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Image Classification Using Content Based Image Retrieval

Deep Learning - 014 Content based image retrieval Image Classification with Neural Networks in Python Text Classification Using Naive Bayes | Naive Bayes Algorithm In Machine Learning | Simplilearn Computer Vision | Image Classification, Image Localization, Image Segmentation, Object Detection How to Build a Content-Based Recommendation System using Python | Easy Understanding | NLP Image Classification Project in Python | Deep Learning Neural Network Model Project in Python Image Classification Using Pytorch and Convolutional Neural Network SCAN: Learning to Classify Images without Labels Real-World Python Neural Nets Tutorial (Image Classification w/ CNN) | Tensorflow \u0026 Keras Forget ChatGPT, Try These 7 Free AI Tools! Dogs vs Cats Image Classification (CNN) | Deep Learning | Python NNC Tutorial : How to create dataset for image classification Train Neural Network by loading your images |TensorFlow, CNN, Keras tutorial Introduction to Deep Learning for Image Classification | Cindy Gonzales Image Classification using CNN Keras | Full implementation Getting started with image classification Day 124: Image Classification Using TensorFlow and YOLO | DataSciLearn Image classification vs Object detection vs Image Segmentation | Deep Learning Tutorial 28 Image classification using CNN (CIFAR10 dataset) | Deep Learning Tutorial 24 (Tensorflow \u0026 Python) Image Classification Using CNN | Deep Learning Projects | Machine Learning Tutorial | Simplilearn Best 12 AI Tools in 2023 Build a Deep CNN Image Classifier with ANY Images Deep-learning in Health care || Image Classification using(VGG16)? What is Image Classification - ML1M Text Classification Explained | Sentiment Analysis Example | Deep Learning Applications | Edureka Image Classification using CNN | Deep Learning Tutorial | Machine Learning Project 9 | Edureka Cat Vs Dog Image Classification Project | Deep Learning Project | CNN Project Extract Text From Images in Python (OCR)

Transactions on Computational Science XXV

Advances in Computer Science, Engineering and Applications

Pattern Recognition

Intelligent Computing Theories and Application

Proceedings of the International Conference on Frontiers of Intelligent Computing: Theory and Applications (FICTA) 2013

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Image Classification Using Content Based Image Retrieval ***OMB No. 2518046437936 edited by***

HERNANDEZ CORDOVA

Transactions on Computational Science XXV

CRC Press
Content-based Image Retrieval (CBIR) ist ein Verfahren zum Auffinden von Bildern in großen Datenbanken wie z. B. dem Internet anhand ihres Inhalts. Ausgehend von einem vom Nutzer bereitgestellten Anfragebild, gibt das System eine sortierte Liste ähnlicher Bilder zurück. Der Großteil moderner CBIR-Systeme vergleicht Bilder ausschließlich anhand ihrer visuellen Ähnlichkeit, d.h. dem Vorhandensein ähnlicher Texturen, Farbkompositionen etc. Jedoch impliziert visuelle Ähnlichkeit nicht zwangsläufig auch semantische Ähnlichkeit. Zum Beispiel können Bilder von Schmetterlingen und Raupen als ähnlich betrachtet werden, weil sich die Raupe irgendwann in einen Schmetterling verwandelt. Optisch haben sie jedoch nicht viel gemeinsam. Die vorliegende Arbeit stellt eine Methode vor, welche solch menschliches Vorwissen über die Semantik der Welt in Deep-Learning-Verfahren integriert. Als Quelle für dieses Wissen dienen Taxonomien, die für eine Vielzahl von Domänen verfügbar sind und hierarchische Beziehungen zwischen Konzepten kodieren (z.B., ein Pudel ist ein

Hund ist ein Tier etc.). Diese hierarchiebasierten semantischen Bildmerkmale verbessern die semantische Konsistenz der CBIR-Ergebnisse im Vergleich zu herkömmlichen Repräsentationen und Merkmalen erheblich. Darüber hinaus werden drei verschiedene Mechanismen für interaktives Image Retrieval präsentiert, welche die den Anfragebildern inhärente semantische Ambiguität durch Einbezug von Benutzerfeedback auflösen. Eine der vorgeschlagenen Methoden reduziert das erforderliche Feedback mithilfe von Clustering auf einen einzigen Klick, während eine andere den Nutzer kontinuierlich involviert, indem das System aktiv nach Feedback zu denjenigen Bildern fragt, von denen der größte Erkenntnisgewinn bezüglich des Relevanzmodells erwartet wird. Die dritte Methode ermöglicht dem Benutzer die Auswahl besonders interessanter Bildbereiche zur Fokussierung der Ergebnisse. Diese Techniken liefern bereits nach wenigen Feedbackrunden deutlich relevantere Ergebnisse, was die Gesamtmenge der abgerufenen Bilder reduziert, die der Benutzer überprüfen muss, um relevante Bilder zu finden.

