



(1)
Augmented Dressed Body System Controlled By Motion
Capture Data

Khaled F. Hussain, Adel A. Sewisy and Islam T. El-Gendy

Abstract:

Abstract Augmenting deformable surfaces like cloth and body in real video is a challenging task. This paper presents a system for cloth and body augmentation in a single-view video. The system allows users to change their cloth either by changing the color, the texture, or the whole cloth. It augments the user with virtual clothes. As a result, users can enjoy changing their cloth with any other cloth they want. As a prerequisite, the user needs to wear a special suit and enters through our motion capture system that captures the movements of the user. From the captured data, an animated 3D character model is created, which will serve as the new body. The model is rendered with the new cloth but without the head. We extract the real face of the user and place it on the virtual model. This system can be used in film production and advertisement.

Keywords:

Camera registration, Cloth simulation, Color transfer, Matting, Motion capture system, Segmentation, Video editing

Published In:

International Journal of Computing Academic Research (IJCAR) , Volume 2, Number 1 , pp. 1-13



(2)

Automatic Cloth Panels Extraction and Resizing

Khaled F. Hussain, Samia A. Ali

Abstract:

ABSTRACT It is important to produce 3D cloths for different body sizes from 2D patterns of any size. Moreover, classical patterns in old books and magazines are available only in hardcopy forms. Thus it is imperative to produce softcopies of those patterns in old books and magazines. Solutions for these two issues are provided in this research work. First automating the design of customized apparel products from pattern images is provided which can greatly improves the efficiency of cloth production in the apparel industry. Second generating different sizes patterns from a given pattern size. This greatly facilitate the generation of pattern design in the apparel industry.

Keywords:

Garment industry, 3D clothes, Cloth modeling

Published In:

International Journal of Computer Applications , Volume 36 No.7 ,



(3)

ZLang: A Scripting Language for Digital Content Creation Applications

MohamedYousef ,Ahmed Hashem ,Hassan Saad ,Khaled Hussain

Abstract:

ABSTRACT Digital Content Creation (DCC) Applications (e.g. Blender, Autodesk 3ds Max) have long been used for the creation and editing of digital content (e.g. Images, videos). Due to current advancement in the field, the need for controlled automated work forced these applications to add support for scripting languages that gave power to artists without diving into many details. With time these languages developed into more mature languages and were used for more complex tasks (driving physics simulations, controlling particle systems, or even game engines).For long, these languages have been interpreted, embedded within the applications, lagging the UIs or incomparable with real programming languages (regarding Completeness, Expressiveness, Extensibility and Abstractions). In this paper, we present a high level scripting language (Zlang) and a DCC Engine that addresses those problems. The language can be interpreted, compiled, extended in C/C++ and has a number of constructs, and optimizations dedicated to DCC domain. The engine provides geometric primitives, mesh modifiers, key-framed animation and Physics Simulations (Rigid Body, and Cloth Simulations). The engine is designed and implemented as a library so it can be used alone or embedded.

Keywords:

Three-DimensionalGraphics and Realism, modeling Packages, Methodology and Techniques-Languages.

Published In:

International Journal of Computer Applications , Volume 50 □ No.5 ,



(4)

Performance Evaluation of Exhaustive-Search Equivalent Pattern Matching under Chebyshev distance

Mohamed Yousef and Khaled F. Hussain

Abstract:

Abstract Pattern Matching is a fundamental problem in computer vision, and image and video processing. Exhaustive-Search equivalent algorithms yield the same results as exhaustively searching all patterns in the image but significantly faster. Though much work have been done over the L1 and L2 distances, only small amount of work has been dedicated to the Chebyshev distance though its importance in many applications. In this paper, we provide an evaluation of available state-of-art exhaustive-search equivalent algorithm that targets the Chebyshev distance; we also provide detailed analysis of the performance characteristics of evaluated algorithms.

Keywords:

:Pattern matching, template matching, fast algorithms, full search equivalent algorithm, Chebyshev distance, NOM.

