鍵字

作者關鍵字: evolutionary mobile robot; fuzzy control; navigation control; cooperative carrying; differential evolution

KeyWords Plus: TYPE-2 FUZZY-SETS; DIFFERENTIAL EVOLUTION; OPTIMIZATION; NAVIGATION

作者資訊

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Lin, Cheng-Jian; Jhang, Jyun-Yu; Young, Kuu-Young.
Using a Type-2 Neural Fuzzy Controller for Navigation Control of Evolutionary Robots.
SENSORS AND MATERIALS (2019)

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Supervised and Reinforcement Group-Based Hybrid Learning Algorithms for TSK-type Fuzzy Cerebellar Model Articulation Controller

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摘要

In this study, a Takagi-Sugeno-Kang (TSK)-type fuzzy cerebellar model articulation controller (T-FCMAC) based on a group-based hybrid learning algorithm (GHLA) was proposed for solving various problems. The proposed T-FCMAC model was mainly derived from a traditional cerebellar model articulation controller and the TSK-type fuzzy model. For supervised learning, the proposed GHLA was developed by combining an improved quantum particle swarm optimization algorithm and the Nelder-Mead method for adjusting the parameters of a T-FCMAC. The fuzzy C-mean clustering technique was adopted to improve the performance of quantum particle swarm optimization. A fitness threshold was used to determine the number of clusters in fuzzy C-mean clustering. The grouping concept was also used to improve the search ability and increase the convergence rate. Moreover, because exact training data may be expensive or even impossible to obtain in some real-world applications, a reinforcement GHLA (R-GHLA) was proposed. Experimental results revealed the performance and applicability of the proposed GHLA and R-GHLA.

關鍵字

作者關鍵字: Fuzzy CMAC; Nelder-Mead; fuzzy C-mean; particle swarm optimization; control; reinforcement learning
KeyWords Plus: PARTICLE SWARM OPTIMIZATION; NETWORK; GA

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A hybrid of fuzzy theory and quadratic function for estimating and refining transmission map

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摘要

In photographs captured in outdoor environments, particles in the air cause light attenuation and degrade image quality. This effect is especially obvious in hazy environments. In this study, a fuzzy theory is proposed to estimate the transmission map of a single image. To overcome the problem of oversaturation in dehazed images, a quadratic-function-based method is proposed to refine the transmission map. In addition, the color vector of the atmospheric light is estimated using the top 1% of the brightest light area. Finally, the dehazed image is reconstructed using the transmission map and the estimated atmospheric light. Experimental results demonstrate that the proposed hybrid method performs better than the other existing methods in terms of color oversaturation, visibility, and quantitative evaluation.

關鍵字

作者關鍵字: Dehazing; transmission map; fuzzy theory; quadratic function; image restoration

KeyWords Plus: VISION

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(三) 《會議論文》--近五年國內會議論文

- [1] 林正堅*、游正義、黃祿勳， “增強式學習於深度神經網路之仿人類遊戲控制策略應用，” *2018 中華民國第二十六屆模糊理論及其應用研討會*，銘傳大學，民國107年11月5-6日，頁碼:120-123。
- [2] 林正堅*、林學儀、林隆邦， “語音助理於工具機控制之應用，” *2018 中華民國第二十六屆模糊理論及其應用研討會*，銘傳大學，民國107年11月5-6日，頁碼:116-119。
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- [4] 林正堅*、胡志佳、林學儀、劉淑爾、薛鋒、李志強、朱亮亮、李宗翰，2016， “植基於大數據之文字探勘技術實現旅館評價分析，” *2016創新發明應用研討會(AII2016)暨第二十四屆模糊理論及其應用研討會(FUZZY2106)*，國立勤益科技大學，台中，民國105年11月9~10日，頁碼:248-251。**【榮獲AII 2016& FUZZY2106最佳論文獎】**
- [5] 林正堅*、胡志佳、林學儀、劉淑爾、薛鋒、李志強、朱亮亮、黃祿勳，2016， ”

