Document details

‹ Back to results | ‹ Previous 45 of 50 Next ›

CSV export Download Print E-mail Save to PDF Save to list More... ›

Full Text View at Publisher

Advances in Intelligent Systems and Computing
Volume 1350 AISC, 2021, Pages 39-49
2nd International Conference on Innovative Technology, Engineering and Sciences, iCITES 2020; Pekan; Malaysia; 22 December 2020 through 22 December 2020; Code 256319

Development of Automatic Obscene Images Filtering Using Deep Learning (Conference Paper)

Awad, A.M.[a], Gunawan, T.S.[a,b], Habaebi, M.H.[a], Ismail, N.[c]

Save all to author list

[a] Electrical and Computer Engineering Department, International Islamic University Malaysia, Gombak, Malaysia
[b] School of Electrical Engineering and Telecommunications, UNSW, Sydney, Australia
[c] Electrical Engineering Department, UIN Sunan Gunung Djati, Bandung, Indonesia

Abstract

View references (15)

Because of Internet availability in most societies, access to pornography has become a severe issue. On the other side, the pornography industry has grown steadily, and its websites are becoming increasingly popular by offering potential users free passes. Filtering obscene images and video frames is essential in the big data era, where all kinds of information are available for everyone. This paper proposes a fully automated method to filter any storage device from obscene videos and images using deep learning algorithms. The whole recognition process can be divided into two stages, including fine detection and focus detection. The fine detection includes skin color detection with YCbCr and HSV color spaces and accurate face detection using the Adaboost algorithm with Haar-like features. Moreover, focus detection uses AlexNet transfer learning to identify the obscene images which passed stage one. Results showed the effectiveness of our proposed algorithm in filtering obscene images or videos. The testing accuracy achieved is 95.26% when tested with 3969 testing images. © 2021, The Author(s), under exclusive license to Springer Nature Switzerland AG.

SciVal Topic Prominence

Topic: Face Detection | Skin Pigmentation | Color Space

Prominence percentile: 86.935

Author keywords

Adaboost algorithm | AlexNet | Convolutional neural networks | Haar-like features | Image filtering | Pornographic | Skin detection

Indexed keywords

Engineering controlled terms: Adaptive boosting | Chromium compounds | Color | Face recognition | Information filtering | Transfer learning | Virtual storage

Engineering uncontrolled terms: AdaBoost algorithm | Focus detection | Fully automated | Haar-like features | HSV color spaces | Recognition process | Skin-color detection | Testing accuracy

Engineering main heading: Deep learning

Funding details

Funding sponsor	Funding number	Acronym
Ministry of Education - Singapore	FRGS/1/2018/ICT02/UIAM/02/4,FRGS19-076-0684	MOE
Ministry of Higher Education, Malaysia		MOHE

Funding text

The authors would like to express their gratitude to the Malaysian Ministry of Education (MOE), which has provided research funding through the Fundamental Research Grant, FRGS19-076-0684 (FRGS/1/2018/ICT02/UIAM/02/4). The authors would like to acknowledge the International Islamic University and the University of New South Wales?s support.

ISSN: 21945357
ISBN: 978-303070916-7
Source Type: Book Series
Original language: English

DOI: 10.1007/978-3-030-70917-4_5
Document Type: Conference Paper
Volume Editors: Mat Jizat J.A.,Khairuddin I.M.,Mohd Razman M.A.,Ab. Nasir A.F.,Abdul Karim M.S.,Jaafar A.A.,Hong L.W.,Abdul Majeed A.P.,Liu P.,Myung H.,Choi H.,Susto G.
Publisher: Springer Science and Business Media Deutschland GmbH

References (15)

View in search results format >

All | CSV export | Print | E-mail | Save to PDF | Create bibliography

1 Fleck, M.M., Forsyth, D.A., Bregler, C.
Finding naked people
(1996) *European Conference on Computer Vision*. Cited 253 times.
Springer

2 Zaidan, A.A., Karim, H.A., Ahmad, N.N., Zaidan, B.B., Sali, A.
An automated anti-pornography system using a skin detector based on artificial intelligence: A review
(2013) *International Journal of Pattern Recognition and Artificial Intelligence*, 27 (4), art. no. 1350012. Cited 23 times.
doi: 10.1142/S0218001413500122
View at Publisher