Published In:

International Journal of Computing Academic Research (IJCAR) , , pp. 79-87



(5)

Transportation Research Part C: Emerging Technologies

Ghada Moussa, Essam Radwan , Khaled Hussain

Abstract:

Abstract Augmented Reality [AR] is a promising paradigm that can offer users with real-time, high-quality visualization of a wide variety of information. In AR, virtual objects are added to the real-world view in real time. The AR technology can offer a very realistic environment for enhancing drivers' performance on the road and testing drivers' ability to react to different road design and traffic operations scenarios. This can be achieved by adding virtual objects (people, vehicles, hazards, and other objects) to the normal view while driving an actual vehicle in a real environment. This paper explores a new Augmented Reality Vehicle [ARV] system and attempts to apply this new concept to a selected traffic engineering application namely the left-turn maneuver at two-way stop-controlled [TWSC] intersection. This TWSC intersection experiment, in addition to testing the feasibility of the application, tries to quantify the size of gaps accepted by different driver's characteristics (age and gender). The ARV system can be installed in any vehicle where the driver can see the surrounding environment through a Head Mounted Display [HMD] and virtual objects are generated through a computer and added to the scene. These different environments are generated using a well defined set of scenarios. The results from this study supported the feasibility and validity of the proposed ARV system and they showed promise for this system to be used in the field-testing for the safety and operation aspects of transportation research. Results of the left-turn maneuver study revealed that participants accepted gaps in the range of 4.0-9.0 s. This finding implies that all gaps below 4 s are rejected and all gaps above 9 s are likely to be accepted. The mean value of the left-turn time was 4.67 s which is a little bit higher than reported values in the literature (4.0-4.3 s). Older drivers were found to select larger gaps to make left turns than younger drivers. The conservative driving attitude of older drivers indicates the potential presence of reduced driving ability of elderly. Drivers' characteristics (age and gender) did not significantly affect the left-turn time. Based on the survey questions that were handed to participants, most participants indicated good level of comfort with none or small level of risk while driving the vehicle with the ARV system. None of the participants felt any kind of motion sickness and the participants' answers indicated a good visibility and realism of the scene with overall good system fidelity.

Published In:

Transportation Research Part C: Emerging Technologies , Volume 21, Issue 1 , Pages 1-16



(6)

Fast Exhaustive-Search Equivalent Pattern Matching through Norm Ordering

Mohamed Yousef, Khaled F. Hussain

Abstract:

Abstract Pattern Matching is a fundamental problem in computer vision, and image and video processing. Exhaustive-Search equivalent algorithms yield the same results as exhaustively searching all patterns in the image but significantly faster. In this paper, we propose a novel exhaustive-search equivalent algorithm that is combined with a number of state-of-art algorithms to provide a significantly faster alternative in the problem of finding nearest pattern according to a predefined distance measure. Our technique also shows high resilience to both blurring and JPEG compression types of noise. This is demonstrated in the paper with results from over 15 million runs for each compared algorithm.

Keywords:

Pattern matching; Template matching; Fast algorithms; Full search equivalent algorithm; NOM

Published In:

Journal of Visual Communication and Image Representation , ,



(7)

Augmented Reality Experiment: Drivers' Behavior at an Unsignalized Intersection

Khaled F. Hussain, Essam Radwan, and Ghada S. Moussa

Abstract:

Abstract—Applying new technologies to traffic engineering studies has become more urgent due to the high cost and risk associated with ordinary in-the-field testing. Augmented reality (AR) is one of those technologies, in which virtual (computer-generated) objects are added to the real scene in a way that the user cannot distinguish between real and virtual objects in the final scene. Adding virtual objects (people, vehicles, hazards, and other objects) to the normal view can provide a safe realistic environment for testing driving performance under different scenarios. This paper presents two systems, i.e., AR vehicle (ARV) and offline AR simulator (OARSim) systems, and uses them to study the left-turn driving behavior at an unsignalized intersection for drivers with different characteristics. Two experiments were performed: one using the ARV system installed in a vehicle and another using the OARSim system installed in the laboratory. Quantitative measurements of left-turn drivers' behaviors were recorded. There was no significant gender effect on all measured parameters in both experiments. Older drivers selected larger gaps and used smaller acceleration rates to turn left than younger drivers in both experiments. The conservative driving attitude of older drivers indicates the potential presence of reduced driving ability of the elderly. While left-turn times using the ARV system were not significantly affected by drivers' age, older drivers took longer time to complete the left-turn maneuver than younger drivers using the OARSim did. Results from this study supported the feasibility and validity of the proposed systems and showed promise for these systems to be used as surrogates to in-the-field testing for safety and operation aspects of transportation research.