Content-based image retrieval (CBIR) aims for finding images in large databases such as the internet based on their content. Given an exemplary query image provided by the user, the retrieval system provides a ranked list of similar images. Most contemporary CBIR systems compare images solely by means of their visual similarity, i.e., the occurrence of similar textures and the composition of colors. However, visual similarity does not necessarily coincide with semantic similarity. For example, images of butterflies and caterpillars can be considered as similar, because the caterpillar turns into a butterfly at some point in time. Visually, however, they do not have much in common. In this work, we propose to integrate such human prior knowledge about the semantics of the world into deep learning techniques. Class hierarchies serve as a source for this knowledge, which are readily available for a plethora of domains and encode is-a relationships (e.g., a poodle is a dog is an animal etc.). Our hierarchy-based semantic embeddings improve the semantic consistency of CBIR results substantially compared to conventional image representations and features. We furthermore present three different mechanisms for interactive image retrieval by incorporating user feedback to resolve the inherent semantic ambiguity present in the query image. One of the proposed methods reduces the required user feedback to a single click using clustering, while another keeps the human in the loop by actively asking for feedback regarding those images which are expected to improve the relevance model the most. The third method allows the user to select particularly interesting regions in images. These techniques yield more relevant results after a few rounds of feedback, which reduces the total amount of retrieved images the user needs to inspect to find relevant ones.

Advances in Computer Science, Engineering and Applications Springer Nature

This book gathers high-quality peer-reviewed research papers presented at the International Conference on Intelligent Computing and Networking (IC-ICN 2021), organized by the Computer Department, Thakur College of Engineering and

Technology, in Mumbai, Maharashtra, India, on February 26–27, 2021. The book includes innovative and novel papers in the areas of intelligent computing, artificial intelligence, machine learning, deep learning, fuzzy logic, natural language processing, human–machine interaction, big data mining, data science and mining, applications of intelligent systems in health ,care, finance, agriculture and manufacturing, high-performance computing, computer networking, sensor and wireless networks, Internet of Things (IoT), software-defined networks, cryptography, mobile computing, digital forensics, and blockchain technology.

Pattern Recognition IGI Global

This volume contains the papers presented at the Second International Conference on Frontiers in Intelligent Computing: Theory and Applications (FICTA-2013) held during 14-16 November 2013 organized by Bhubaneswar Engineering College (BEC), Bhubaneswar, Odisha, India. It contains 63 papers focusing on application of intelligent techniques which includes evolutionary computation techniques like genetic algorithm, particle swarm optimization techniques, teaching-learning based optimization etc for various engineering applications such as data mining, Fuzzy systems, Machine Intelligence and ANN, Web technologies and Multimedia applications and Intelligent computing and Networking etc.

Intelligent Computing Theories and Application Springer

Content-Based Analysis Of Digital Video focuses on fundamental issues underlying the development of content access mechanisms for digital video. It treats topics that are critical to successfully automating the video content extraction and retrieval processes, and includes coverage of: - Video parsing, - Video content indexing and representation, - Affective video content analysis. In this well illustrated book the author integrates related information currently scattered throughout the literature and combines it with new ideas into a unified theoretical approach to video content analysis. The material also suggests ideas for future research. Systems developers, researchers and students working in the area of content-based analysis and retrieval of video and multimedia in general will find this book invaluable.