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- [6] 王俊國、林正堅^{*}、林學儀, 2015, ”植基於計算智慧方法之影像除霧,” 2015創新發明應用研討會(AII 2015), 國立勤益科技大學, 台中, 民國104年11月13日, 頁碼: 481-484。 **【榮獲AII 2015最佳論文獎】**
- [7] 鄭傳耀、李金玲、林正堅^{*}、李隆財, 2015, ”以改良式模糊時間序列方法實現股票預測問題,” 2015全球化經貿管理與實務研討會, 國立台中科技大學, 台中, 民國104年5月7日, 光碟。
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(四)、近五年專利

- [1] 案件名稱：眼瞼長度量測方法及其裝置, 發明人：林正堅、黃美玲、鄧為仁、鍾翰
類別：發明, 證號: I466038, 專利權期間:2014/12/21~2030/06/01
- [2] 案件名稱：多通道裝置故障偵測器, 發明人：林正堅、李立中
類別：發明, 證號:I402192, 專利權期間:2013/07/21~2030/8/2
- [3] 案件名稱：隨運動速度改變音樂節奏之撥放系統, 發明人：林正堅、林盈名、洪永育
類別：新型, 證號:M438654, 專利權期間:2012/10/01~2022/03/26
- [4] 案件名稱：智慧型輪框顯像裝置, 發明人：林正堅、李隆財、徐世威、游東霖
類別：新型, 證號:M436623, 專利權期間:2012/09/01~2022/03/26
- [5] 案件名稱：一種用於選取假睫毛之模擬裝置, 發明人：林正堅、薛育嘉、周暉樺
類別：新型, 證號:M419172, 專利權期間:2011/12/21~2021/04/06
- [6] 案件名稱：智慧型動感模擬控制系統, 發明人：林正堅、賴登鴻、吳筱吟
類別：新型, 證號: M403043, 專利權期間:2011/05/01~2020/09/29

- [7] 案件名稱：手持式駕駛行為分析裝置，發明人：林正堅、游東霖、吳圓傑、魏世旻
類別：新型，證號：M455661，專利權期間：2013/6/21~2023/03/11
- [8] 案件名稱：智慧控制電動車系統，發明人：林正堅、林學儀、游正義、吳圓傑
類別：新型，證號：M460809，專利權期間：2013/9/1~2023/06/11
- [9] 案件名稱：植基於行動終端之門禁管理系統，發明人：游正義、林學儀、林正堅
類別：新型，證號：M473565，專利權期間：2014/3/1~2023/12/03
- [10] 案件名稱：人流監控廣告方法及其系統，發明人：林正堅、黃美玲、洪永祥、周厚宇
類別：發明，證號：I490803，專利權期間：2015/7/1~2033/03/14
- [11] 案件名稱：多頭貼片機排程優化方法及系統，發明人：林正堅、林學儀、游正義、黃美玲、洪永祥、莊永昌、溫彥迪、陳韻仁、林佑霖
類別：發明，證號：I512649，專利權期間：2015/12/11--2035/03/11
- [12] 案件名稱：影像除霧系統以及行車輔助系統，發明人：林正堅、林學儀、游正義、黃美玲、王峻國、周厚宇、蘇偉德
類別：新型，證號：M518378，專利權期間：2016/03/01--2024/03/13
- [13] 案件名稱：用於行動式裝置之叫號通知系統，發明人：林正堅、林學儀、黃美玲、賴楷岳、楊永誠、田永名、龔心愷、林明鋒
類別：新型，證號：M523164，專利權期間：2016/06/01~2026/03/07
- [14] 案件名稱：防漏偵測斷水警示裝置，發明人：林正堅、林學儀、唐光輝、游正義
類別：新型，證號：M529242，專利權期間：2016/09/21~2026/06/13
- [15] 案件名稱：布匹等級分級方法，發明人：黃美玲、洪永祥、林正堅、楊浩群
類別：發明，證號：I553187，專利權期間：2016/10/11~2035/01/25
- [16] 案件名稱：印刷電路板之裝配排程最佳化方法，發明人：林正堅、游正義、林學儀、黃美玲、洪永祥、賴楷岳、陳昱璋、沈冠緯
類別：發明，證號：I571761，專利權期間：2017/02/21~2036/03/07
- [17] 案件名稱：雷射雕刻之微調預判系統及其方法，發明人：林正堅、林學儀、潘忠義、楊永誠、曾韋諭

