

Scopus

## Document details

[< Back to results](#) | 1 of 1[Export](#) [Download](#) [Print](#) [E-mail](#) [Save to PDF](#) [Add to List](#) [More... >](#)[Full Text](#)[View at Publisher](#)

Proceedings - International Conference on Intelligent Systems, Modelling and Simulation, ISMS  
Volume 2015-September, 28 September 2015, Article number 7280897, Pages 154-158  
5th International Conference on Intelligent Systems, Modelling and Simulation, ISMS 2014; Langkawi; Malaysia; 27  
January 2014 through 29 January 2014; Category numberE3857; Code 117206

## Affective state classification using Bayesian classifier (Conference Paper)

Ghazali, A.S.<sup>a</sup> [✉](#), Sidek, S.N.<sup>a</sup> [✉](#), Wok, S.<sup>b</sup> [✉](#)<sup>a</sup>Department of Mechatronics, Faculty of Engineering, International Islamic University Malaysia, Kuala Lumpur, Malaysia<sup>b</sup>Department of Communication, Faculty of Islamic Revealed Knowledge and Human Science, International Islamic University Malaysia, Kuala Lumpur, Malaysia

## Abstract

[View references \(23\)](#)

This paper elaborates the basic structure of a machine learning system in classifying affective state. There are several techniques in classifying the states depending on the type of input-output dataset. A proper selection of techniques is crucial in determining the success rate of the system prediction. The paper proposes a machine learning technique in classifying affective states of human subjects by using Bayesian Network (BN). A structured experimental setup is designed to induce the affective states of the subjects by using a set of audiovisual stimulants. The affective states under study are happy, sad, and nervous. Preliminary results demonstrate the ability of the BN to predict human affective state with 86% accuracy. © 2014 IEEE.

## Author keywords

Affective state   Bayesian network   Emotion detection   Machine learning system

## Indexed keywords

Engineering controlled terms:   Artificial intelligence   Bayesian networks   Classification (of information)   Intelligent systems

Affective state  
Basic structure  
Bayesian classifier  
Emotion detection  
Human subjects  
Input-output  
Machine learning techniques  
System prediction

Engineering main heading:   Learning systems

ISSN: 21660662

ISBN: 978-147993857-5

DOI: 10.1109/ISMS.2014.32

Document Type: Conference Paper

Volume Editors: Al-Dabass D.,Sauli Z.,Zakaria Z.

Metrics [View all metrics >](#)

2 Citations in Scopus

86th Percentile

1.48 Field-Weighted  
Citation ImpactPlumX Metrics [View all metrics >](#)Usage, Captures, Mentions,  
Social Media and Citations  
beyond Scopus.

## Cited by 2 documents

Development of Emotional State  
Model using Electromagnetic  
Signal Information for  
Rehabilitation RobotGhazali, A.S. , Sidek, S.N. , Fatai,  
S.*(2016) International Journal of  
Computational Intelligence  
Systems*Emotion embodiment in robot-  
assisted rehabilitation system  
using hybrid automataSidek, S.N. , Ghazali, A.S. , Wok,  
S.*(2014) Proceedings - 2014 IIAI  
3rd International Conference on  
Advanced Applied Informatics,  
IIAI-AAI 2014*[View all 2 citing documents](#)Inform me when this document  
is cited in Scopus:[Set citation alert >](#)[Set citation feed >](#)

## Related documents

Variable parameter verhulst  
model and its optimization based  
on GA

Dai, W. , Li, Y. , Yang, A.



**Source Type:** Conference Proceeding  
**Original language:** English

**Sponsors:**  
**Publisher:** IEEE Computer Society

(2011) *Proceedings of the 30th Chinese Control Conference, CCC 2011*

## References (23)

View in search results format &gt;

All    [Export](#)     Print     E-mail    [Save to PDF](#)    [Create bibliography](#)

- 1 Alpaydin, E.  
 (2004) *Introduction to Machine Learning*. Cited 2071 times.  
 MIT press

- 2 Witten, I.H., Frank, E.  
 (2005) *Data Mining: Practical Machine Learning Tools and Techniques*. Cited 13851 times.  
 Morgan Kaufmann

- 3 Wojtusiak, J.  
 Semantic data types in machine learning from healthcare data  
 (2012) *Proceedings - 2012 11th International Conference on Machine Learning and Applications, ICMLA 2012*, 1, art. no. 6406612, pp. 197-202. Cited 2 times.  
 ISBN: 978-076954913-2  
 doi: 10.1109/ICMLA.2012.41  
[View at Publisher](#)