Keywords:

Augmented reality (AR), drivers' behavior, intelligent transportation system, unsignalized intersection.

Published In:

IEEE TRANSACTIONS ON INTELLIGENT TRANSPORTATION SYSTEMS , VOL 14,NO 2 ,



(8)

Augmented Reality Vehicle system: Left-turn maneuver study

Ghada Moussa , Essam Radwan, Khaled Hussain

Abstract:

Augmented Reality (AR) is a promising paradigm that can offer users with real-time, high-quality visualization of a wide variety of information. In AR, virtual objects are added to the real-world view in real time. The AR technology can offer a very realistic environment for enhancing drivers' performance on the road and testing drivers' ability to react to different road design and traffic operations scenarios. This can be achieved by adding virtual objects (people, vehicles, hazards, and other objects) to the normal view while driving an actual vehicle in a real environment. This paper explores a new Augmented Reality Vehicle (ARV) system and attempts to apply this new concept to a selected traffic engineering application namely the left-turn maneuver at two-way stop-controlled (TWSC) intersection. This TWSC intersection experiment, in addition to testing the feasibility of the application, tries to quantify the size of gaps accepted by different drivers' characteristics (age and gender). The ARV system can be installed in any vehicle where the driver can see the surrounding environment through a Head Mounted Display (HMD) and virtual objects are generated through a computer and added to the scene. These different environments are generated using a well defined set of scenarios. The results from this study supported the feasibility and validity of the proposed ARV system and they showed promise for this system to be used in the field-testing for the safety and operation aspects of transportation research. Results of the left-turn maneuver study revealed that participants accepted gaps in the range of 4.0-9.0 s. This finding implies that all gaps below 4 s are rejected and all gaps above 9 s are likely to be accepted. The mean value of the left-turn time was 4.67 s which is a little bit higher than reported values in the literature (4.0-4.3 s). Older drivers were found to select larger gaps to make left turns than younger drivers. The conservative driving attitude of older drivers indicates the potential presence of reduced driving ability of elderly. Drivers' characteristics (age and gender) did not significantly affect the left-turn time. Based on the survey questions that were handed to participants, most participants indicated good level of comfort with none or small level of risk while driving the vehicle with the ARV system. None of the participants felt any kind of motion sickness and the participants' answers indicated a good visibility and realism of the scene with overall good system fidelity.

Keywords:

Augmented reality Intelligent transportation system Left turn maneuver Gap acceptance

Published In:

el sevier , ,



(9)

Projector Calibration Using Passive Stereo and Triangulation

Mostafa Salem Yousef B. Mahdy, Khaled F. Hussain, and

Abstract:

In the past, 3D shape reconstruction process was based on passive stereo which do not require direct control of any illumination source, instead relying entirely on light. Nowadays, 3D shape reconstruction is based on active stereo which replace one camera with a projector. The projector plays an important part in solving the correspondence problem. It projects coded patterns on the scanned object. By capturing the deformed pattern using cameras, the correspondences between image pixels and projector (columns-rows) can be found easily. To do that, the projector must be calibrated. In this work, the problem of projector calibration is solved by passive stereo and triangulation. Our system consists of two cameras, projector, and planner board. A checkerboard pattern is projected on the board and then captured by the two cameras. Using triangulation, the corresponding 3D points of the projected pattern is computed. In this way, having the 2D projected points in the projector frame and its 3D correspondences (calculated using triangulation) the system can be calibrated using a standard camera calibration method. A data projector has been calibrated by this method and accurate results have been achieved.