Proceedings of the International Conference on Frontiers of Intelligent Computing: Theory and Applications (FICTA) 2013 Springer Science & Business Media

Content-Based Image Classification: Efficient Machine Learning Using Robust Feature Extraction Techniques is a comprehensive guide to research with invaluable image data. Social Science Research Network has revealed that 65% of people are visual learners. Research data provided by Hyerle (2000) has clearly shown 90% of information in the human brain is visual. Thus, it is no wonder that visual information processing in the brain is 60,000 times faster than text-based information (3M Corporation, 2001). Recently, we have witnessed a significant surge in conversing with images due to the popularity of social networking platforms. The other reason for embracing usage of image data is the mass availability of high-resolution cellphone cameras. Wide usage of image data in diversified application areas including medical science, media, sports, remote

sensing, and so on, has spurred the need for further research in optimizing archival, maintenance, and retrieval of appropriate image content to leverage data-driven decision-making. This book demonstrates several techniques of image processing to represent image data in a desired format for information identification. It discusses the application of machine learning and deep learning for identifying and categorizing appropriate image data helpful in designing automated decision support systems. The book offers comprehensive coverage of the most essential topics, including: Image feature extraction with novel handcrafted techniques (traditional feature extraction) Image feature extraction with automated techniques (representation learning with CNNs) Significance of fusion-based approaches in enhancing classification accuracy MATLAB® codes for implementing the techniques Use of the Open Access data mining tool WEKA for multiple tasks The book is intended for budding researchers, technocrats, engineering students, and machine learning/deep learning enthusiasts who are willing to start their computer vision journey with content-based image recognition. The readers will get a clear picture of the essentials for transforming the image data into valuable means for insight generation. Readers will learn coding techniques necessary to propose novel mechanisms and disruptive approaches. The WEKA guide provided is beneficial for those uncomfortable coding for machine learning algorithms. The WEKA tool assists the learner in implementing machine learning algorithms with the click of a button. Thus, this book will be a stepping-stone for your machine learning journey. Please visit the author's website for any further guidance at https://www.rikdas.com/

Feature Dimension Reduction for Content-Based Image Identification IGI Global

This book covers all aspects of robot intelligence from perception at sensor level and reasoning at cognitive level to behavior planning at execution level for each low level segment of the machine. It also presents the technologies for cognitive reasoning, social interaction with humans, behavior generation, ability to cooperate with other robots, ambience awareness, and an artificial genome that can be passed on to other robots. These technologies are to materialize cognitive intelligence, social intelligence, behavioral intelligence, collective intelligence, ambient intelligence and genetic intelligence. The book aims at serving researchers and practitioners with a timely dissemination of the recent progress on robot intelligence technology and its applications, based on a collection of papers presented at the 3rd International Conference on Robot Intelligence Technology and Applications (RiTA), held in Beijing, China, November 6 - 8, 2014. For better readability, this edition has the total 74 papers grouped into 3 chapters: Chapter I: Ambient, Behavioral, Cognitive, Collective, and Social Robot Intelligence, Chapter II: Computational Intelligence and Intelligent Design for Advanced Robotics, Chapter III: Applications of Robot Intelligence Technology, where individual chapters, edited respectively by Peter Sincak, Hyun Myung, Jun Jo along with Weimin Yang and Jong-Hwan Kim, begin with a brief introduction written by the respective chapter editors.

Phishing Detection Using Content-Based Image Classification Springer

The special issue is dedicated to National conference on Communication, computational intelligence and learning-NCCCIL sponsored by AICTE and organized by Department of Information Technology at Army Institute of Technology from 12–13 January 2022. This conference gave the collaborative forum to academic experts, researchers and corporate professionals to enrich their knowledge in the automation and analysis of industry and business processes in a smart way. The two day conference included invited talks and paper presentations focusing on the applications of Computational intelligence, Communication, Machine Learning and Artificial Intelligence.
Methods and Innovations for Multimedia Database Content Management CRC Press
This book describes the potential contributions of emerging technologies in different fields as well as the opportunities and challenges related to the integration of these technologies in the socio-economic sector. In this book, many latest technologies are addressed, particularly in the fields of computer science and engineering. The expected scientific papers covered state-of-the-art technologies, theoretical concepts, standards, product implementation, ongoing research projects, and innovative applications of Sustainable Development. This new technology highlights, the guiding principle of innovation for harnessing frontier technologies and taking full profit from the current technological revolution to reduce gaps that hold back truly inclusive and sustainable development. The fundamental and specific topics are Big Data Analytics, Wireless sensors, IoT, Geospatial technology, Engineering and Mechanization, Modeling Tools, Risk analytics, and preventive systems.