- 4 Changuel, S., Labroche, N., Bouchon-Meunier, B.  
 Automatic concept type identification from learning resources  
 (2010) *Proceedings of the International Joint Conference on Neural Networks*, art. no. 5596971. Cited 2 times.  
 ISBN: 978-142446917-8  
 doi: 10.1109/IJCNN.2010.5596971  
[View at Publisher](#)

- 5 Soranamageswari, M., Meena, C.  
 Statistical feature extraction for classification of image spam using artificial neural networks  
 (2010) *ICMLC 2010 - The 2nd International Conference on Machine Learning and Computing*, art. no. 5460761, pp. 101-105. Cited 7 times.  
 ISBN: 978-076953977-5  
 doi: 10.1109/ICMLC.2010.72  
[View at Publisher](#)

- 6 Xue, M., Zhu, C.  
 A study and application on machine learning of artificial intelligence  
 (2009) *IJCAI International Joint Conference on Artificial Intelligence*, art. no. 5158992, pp. 272-274. Cited 20 times.  
 ISBN: 978-076953615-6  
 doi: 10.1109/IJCAI.2009.55  
[View at Publisher](#)

Non-invasive non-contact based affective state identification

Ghazali, A.S. , Sidek, S.N.  
 (2015) *ISCAIE 2014 - 2014 IEEE Symposium on Computer Applications and Industrial Electronics*

Two methodologies applied to the author profiling task

Aleman, Y. , Loya, N. , Vilariño, D.  
 (2013) *CEUR Workshop Proceedings*

[View all related documents based on references](#)

[Find more related documents in Scopus based on:](#)

[Authors >](#)    [Keywords >](#)

- 
- 7 Al Iqbal, R., Rahman, S., Nabil, S.I., Chowdhury, I.U.A.  
Knowledge based decision tree construction with feature importance domain knowledge  
  
(2012) *2012 7th International Conference on Electrical and Computer Engineering, ICECE 2012*, art. no. 6471636, pp. 659-662. Cited 6 times.  
ISBN: 978-146731436-7  
doi: 10.1109/ICECE.2012.6471636  
  
[View at Publisher](#)
- 
- 8 Cioarga, R.-D., Micea, M.V., Cretu, V., Banc, A., Groza, V.  
Foodball: Emergent resource gathering in collective robotic environments  
  
(2011) *ROSE 2011 - IEEE International Symposium on Robotic and Sensors Environments, Proceedings*, art. no. 6058537, pp. 184-189.  
doi: 10.1109/ROSE.2011.6058537  
  
[View at Publisher](#)
- 
- 9 Hung, W.-H., Liu, P., Kang, S.-C.  
Service-based simulator for security robot  
  
(2008) *Proceedings of IEEE Workshop on Advanced Robotics and its Social Impacts, ARSO*, art. no. 4653600. Cited 4 times.  
ISBN: 978-142442675-1  
doi: 10.1109/ARSO.2008.4653600  
  
[View at Publisher](#)
- 
- 10 Ma, P., Hu, Y., Yang, M., Wang, Z.  
System-level simulation approach and platform for electromagnetic railgun system  
  
(2012) *Conference Proceedings - 2012 16th International Symposium on Electromagnetic Launch Technology, EML 2012*, art. no. 6325165. Cited 3 times.  
ISBN: 978-146730305-7  
doi: 10.1109/EML.2012.6325165  
  
[View at Publisher](#)
- 
- 11 Hall, M., Frank, E., Holmes, G., Pfahringer, B., Reutemann, P., Witten, I.H.  
The WEKA data mining software: An update  
(2009) *ACM SIGKDD Explorations Newsletter*, 11, pp. 10-18. Cited 8499 times.
- 
- 12 Guo, P., Wang, X., Han, Y.  
The enhanced genetic algorithms for the optimization design  
  
(2010) *Proceedings - 2010 3rd International Conference on Biomedical Engineering and Informatics, BMEI 2010*, 7, art. no. 5639829, pp. 2990-2994. Cited 106 times.  
ISBN: 978-142446496-8  
doi: 10.1109/BMEI.2010.5639829  
  
[View at Publisher](#)
- 
- 13 Wang, W.-J., Chang, J.-W.  
Implementation of a mobile robot for people following  
  
(2012) *Proceedings 2012 International Conference on System Science and Engineering, ICSSE 2012*, art. no. 6257159, pp. 112-116. Cited 4 times.  
ISBN: 978-146730945-5  
doi: 10.1109/ICSSE.2012.6257159  
  