Keywords:

Correspondences, projector calibration, 3D reconstruction, triangulation

Published In:

International Journal of Future Computer and Communication , vol. 2, no. 5 , pp. 385-390



(10)

Multi-Bin Search: Improved Large-Scale Content-Based Image Retrieval

Abdelrahman Kamel, Yousef B. Mahdy, Khaled F. Hussain

Abstract:

The challenge of large-scale image retrieval has been recently addressed by many promising approaches. In this work, we propose a new approach that jointly optimizes the search accuracy and time by using binary local image descriptors, such as BRIEF and BRISK, and binary hashing methods, such as Locality Sensitive Hashing (LSH) and Spherical Hashing. We propose a Multi-bin search method that highly improves the retrieval precision of binary hashing methods. Also, we introduce a reranking scheme that increases the retrieval precision, but with a slight increase in search time. Evaluations on the University of Kentucky Benchmark (UKB) dataset show that the proposed approach greatly improves the retrieval precision of recent binary hashing approaches.

Keywords:

Image retrieval, Binary Hashing, Multi-bin search

Published In:

20th International Conference on Image Processing (ICIP) , , pp. 2597-2601



(11)

Multi-Bin Search: Improved Large-Scale Content-Based Image Retrieval.

Abdelrahman Kamel, Yousef B. Mahdy, Khaled F. Hussain

Abstract:

The challenge of large-scale content-based image retrieval (CBIR) has been recently addressed by many promising approaches. In this work, a new approach that jointly optimizes the search precision and time for large-scale CBIR is presented. This is achieved using binary local image descriptors, such as BRIEF or BRISK, along with binary hashing methods, such as Locality-Sensitive Hashing and Spherical Hashing (SH). The proposed approach, named Multi-Bin Search, improves the retrieval precision of binary hashing methods through computing, storing and indexing the nearest neighbor bins for each bin generated from a binary hashing method. Then, the search process does not only search the targeted bin, but also it searches the nearest neighbor bins. To efficiently search inside targeted bins, a fast exhaustive-search equivalent algorithm, inspired by Norm Ordered Matching, has been used. Also, a result reranking step that increases the retrieval precision is introduced, but with a slight increase in search time. Experimental evaluations over famous benchmarking datasets (such as the University of Kentucky Benchmarking, the INRIA Holidays, and the MIRFLICKR-1M) show that the proposed approach highly improves the retrieval precision of the state-of-art binary hashing methods.

Keywords:

Content-based image retrieval · Multi-Bin search · Binary descriptors · Binary hashing

Published In:

International Journal of Multimedia Information Retrieval (IJMIR) , vol. 3 ,



(12)

Cut off Your Arm: A Medium-Cost System for Integrating a 3D Object with a Real Actor

Mahmoud Afifi, Mostafa Korashy, Ebram K. William, Ali H. Ahmed, and Khaled F. Hussain

Abstract:

In the film industry, many tricks have been employed using the integration of a 3D object with a real actor. Usually, attaching a 3D object with a real actor is a costly process because of the usage of an expensive motion capture system. This paper presents a system using a medium-cost motion capture system and a chroma-keying technique for generating a video footage of an actor with an integrated 3D object (e.g. amputated arm). The result of the proposed system shows the attaching process of different 3D objects with a real actor who is combined with a new background scene in the same viewpoint.

Keywords:

Video Compositing, Image Enhancement, Motion Capture System, Chroma-keying

Published In:

International Journal of Image, Graphics and Signal Processing (IJIGSP) , Vol. 6, No. 11 , PP.10-16



(13)

Fast Video Completion Using Patch-based Synthesis and Image Registration

Mahmoud Afifi Khaled F. Hussain Hosny M. Ibrahim Nagwa M. Omar

Abstract:

Video completion has many applications in movie post-production, such as removing unwanted objects, artifacts, or logos. Most state-of-the-art video completion techniques are time-consuming in order to ensure spatial-temporal coherence. This paper presents a Fast Video Completion (FVC) technique that is based on patch-based synthesis and image registration. FVC generates key frames without the unwanted objects over the input video using a patch-based synthesis. The rest of the video completion process requires a low computing time using the registered prior frame. The results of the proposed technique show that FVC preserves the spatial-temporal coherence in an acceptable time, that makes the proposed technique is applicable for long videos.