Content-based Microscopic Image Analysis

MDPI
The three volume set LNAI 6096, LNAI 6097, and LNAI 6098 constitutes the thoroughly refereed conference proceedings of the 23rd International Conference on Industrial Engineering and Other Applications of Applied Intelligend Systems, IEA/AIE 2010, held in Cordoba, Spain, in June 2010. The total of 119 papers selected for the proceedings were carefully reviewed and selected from 297 submissions.

Image Analysis And Recognition

Springer Nature
This two-volume set LNCS 9771 and LNCS 9772 constitutes - in conjunction with the volume LNAI 9773 - the refereed proceedings of the 12th International Conference on Intelligent Computing, ICIC 2016, held in Lanzhou, China, in August 2016. The 221 full papers and 15 short papers of the three proceedings volumes were carefully reviewed and selected from 639 submissions. The papers are organized in topical sections such as signal processing and image processing; information security, knowledge discovery, and data mining; systems biology and intelligent computing in computational biology; intelligent computing in scheduling; information security; advances in swarm intelligence: algorithms and applications; machine learning and data analysis for medical and engineering applications; evolutionary computation and learning; independent component analysis; compressed sensing, sparse coding; social computing; neural networks;

nature inspired computing and optimization; genetic algorithms; signal processing; pattern recognition; biometrics recognition; image processing; information security; virtual reality and human-computer interaction; healthcare informatics theory and methods; artificial bee colony algorithms; differential evolution; memetic algorithms; swarm intelligence and optimization; soft computing; protein structure and function prediction; advances in swarm intelligence: algorithms and applications; optimization, neural network, and signal processing; biomedical informatics and image processing; machine learning; knowledge discovery and natural language processing; nature inspired computing and optimization; intelligent control and automation; intelligent data analysis and prediction; computer vision; knowledge representation and expert system; bioinformatics.

Image Processing and Intelligent Computing Systems Content-Based Image Classification

In this dissertation, novel Content-based Microscopic Image Analysis (CBMIA) methods, including Weakly Supervised Learning (WSL), are proposed to aid biological studies. In a CBMIA task, noisy image, image rotation, and object recognition problems need to be addressed. To this end, the first approach is a general supervised learning method, which consists of image segmentation, shape feature extraction, classification, and feature fusion, leading to a semi-automatic approach. In contrast, the second approach is a WSL method, which contains Sparse Coding (SC) feature extraction, classification, and feature fusion, leading to a full-automatic approach. In this WSL approach, the problems of noisy image and object recognition are jointly resolved by a region-based classifier, and the image rotation problem is figured out through SC features. To demonstrate the usefulness and potential of the proposed methods, experiments are implemented on di erent practical biological tasks, including environmental microorganism classification, stem cell analysis, and insect tracking.

Robot Intelligence Technology and Applications 3

Physica

This book constitutes the refereed proceedings of the Third International Conference on Image and Video Retrieval, CIVR 2004, held in Dublin, Ireland in July 2004. The 31 revised full papers and 44 poster papers presented were carefully reviewed and selected from 125 submissions. The papers are organized in topical sections on image annotation and user searching, image and video retrieval algorithms, person and event identification for retrieval, content-based image and video retrieval, and user perspectives.

Medical Content-Based Retrieval for Clinical Decision Support

Springer

Content-Based Image ClassificationCRC Press

Image and Video Retrieval

Springer Science & Business Media

Information retrieval (IR) aims at defining systems able to provide a fast and effective content-based access to a large

amount of stored information. The aim of an IR system is to estimate the relevance of documents to users' information needs, expressed by means of a query. This is a very difficult and complex task, since it is pervaded with imprecision and uncertainty. Most of the existing IR systems offer a very simple model of IR, which privileges efficiency at the expense of effectiveness. A promising direction to increase the effectiveness of IR is to model the concept of "partially intrinsic" in the IR process and to make the systems adaptive, i.e. able to "learn" the user's concept of relevance. To this aim, the application of soft computing techniques can be of help to obtain greater flexibility in IR systems.