[View at Publisher](#)
-

- 
- 14 Wong, W.M., Tan, A.W.C., Loo, C.K., Liew, W.S.  
PSO optimization of synergetic neural classifier for multichannel emotion recognition  
  
(2010) *Proceedings - 2010 2nd World Congress on Nature and Biologically Inspired Computing, NaBIC 2010*, art. no. 5716292, pp. 316-321. Cited 7 times.  
ISBN: 978-142447376-2  
doi: 10.1109/NABIC.2010.5716292  
  
[View at Publisher](#)
- 
- 15 Das, D., Bandyopadhyay, S.  
Identifying emotion topic - An unsupervised hybrid approach with rhetorical structure and heuristic classifier  
  
(2010) *Proceedings of the 6th International Conference on Natural Language Processing and Knowledge Engineering, NLP-KE 2010*, art. no. 5587777. Cited 3 times.  
ISBN: 978-142446896-6  
doi: 10.1109/NLPKE.2010.5587777  
  
[View at Publisher](#)
- 
- 16 Das, S., Halder, A., Bhowmik, P., Chakraborty, A., Konar, A., Janarthanan, R.  
A support vector machine classifier of emotion from voice and facial expression data  
  
(2009) *2009 World Congress on Nature and Biologically Inspired Computing, NABIC 2009 - Proceedings*, art. no. 5393891, pp. 1010-1015. Cited 7 times.  
ISBN: 978-142445612-3  
doi: 10.1109/NABIC.2009.5393891  
  
[View at Publisher](#)
- 
- 17 Garg, V., Kumar, H., Sinha, R.  
Speech based Emotion Recognition based on hierarchical decision tree with SVM, BLG and SVR classifiers  
  
(2013) *2013 National Conference on Communications, NCC 2013*, art. no. 6487987. Cited 6 times.  
ISBN: 978-146735952-8  
doi: 10.1109/NCC.2013.6487987  
  
[View at Publisher](#)
- 
- 18 Medicine, T.I.A.E.  
(2011) *Technician's Manual for Scientific and Clinical Applications*. Cited 2 times.
- 
- 19 Jensen, F.V.  
(1996) *An Introduction to Bayesian Networks*, 210. Cited 1835 times.  
UCL press London
- 
- 20 Hayakawa, Y., Sugano, S.  
Real time simple measurement of mental strain in machine operation  
(1998) *ISCI 1998 Japan-USA Symposium on Flexible Automation*, pp. 35-42. Cited 6 times.
- 
- 21 Mihelj, M., Novak, D., Muni, M.  
Emotion-aware system for upper extremity rehabilitation  
  
(2009) *2009 Virtual Rehabilitation International Conference, VR 2009*, art. no. 05174225, pp. 160-165. Cited 17 times.  
ISBN: 978-142444189-1  
doi: 10.1109/ICVR.2009.5174225  
  
[View at Publisher](#)
-

- 22 Hsieh, P.-Y., Chin, C.-L.  
The emotion recognition system with Heart Rate Variability and facial image features  
(2011) *IEEE International Conference on Fuzzy Systems*, art. no. 6007734, pp. 1933-1940. Cited 4 times.  
ISBN: 978-142447317-5  
doi: 10.1109/FUZZY.2011.6007734  
[View at Publisher](#)

- 23 Rani, P., Liu, C., Sarkar, N., Vanman, E.  
An empirical study of machine learning techniques for affect recognition in human-robot interaction  
(2006) *Pattern Analysis and Applications*, 9 (1), pp. 58-69. Cited 108 times.  
doi: 10.1007/s10044-006-0025-y  
[View at Publisher](#)

© Copyright 2017 Elsevier B.V., All rights reserved.

[< Back to results](#) | 1 of 1

[^ Top of page](#)

#### About Scopus

[What is Scopus](#)  
[Content coverage](#)  
[Scopus blog](#)  
[Scopus API](#)  
[Privacy matters](#)

#### Language

[日本語に切り替える](#)  
[切换到简体中文](#)  
[切换到繁體中文](#)  
[Русский язык](#)

#### Customer Service

[Help](#)  
[Contact us](#)

**ELSEVIER**

[Terms and conditions](#) [Privacy policy](#)

Copyright © 2017 Elsevier B.V. All rights reserved. Scopus® is a registered trademark of Elsevier B.V.

Cookies are set by this site. To decline them or learn more, visit our [Cookies page](#).

 RELX Gr