Keywords:

Video Completion Video Inpainting Video Processing Video Editing Object Removal

Published In:

Intelligent Signal Processing and Communication Systems (ISPACS), 2014 International Symposium on , Vol. 1 , pp. 200-204



(14)

Video Face Replacement System Using a Modified Poisson Blending Technique

Mahmoud Afifi Khaled F. Hussain Hosny M. Ibrahim Nagwa M. Omar

Abstract:

In this paper, we present a system for video face replacement that requires only two videos of a source actor and a target actor using only a single digital camera. Existing video face replacement techniques usually need special equipment or 3D models; the proposed system achieves a realistic replacement of faces without using 3D models or special equipment. There are many applications of the proposed system that are presented in this paper using only two footages of actors. We can replace a frontal face with another one; this gives the possibility to change the appearance of actors without makeup or any prior settings. We introduce a new technique for face blending that is based on a gradient domain method called Modified Poisson Blending (MPB) to reduce the bleeding problem of Poisson image editing, and achieve realistic results of face replacement. Experimental results demonstrate that the proposed system using MPB technique produces more realistic results than the results of other cloning techniques.

Keywords:

Image Inpainting Video Inpainting Image Enhancement Face Replacement Video Editing Poisson Blending Gradient Domain Image Editing

Published In:

Intelligent Signal Processing and Communication Systems (ISPACS), 2014 International Symposium on , Vol. 1 , pp. 205-210



(15)

A Low-cost System for Generating Near Realistic Virtual Actors

Mahmoud Afifi, Khaled F. Hussain, Hosny M. Ibrahim, and Nagwa M. Omar

Abstract:

Generating virtual actors is one of the most challenging fields in computer graphics. The reconstruction of a realistic virtual actor has been paid attention by the academic research and the film industry to generate human-like virtual actors. Many movies were acted by human-like virtual actors, where the audience cannot distinguish between real and virtual actors. The synthesis of realistic virtual actors is considered a complex process. Many techniques are used to generate a realistic virtual actor; however they usually require expensive hardware equipment. In this paper, a low-cost system that generates near-realistic virtual actors is presented. The facial features of the real actor are blended with a virtual head that is attached to the actor's body. Comparing with other techniques that generate virtual actors, the proposed system is considered a low-cost system that requires only one camera that records the scene without using any expensive hardware equipment. The results of our system show that the system generates good near-realistic virtual actors that can be used on many applications.

Keywords:

Virtual Actors, Digital Actors, Film Industry, Video Compositing, Video Editing, Video Inpainting, Face Replacement

Published In:

3D Research , vol. 6 no. 2 , 1-21



(16)

Enhancement of Sky and Cloud Type Classification

Khaled F. Hussain Hanaa A. Sayed

Abstract:

The sky is an essential component in outdoor images. Sky and cloud type classification has applications in many areas such as image enhancement and sky image retrieval. In this paper, we improve the sky and cloud type classification rate over existing methods. Our work is based on two classification stages: sky image classification stage and sky cloud type classification stage. In sky classification stage, the image is classified into blue sky, cloudy sky, and sunset sky. Due to the impact of descriptor selection in the sky classification, we investigate ten descriptors; we show that the classifiers based on color descriptors are more accurate than the classifiers based on shape descriptors in sky type classification. We improve the sky image classification ratio using K-HSV descriptors. The sky classification with K-HSV descriptors has 77.3% correct classification rate. In cloud type's classification stage, the cloud is classified based on the sky type. For both the blue sky and the sunset sky, the cloud type is classified into six types: cloudless, thin-cirrus, cirrus, cirrocumulus, cumulus, and cumulonimbus. In cloudy sky, the cloud type is classified into three types: stratus, stratocumulus, and altostratus. The clouds are classified based on their shape and color using Gist minimum distance classification. The average correct classification rate of the clouds classifier is over 85% for cloudless, cumulus clouds, and stratus clouds and over 60% for thin-cirrus, cumulonimbus, stratocumulus, and altostratus clouds.