類別：發明，證號： I607819，專利權期間：2017/12/11~2037/04/04

[18] 案件名稱：具磁吸之皮帶，發明人：黃美玲、洪永祥、林正堅、陳鈺丰

類別：新型，證號： M561438，專利權期間：2017/06/11~2028/01/24

[19] 案件名稱：具磁吸之皮帶，發明人：黃美玲、洪永祥、林正堅、陳鈺丰

類別：發明，證號： I643573，專利權期間：2018/12/11~2038/01/24

[20] 案件名稱：自動心臟電擊器之輔助定位裝置及其方法，發明人：黃世演、林正堅、陳文淵

類別：發明，證號： I640337，專利權期間：2018/11/11~2035/11/17

[21] 案件名稱：已區塊鏈概念整合互聯網平台應用學區行銷系統，發明人：林正堅、陳坤盛、王靖欣、陳廷育、陳細鈿、楊金山、鄭新諭、劉昱辰、李函霈、吳玟靜、蔡宜霖

類別：新型，證號： M582635，專利權期間：2019/08/21~2029/04/11

(五)、近五年科技部計畫

序號	計畫編號	計畫名稱	主辦單位	期間	職務	計畫金額
1	MOST 103-2221-E-167-014-MY2	利用計算智慧方法於有霧環境下之駕駛安全輔助系統設計	科技部	103/08~ 105/07	主持人	1,590,000
2	MOST 103-2622-E-167-021-CC3	貼片機工作排程優化之軟體設計與開發 (合作企業：元利盛精密機械股份有限公司)	科技部	103/11~ 104/10	主持人	609,600 (元利盛精密機械股份有限公司出資:209,600)
3	MOST 105-2221-E-167-028	利用交互式遞迴模糊小腦控制器模組與適應性權重估測方法於衛星遙測影像之除霧及其硬體實現	科技部	105/08~ 106/07	主持人	702,000

序號	計畫編號	計畫名稱	主辦單位	期間	職務	計畫金額
4	MOST 105-2221-E-167-012	以高速混合式演算法最佳化印刷電路板元件裝配時間及3D模擬動畫系統之開發(I)	科技部	105/08~ 106/07	共同主持人	724,000
5	MOST 105-2622-E-167-018-CC3	植基於電腦視覺之雷射雕刻系統設計與整合	科技部	105/11~ 106/10	主持人	424,710元 (其中佑昇雷射股份有限公司配合款124,710元且先期技轉34,262元)
6	MOST 106-2622-E-150-004-CC2	具備智慧決策與市調分析之新世代多卡通販賣機(1/2)	科技部	106/02~ 107/01	共同主持人	1,024,100元 (其中遠易通科技股份有限公司配合款267,100元)
7	MOST 106-2221-E-167-016	多台行動機器人之位置配置及路徑規劃	科技部	106/08~ 107/07	主持人	765,000元
8	MOST 106-2622-E-167-012-CC3	雷射雕刻加工之生產排程及視覺定位系統設計	科技部	107/11~ 108/10	主持人	574,522元 (其中勇鼎科技股份有限公司配合141,684元且先期技轉42,849元，科技部補助390,000元)

序 號	計畫編號	計畫名稱	主辦 單位	期間	職務	計畫金額
9	MOST 107-2622-E-150-001- CC2	具備智慧決策與市調 分析之新世代多卡通 販賣機(2/2)	科技 部	107/02~ 108/01	共同 主持 人	1,024,100元 (其中遠易通 科技股份有 限公司配合 款267,100 元)
10	MOST 107-2634-F-005-001	AI於智慧機台系統開 發：Arvis專業助理、 機台預診與精度維持 (1/4)	科技 部	107/01~ 107/12	共同 主持 人	21,885,000元
11	MOST 107-2221-E-167-012	考量多限制條件下雙 臂多頭貼片機排程最 佳化 [1]	科技 部	107/08~ 108/07	共同 主持 人	707,000元
12	MOST 107-2221-E-167-023	利用混合式的深度網 路與區間二型補償式 模糊小腦神經網路實 現臉部辨識及表情認 知	科技 部	107/08~ 108/07	主持 人	844,000元
13	MOST 107-2218-E-005-023	半導體與電子產業先 進材料的智慧多軸複 合加工高階裝備技術 —半導體與電子產業 先進材料的智慧多軸 複合加工高階裝備技 術(1/3)	科技 部	107/12~ 108/11	共同 主持 人	11,840,000元
14	MOST 108-2634-F-005 -001	AI於智慧機台系統開 發 (2/4)	科技 部	108/03~ 108/12	共同 主持 人	15,700,000元
15	MOST 108-2221-E-167 -026	具臉部情緒表情認知	科	108/08~ 109/07	主持	844,000元