Soft Computing Applications for Database Technologies: Techniques and Issues
Springer

Phishing Detection Using Content-Based Image Classification is an invaluable resource for any deep learning and cybersecurity professional and scholar trying to solve various cybersecurity tasks using new age technologies like Deep Learning and Computer Vision. With various rule-based phishing detection techniques at play which can be bypassed by phishers, this book provides a step-by-step approach to solve this problem using Computer Vision and Deep Learning techniques with significant accuracy. The book offers comprehensive coverage of the most essential topics, including: Programmatically reading and manipulating image data Extracting relevant features from images Building statistical models using image features Using state-of-the-art Deep Learning models for feature extraction Build a robust phishing detection tool even with less data Dimensionality reduction techniques Class imbalance treatment Feature Fusion techniques Building performance metrics for multi-class classification task Another unique aspect of this book is it comes with a completely reproducible code base developed by the author and shared via python notebooks for quick launch and running capabilities. They can be leveraged for further enhancing the provided models using new advancement in the field of computer vision and more advanced algorithms.

Transactions on Computational Science XXIX IGI Global

This book constitutes the refereed proceedings of the 40th German Conference on Pattern Recognition, GCPR 2018, held in Stuttgart, Germany, in October 2018. The 48 revised full papers presented were carefully reviewed and selected from 118 submissions. The German Conference on Pattern Recognition is the annual symposium of the German Association for Pattern Recognition (DAGM). It is the national venue for recent advances in image processing, pattern recognition, and computer vision and it follows the long tradition of the DAGM conference series, which has been renamed to GCPR in 2013 to reflect its increasing internationalization. In 2018 in Stuttgart, the conference series celebrated its 40th anniversary.

Computer Vision and Recognition Systems
IGI Global

This cutting-edge volume focuses on how artificial intelligence can be used to give computers the ability to imitate human sight. With contributions from researchers in diverse countries, including Thailand, Spain, Japan, Turkey, Australia, and India, the book explains the essential modules

that are necessary for comprehending artificial intelligence experiences to provide machines with the power of vision. The volume also presents innovative research developments, applications, and current trends in the field. The chapters cover such topics as visual quality improvement, Parkinson's disease diagnosis, hypertensive retinopathy detection through retinal fundus, big image data processing, N-grams for image classification, medical brain images, chatbot applications, credit score improvisation, vision-based vehicle lane detection, damaged vehicle parts recognition, partial image encryption of medical images, and image synthesis. The chapter authors show different approaches to computer vision, image processing, and frameworks for machine learning to build automated and stable applications. Deep learning is included for making immersive application-based systems, pattern recognition, and biometric systems. The book also considers efficiency and comparison at various levels of using algorithms for real-time applications, processes, and analysis.

Perspectives on Content-Based Multimedia Systems Springer Science & Business Media

This book constitutes the refereed proceedings of the Second International Conference on Image Analysis and Recognition, ICIAR 2005, held in Toronto, Canada, in September 2005.The 153 revised full papers presented together with 2 invited papers were carefully reviewed and selected from 295 submissions. The papers are organized in topical sections on image segmentation, image and video processing and analysis, image and video coding, shape and matching, image description and recognition, image retrieval and indexing, 3D imaging, morphology, colour analysis, texture analysis, motion analysis, tracking, biomedical applications, face recognition and biometrics, image secret sharing, single-sensor imaging, and real-time imaging.

Application of Communication Computational Intelligence and Learning Springer

This, the 29th issue of the Transactions on Computational Science journal, is comprised of seven full papers focusing on the area of secure communication. Topics covered include weak radio signals, efficient circuits, multiple antenna sensing techniques, modes of inter-computer communication and fault types, geometric meshes, and big data processing in distributed environments.

Semantic Mining Technologies for Multimedia Databases Springer Nature

There is presently a drastic growth in multimedia data. During the Covid-19 pandemic, we observed that images helped doctors immensely in the rapid detection of Covid-19 infection in patients. There are many critical applications in which images play a vital role. These applications use raw image data to extract some useful information about the world around us. The quick extraction of valuable information from raw images is one challenge that academicians and professionals face in the present day. This is where image processing comes into action. Image processing's primary purpose is to get an enhanced image or extract some useful information from raw image data. Therefore, there is a major need for some technique or system that addresses this challenge. Intelligent Systems have emerged as a solution to

address quick image information extraction. In simple words, an Intelligent System can be defined as a mathematical model that adapts itself to deal with a problem’s dynamicity. These systems learn how to act so an image can reach an objective. An Intelligent System helps accomplish various image-processing functions like enhancement, segmentation, reconstruction, object detection, and morphing. The advent of Intelligent Systems in the image-processing field has leveraged many critical applications for humankind. These critical applications include factory automation, biomedical imaging analysis, decision econometrics, as well as related challenges.