Keywords:

image classification, sky detection, cloud types, color descriptors

Published In:

the 1st IEEE/IIAE International Conference on Intelligent Systems and Image Processing 2013 , ,



(17)
Sky Detection Using K-HSV Descriptor

Khaled F. Hussain Hanaa A. Sayed

Abstract:

Many outdoor images contain sky. The sky detection and segmentation is important for image enhancement, horizon detection, and obstacle avoidance in unmanned air vehicles. Most researches in sky detection and segmentation are for blue sky only. Our work is proposed to detect and segment three categories of skies: blue sky, cloudy sky, and sunset sky. There are two types of sky detection methods: pixel based detection and block based detection. The main advantage of pixel based detection is the high correct detection ratio. There are many descriptors used in object detection such as color descriptors, color-shape descriptors, and shape descriptors. This work studies sky detection and segmentation with different descriptor types. The sky is classified into blue sky, cloudy sky, and sunset sky. For each sky type, the sky is detected using pixel based detection and block based detection. We improve the sky detection ratio using K-HSV descriptors. The sky detection with K-HSV descriptors has 86.16% correct ratio for blue sky. We decrease the number of keypoints used in sky segmentation to 200 random selected keypoints of all dense sampling keypoints. The sky segmentation based on 200 color moment invariant descriptors obtained 78.25% for blue sky, 61.63% for cloudy sky, and 62.27% for sunset sky.

Keywords:

Sky detection, sky segmentation, classification, color descriptors

Published In:

Journal of the Institute of Industrial Applications Engineers , vol. 2 no. 1 , 1-5



(18)

Enhancement of Interactive Face Image Deformation Based on Bounded Biharmonic Weights

Khaled F. Hussain Fatma Abd-Alhaleem

Abstract:

Face deformation plays a key role in many applications such as: Im production, games, face animation, artistic purposes, and facial plastic surgery planning. However, most of the existing image retouching techniques are mainly designed for low-level editing tasks. So it is difficult with the existing techniques to deform images containing faces. In this paper we develop an interactive real time face deformation technique that lets users deform the faces easily using a small number of control points. Our goal is to achieve a visually satisfactory outcome with low time complexity compared to the existing techniques.

Published In:

1st international conference on New Horizons in Basic and Applied Science (ICNHBAS 2013) , , 10



(19)

What is the Truth: A Survey of Video Compositing Techniques

Mahmoud Afifi Khaled F. Hussain

Abstract:

The compositing of videos is considered one of the most important steps on the post-production process. The compositing process combines several videos that may be recorded at different times or locations into a final one. Computer generated footages and visual effects are combined with real footages using video compositing techniques. High reality shots of many movies were introduced to the audience who cannot discover that those shots are not real. Many techniques are used for achieving high realistic results of video compositing. In this paper, a survey of video compositing techniques, a comparison among compositing techniques, and many examples for video compositing using existing techniques are presented.

Keywords:

Video Compositing Video Processing Image Inpainting Image Processing Visual Effects

Published In:

International Journal of Image, Graphics and Signal Processing , Vol. 7, No. 8 , 13-27



(20)

MPB: A modified Poisson blending technique

Mahmoud Afifi and Khaled F Hussain

Abstract:

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Keywords:

NULL

Published In:

Computational Visual Media , NULL , 331-341



(21)

Teleoperation of Dogs using Controlled Laser Beam

Mostafa Korashy Khaled F Hussain HM Ibrahim

Abstract:

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Keywords:

NULL

Published In:

Digital Information and Communication Technology and its Applications (DICTAP), 2016 Sixth International Conference on
, NULL , 45-49



(22)

A Comprehensive Study of the Effect of Spatial Resolution and Color of Digital Images on Vehicle Classification

Khaled F. Hussain, Mahmoud Afifi , and Ghada Moussa

Abstract:

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Keywords:

NULL

Published In:

IEEE TRANSACTIONS ON INTELLIGENT TRANSPORTATION SYSTEMS , NULL , NULL



(23)

