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Facial Shape Analysis and Accessory Recommendation: A Human-Centric AI Approach

Sanjay Reddy Komatireddy, K. Meghana, +1 author G. Ramesh •

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TLDR This research centers on the realm of facial shape analysis and its applications in providing tailored accessory recommendations, harnessing AI techniques such as Machine Learning (ML) algorithms to offer customized suggestions.

Abstract In this digital world, the fusion of Artificial Intelligence (AI) and Human-Computer Interaction (HCI) opens new avenues for enhancing user experiences through personalization. This research centers on the realm of facial shape analysis and its applications in providing tailored accessory recommendations, harnessing AI techniques such as Machine Learning (ML) algorithms to offer customized suggestions. The primary objective is to create an intelligent system adept at recognizing facial shapes and delivering accessory recommendations that harmonize seamlessly with an individual's unique facial characteristics. To accomplish this, advanced Artificial Intelligence (AI) algorithms specialized in facial shape recognition and analysis have been utilized. These algorithms include K-Means, DBSCAN, and Agglomerative Clustering, each playing a crucial role in the process. The system's recommendations are founded on a comprehensive analysis that combines both quantitative data and qualitative insights. The findings underscore the effectiveness of AI-driven facial shape analysis in personalizing accessory recommendations. This study highlights AI's capacity to elevate user experiences and showcases the intersection of technology and fashion within HCI. As a contribution to the evolving field of AI and HCI, this research emphasizes the importance of user centered solutions. Moreover, the results act as a foundational pillar for future research in personalized recommendations and user interfaces, effectively bridging the gap between AI advancements and human-centric design.
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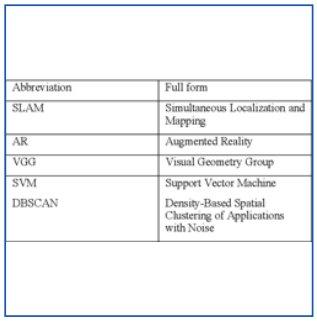


Abbreviation	Full form
SLAM	Simultaneous Localization and Mapping
AR	Augmented Reality
VGG	Visual Geometry Group
SVM	Support Vector Machine
DBSCAN	Density-Based Spatial Clustering of Applications with Noise

Table 1

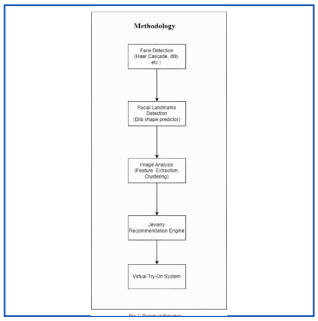
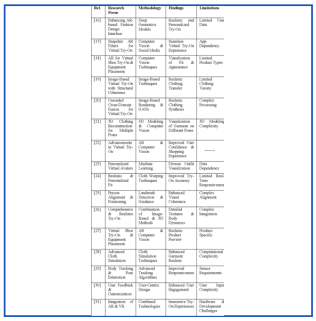


Figure 1



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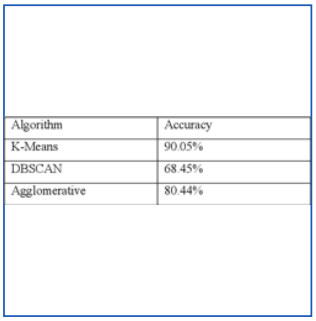

Algorithm	Accuracy
K-Means	90.05%
DBSCAN	68.45%
Agglomerative	80.44%

Table 3

6 Citations

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AUGMENTED REALITY AND IOT-INTEGRATED SMART HOMES: ENHANCING USER EXPERIENCE AND AUTOMATION

Engineering, Computer Science

TLDR A comprehensive framework that combines Augmented Reality and the Internet of Things to create an immersive, efficient, and user-friendly smart home environment is explored, which facilitates a more responsive and intelligent home environment that adapts to the needs of its occupants. Expand

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OPTIMIZED INTRUSION DETECTION MODEL FOR IDENTIFYING KNOWN AND INNOVATIVE CYBER ATTACKS USING SUPPORT VECTOR MACHINE (SVM) ALGORITHMS

Computer Science, Engineering

TLDR An optimized intrusion detection model using Support Vector Machine (SVM) algorithms tailored to detect known and innovative cyber-attacks with high accuracy and efficiency is proposed. Expand

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Assessing Environmental Impact: Machine Learning for Crop Yield Prediction

Sowjanya Addu | Srujana Sheelam | Samhitha Mekala | Nazma Sulthana | Lohitha Mekala | Zaid Alsalami

Environmental Science, Agricultural and Food Sciences · E3S Web of Conferences · 2024

TLDR This project will allow farmers to capture the yield of their crops before cultivation in the field of agriculture and thus help them make the necessary decisions to bridge the gap between technology and the agriculture sector. Expand

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Sustainable Abnormal Events Detection and Tracking in Surveillance System

Apurva A. Khandekar | Vikas Meneni | Haseeb Uddin | Bhusa Nikhil | M. Tejeshwar | Ramy Riad Al-Fatlawy

Computer Science, Engineering · E3S Web of Conferences · 2024

TLDR A sustainable automated approach to detect abnormal events in surveillance footage is introduced, leveraging Convolutional Neural Networks (CNNs) and deep learning techniques to reduce the burden of manual monitoring and enable timely responses to security threats. Expand

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Geographic Information Systems Applications in Business Decision-Making