3 Ahmed, F., Shafiq, M.Z., Liu, A.X.
The Internet is for Porn: Measurement and Analysis of Online Adult Traffic
(2016) *Proceedings - International Conference on Distributed Computing Systems*, 2016-August, art. no. 7536508, pp. 88-97. Cited 11 times.
ISBN: 978-150901482-8
doi: 10.1109/ICDCS.2016.81
View at Publisher

4 Kleinman, A.
(2013) *Each Month Porn Sites Get More Visitors than Netflix*
Amazon and Twitter Combined
https://www.huffpost.com/entry/internet-porn-stats_n_3187682

5 Nikam, A.V.
Locating and detecting nipple for pornographic image identification
(2018) *Int. J. Comput. Sci. Eng.*, 6 (7), pp. 1343-1347.

6 Nian, F., Li, T., Wang, Y., Xu, M., Wu, J.
Pornographic image detection utilizing deep convolutional neural networks

(2016) *Neurocomputing*, 210, pp. 283-293. Cited 38 times.
www.elsevier.com/locate/neucom
doi: 10.1016/j.neucom.2015.09.135

View at Publisher

7 Moustafa, M.
(2015) *Applying Deep Learning to Classify Pornographic Images and Videos. Arxiv Preprint Arxiv*, 1511, p. 08899.

8 Wang, Y., Jin, X., Tan, X.
Pornographic image recognition by strongly-supervised deep multiple instance learning

(2016) *Proceedings - International Conference on Image Processing, ICIP*, 2016-August, art. no. 7533195, pp. 4418-4422. Cited 13 times.
ISBN: 978-146739961-6
doi: 10.1109/ICIP.2016.7533195

View at Publisher

9 Jin, X., Wang, Y., Tan, X.
Pornographic Image Recognition via Weighted Multiple Instance Learning
(Open Access)

(2018) *IEEE Transactions on Cybernetics*. Cited 12 times.
https://www.ieee.org/membership-catalog/productdetail/
doi: 10.1109/TCYB.2018.2864870

View at Publisher

10 Lv, L., Zhao, C., Lv, H., Shang, J., Yang, Y., Wang, J.
Pornographic images detection using high-level semantic features

(2011) *Proceedings - 2011 7th International Conference on Natural Computation, ICNC 2011*, 2, art. no. 6022151, pp. 1015-1018. Cited 12 times.
ISBN: 978-142449953-3
doi: 10.1109/ICNC.2011.6022151

View at Publisher

11 Kolkur, S.
Human skin detection using RGB
(2017) *HSV and Ycbcr Color Models. Arxiv Preprint Arxiv*, 1708, p. 02694. Cited 2 times.

12 Yan, J., Gao, X.
Pornographic video detection with MapReduce

(2018) *International Journal of Machine Learning and Cybernetics*, 9 (12), pp. 2105-2115. Cited 2 times.
http://www.springer.com/engineering/journal/13042
doi: 10.1007/s13042-017-0693-5

View at Publisher

13 Chelali, F.Z., Cherabit, N., Djeradi, A.
Face recognition system using skin detection in RGB and YCbCr color space

(2015) *2015 2nd World Symposium on Web Applications and Networking, WSWAN 2015*, art. no. 7210329. Cited 15 times.
ISBN: 978-147998171-7
doi: 10.1109/WSWAN.2015.7210329

View at Publisher

14 Hajraoui, A., Sabri, M.
Face detection algorithm based on skin detection, watershed method and gabor filters
(2014) *Int. J. Comput. Appl.*, 94 (6), pp. 33-39. Cited 14 times.

15 Avila, S., Thome, N., Cord, M., Valle, E., De A. Araújo, A.
Pooling in image representation: The visual codeword point of view

(2013) *Computer Vision and Image Understanding*, 117 (5), pp. 453-465. Cited 125 times.
doi: 10.1016/j.cviu.2012.09.007

View at Publisher

Gunawan, T.S.; Electrical and Computer Engineering Department, International Islamic University Malaysia, Gombak, Malaysia; email:tsgunawan@iium.edu.my