Annotated Outdoor Image Compression Based on Sky Replacement

Khaled F. Hussain Hanaa A. Sayed

Abstract:

the sky is a basic component in outdoor images. Due to the low gradient values of the sky, it has high priority in seam removing for content aware image resizing and the result of enlarging image contributes obvious artificial pixels. The proportion of images which contains sky is over 40% of the daily recent explored images on Flickr (see section V). This paper presents a new technique for annotated outdoor image compression (AOIC) depending on sky replacing. We compress the outdoor images by replacing the sky region with the nearest sky in a predefined sky database to reduce image size. Our work is composed of two stages: encoding stage and decoding stage. In the encoding stage, we use sky annotation polygon to distinguish sky and non-sky regions. The sky features are extracted from the sky region (e.g. sky type, mean HSV, cloud type, and sun existence/relative position). These features are used to find the nearest sky feature from a predefined database of sky features. The sky ID and the sky polygon vertices are composed with non-sky region image. On the decoding stage, we use the sky ID to load the sky from the predefined sky database and compose the sky with the non-sky region (compressed image). Our method is tested using the standard outdoor images of LabelMe database which contain sky. Our method removes the sky and replaces it instead of shrinking the sky region in content aware image resize. Our AOIC can be used for reducing the file size of any image formats of outdoors that contains sky.

Keywords:

Image compression, annotation, outdoors, sky, features.

Published In:

The 27th International Conference on Computer Theory and Applications , NULL , 32-37



(24)

Robust Deep Learning Architecture for Traffic Flow Estimation from a Subset of Link Sensors

Mahmoud Owais, Ghada Moussa, Khaled F. Hussain

Abstract:

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Keywords:

NULL

Published In:

Journal of Transportation Engineering , NULL , NULL



(25)

-Sensor Location Model for O/D Estimation: Multi-Criteria Meta Heuristics Approach

Mahmoud Owais, Ghada Moussa, Khaled F. Hussain

Abstract:

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Keywords:

NULL

Published In:

Operations Research , NULL , NULL



(26)

A Comprehensive Study of the Effect of Spatial Resolution and Color of Digital Images on Vehicle Classification

Khaled F. Hussain, Mahmoud Afifi,, Ghada Moussa

Abstract:

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Keywords:

NULL

Published In:

EEE Transactions on Intelligent Transportation Systems , NULL , NULL



(27)

ON-ROAD VEHICLE CLASSIFICATION BASED ON RANDOM NEURAL NETWORK AND BAG-OF-VISUAL WORDS

Khaled F. Hussain, Ghada Moussa

Abstract:

NULL

Keywords:

NULL

Published In:

Probability in the Engineering and Informational Science , NULL , NULL



(28)

Accurate, data-efficient, unconstrained text recognition with convolutional neural networks

Mohamed Yousef, Khaled F Hussain, Usama S Mohammed

Abstract:

Unconstrained text recognition is an important computer vision task, featuring a wide variety of different sub-tasks, each with its own set of challenges. One of the biggest promises of deep neural networks has been the convergence and automation of feature extractors from input raw signals, allowing for the highest possible performance with minimum required domain knowledge. To this end, we propose a data-efficient, end-to-end neural network model for generic, unconstrained text recognition. In our proposed architecture we strive for simplicity and efficiency without sacrificing recognition accuracy. Our proposed architecture is a fully convolutional network without any recurrent connections trained with the CTC loss function. Thus it operates on arbitrary input sizes and produces strings of arbitrary length in a very efficient and parallelizable manner. We show the generality and superiority of our proposed text recognition architecture by achieving state of the art results on seven public benchmark datasets, covering a wide spectrum of text recognition tasks, namely: Handwriting Recognition, CAPTCHA recognition, OCR, License Plate Recognition, and Scene Text Recognition. Our proposed architecture has won the ICFHR2018 Competition on Automated Text Recognition on a READ Dataset.

Keywords:

NULL

Published In:

Journal of Pattern Recognition - arXiv preprint arXiv:1812.11894 , 108 , (1-12)107482