Pasupuleti Pavani · Sanjay Reddy Komatireddy · Venkata Teja Yarasuri · Vivek Reddy Police · Sunil Kumar Tanneru · H. M. Al-Jawahry

Business, Computer Science · E3S Web of Conferences · 2024

TLDR The primary objective of this study is to address the limitations of current GIS methodologies by understanding their capabilities while ensuring the effective use of advanced technologies, and optimizing business decision making processes. Expand

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Spatial Analysis for Better Marketing Decisions with Special Focus on Consumer Behaviour Patterns

Pasupuleti Pavani · Sanjay Reddy Komatireddy · Venkata Teja Yarasuri · Vivek Reddy Police · Sunil Kumar Tanneru · M. I. Habelalmateen

Geography, Business · E3S Web of Conferences · 2024

TLDR The analysis encompasses the integration of GIS with methodologies such as spatial point pattern analysis, kernel density estimation, and RFID systems, offering insights into optimal retail site locations, consumer preferences in shopping centers, and the spatial distribution of data. Expand

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Incorporating Human Body Shape Guidance for Cloth Warping in Model to Person Virtual Try-on Problems

Debapriya Roy · Sanchayan Santra · B. Chanda · Computer Science, Engineering ·

Image and Vision Computing New Zealand · 2020

TLDR A model to person cloth warping strategy is proposed, where the objective is to align the segmented cloth from the model image in a way that fits the target person, thus, alleviating the need of separate cloth images. Expand

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Deep Person Generation: A Survey from the Perspective of Face, Pose, and Cloth Synthesis

Tong Sha · Wei Zhang · T. Shen · Zhoujun Li · Tao Mei · Computer Science · ACM Computing Surveys · 2023

TLDR The scope of person generation is summarized, and recent progress and technical trends in identity-preserving deep person generation are reviewed, covering three major tasks: talking-head generation (face), pose-guided person generation (pose), and garment-oriented persongeneration (cloth). Expand

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Comparative Analysis of Clustering Algorithm for Facial Recognition System

Sanskriti Jain · Md. Umar Farooque · Vinayak Sharma · Computer Science ·

IEEE International Advance Computing Conference · 2018

TLDR A facial clustering technique for low-resolution facial dataset obtained from video surveillance footage with the help of HAAR cascade classifier is proposed. Expand

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Image-Based Virtual Try-on Network with Structural Coherence

Fengiiao Sun · Jiaming Guo · Z. Su · Chengying Gao · Computer Science ·

International Conference on Information Photonics · 2019

TLDR A novel image-based virtual try-on network, which could maintain the structural consistency between the generated image and the original image by human parsing, and achieves the state-of-the-art performance. Expand

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LGVTON: a landmark guided approach for model to person virtual try-on

Debapriya Roy · Sanchayan Santra · B. Chanda · Computer Science · Multimedia tools and applications · 2022

TLDR A Landmark Guided Virtual Try-On method for clothes, which aims to solve the problem of clothing trials on e-commerce websites, that uses the landmarks of human and clothes to compute the Thin-Plate Spline based transformation to fit the person. Expand

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Cascaded Cross-Domain Fusion of Virtual Try-On

Xinrong Hu · Junyu Zhang · +4 authors · Min Li · Computer Science ·

IEEE International Conference on Bioinformatics... · 2021

TLDR A novel two stage visual try-on network that can generate photo-realistic images with no occlusion when large-scale deformations or large occlusions occur is proposed. Expand

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Multiple Pose Virtual Try-On Based on 3D Clothing Reconstruction

T. Tuan · Matiur Rahman Minar · Heejune Ahn · John Wainwright · Computer Science · IEEE Access · 2021

TLDR A 3D-MPVTON system of two pipelines and shows that a 3D clothing model reconstruction approach provides much better results for the multi-pose VTON scenario and outperforms the previous 2D-based approaches by substantial margins in both objective evaluation and subjective user study. Expand

8 · Highly Influential · PDF · 5 Excerpts · Save

An Augmented Reality-based Fashion Design Interface with Artistic Contents Generated Using Deep Generative Models

Asangika Sandamini · Chamodi Jayathilaka · Thisara Pannala · Kasun Karunanayaka · Prabhash Kumarasinghe · Dushani Perera

Art, Computer Science · International Conference on Advances in ICT for... · 2022

TLDR The findings show that the use of the ARGAN can support fashion designers' during their designing process and is the first attempt at utilizing Deep Generative Models (e.g. GANs) in an Augmented Reality prototype in fashion designing for generate creative fashion content in 2D. Expand

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You can try without visiting: a comprehensive survey on virtually try-on outfits

Hajer Ghodhbani · Mohamed Neji · Imran Razzak · A. Alimi · Computer Science, Business ·

Multimedia tools and applications · 2022

TLDR This study summarizes state-of-the-art image based virtual try-on for both fashion detection and fashion synthesis as well as their respective advantages, drawbacks, and guidelines for selection of specifictry-on model followed by its recent development and successful application. Expand

23 PDF 2 Excerpts Save

CloTH-VTON: Clothing Three-Dimensional Reconstruction for Hybrid Image-Based Virtual Try-ON

Matiur Rahman Minar · Heejune Ahn · Computer Science, Engineering · Asian Conference on Computer Vision · 2020

TLDR 3D deformed clothes are reconstructed from the standard human model by transferring the vertices' displacements of the clothing model to the corresponding target human body model, by transferring the vertices' displacements' displacements in the local coordinate frame. Expand

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