序 號	計畫編號	計畫名稱	主辦 單位	期間	職務	計畫金額
		與自然語言語意互動 之陪伴型機器人	技 部		人	
16	MOST 108-2218-E-005-021	半導體與電子產業先 進材料的智慧多軸複 合加工高階裝備技術 —半導體與電子產業 先進材料的智慧多軸 複合加工高階裝備技 術(2/3)	科 技 部	107/12~ 108/11	共同 主持 人	11,000,000元
17	MOST 109-2634-F-005-004	AI於智慧機台系統開 發 (3/4)	科 技 部	109/01~ 109/12	共同 主持 人	14,180,000元

(六)、近五年產學合作計畫

序 號	計畫編號	計畫名稱	合作廠商	合作金額	期間	職務
1	M-NCUT13TC C004	PC-to-NC控制系統 之軟體開發 (第一年)	永進機械工業 股份有限公司	100萬	102/07 § 102/12	主持人
2	M-NCUT14TC C006	PC-to-NC控制系統 之軟體開發 (第二年)	永進機械工業 股份有限公司	100萬	103/02 § 103/12	主持人
3	NCUT14TCC0 10	串列式運動控制通 訊協定技術分析	仕彰自動化有 限公司	20萬	103/06 § 104/05	主持人
4	NCUT15TCC003	網路輿情自動蒐報 系統	台中市警局	9.5萬	104/05 §	主持人

序 號	計畫編號	計畫名稱	合作廠商	合作金額	期間	職務
					104/07	
5	NCUT15TCC009	創意生活新視界雲端建構計畫	大陸常州工學院	60萬	104/12 § 105/12	主持人
6	NCUT 17-T-CC-005	樂齡圖書館電子報自動讀報系統計畫	台中市立圖書館豐原分館	9.6萬	106/06 § 106/12	主持人
7	NCUT 17-T-CC-006	平板電腦管控系統維護案	台中市立圖書館	9.5萬	106/06 § 106/12	主持人
8	NCUT 17-T-CC-009	港鐵動感平台軟體控制系統設計	上醇股份有限公司	40萬	106/10 § 107/07	主持人
9		彈性製造單元一加工機生產線配置量測機之諮詢	百德機械股份有限公司	112萬	106/10 § 107/09	主持人
10	NCUT 17-T-CC-011	人工智慧於表面黏著技術之自動光學檢測應用	啟基科技股份有限公司	40萬	106/11 § 107/08	主持人
11	NCUT 18-T-CC-001	107年度「平板電腦管控」暨「樂齡圖書館電子報自動讀報」系統維護案	台中市立圖書館	4萬	107/01 § 107/12	主持人
12	NCUT 18-T-CC-005	虛擬實境內容擴充案	臺中市立圖書館	9.8萬	107/05 § 107/12	主持人
13	NCUT 18-T-CC-007	電子技術圖面e化	百德機械股份有限公司	33萬	107/07 § 108/04	主持人
14	NCUT	108年度「平板電腦	台中市立圖書	4萬	108/01	主持人

序號	計畫編號	計畫名稱	合作廠商	合作金額	期間	職務
	19-T-CC-003	管控」暨「樂齡圖書館電子報自動讀報」系統維護案	館		§ 108/12	
15		經濟部工業局108年度智慧機械人才培育計畫	翔程科技股份有限公司	50萬	108/03 § 108/12	共同主持人
16	NCUT 19-T-CC-012	影像辨識與物聯網軟體人才培育與產學合作計畫	旭東機械工業股份有限公司	15萬	108/01 § 108/10	主持人
17	NCUT 19-T-CC-008	百德智能化軟體(IQS)設計	百德機械股份有限公司	60萬	108/04 § 109/01	主持人
18	NCUT 19-T-CC-009	生產線上量測及二次加工專家系統	百德機械股份有限公司	100萬	108/04 § 109/01	主持人