Karan Sikka

Computer Vision Scientist, SRI International

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Education

- *PhD, ECE*, 2016
  - *Advisor: Dr. Marian S. Bartlett*
  - *Machine Perception Lab*
  - *Thesis:* Latent Dynamic Space-Time Volumes for Predicting Human Facial Behavior in Videos
- *MS, ECE*, 2012
  University of California, San Diego
- *B.Tech., ECE*, 2010
  Indian Institiute of Technology Guwahati

Publications

- Bansal, A., Sikka, K., Sharma, G., Chellapa, R., Divakaran, A. (2018). Zero-Shot Object Detection. arXiv.

- Kaur, P., Sikka, K., Divakaran, A. (2017). Combining Weakly and Webly Supervised Learning for Classifying Food Images. arXiv.

- Kar, A., Rai, N., Sikka, K., Sharma, G. (2017). AdaScan: Adaptive Scan Pooling in Deep Convolutional Neural Networks for Human Action Recognition in Videos. CVPR'17.

- Sikka, K., Sharma, G. (2017). Discriminatively Trained Latent Ordinal Model for Video Classification. IEEE PAMI.

- Malmir, M., Sikka, K., Forster, D., Fasel, I., Movellan, J., Cottrell, W, Garrison. (2017). Deep Active Object Recognition by Joint Label and Action Prediction. CVIU.

- Sikka, K., Sharma, G., Bartlett, M. (2016). LOMo: Latent Ordinal Model for Facial Analysis in Videos. CVPR'16. (*Spotlight Presentation*)

- Malmir, M., Sikka, K., Forster, D., Movellan, J., Cottrell, W, Garrison. (2015). Deep Q-learning for Active Recognition of GERMS: Baseline Performance on a Standardized Dataset for Active Learning. BMVC'15 (*Acceptance Rate: 33%*)

- Sikka, K., Giri, R., Bartlett, M. (2015). Joint Clustering and Classification for Multiple Instance Learning. BMVC'15. (*Acceptance Rate: 33%*)

- Sikka, K., Dhall, A., Bartlett, M. (2015). Exemplar Hidden Markov Models for Classification of Facial Expressions in Videos. CVPRW'15.

- Sikka, K., Ahmed, A., Diaz, D., Goodwin, M., Craig, K., Bartlett, M., Huang, J. (2015). Automated Assessment of Children's Post-Operative Pain Using Computer Vision. Pediatrics. (*Impact Factor: 5.3*)

- Dhall, A., Joshi, J., Sikka, K., Goecke, K. and Sebe, N. (2015). The More the Merrier: Analysing the Affect of a Group of People In Images. IEEE FG'15.

- Sikka, K. (2014). Facial Expression Analysis for Estimating Pain in Clinical Settings. ICMI'14, Doctoral Consortium.

- Dhall, A., Goecke, R., Joshi, J., Sikka, K. and Gedeon, T. (2014). Emotion recognition in the wild challenge 2014: Baseline, data and protocol. ICMI'14.

- Sikka, K., Dhall, A. and Bartlett, M. (2014). Weakly Supervised Pain Localization and Classification with Multiple Segment Learning. The Best of Face and Gesture 2013, Image and Vision Computing. (*Impact Factor: 1.6*)

- Dhall, A., Sikka, K., Littlewort, G., Goecke, R. and Bartlett, M. (2014). A Discriminative Parts Based Model Approach for Fiducial Points Free and Shape Constrained Head Pose Normalisation In The Wild. WACV'14. (*Acceptance Rate: 40%*)
- Sikka, K., Dykstra, K., Sathyanarayana, S., Littlewort, G. and Bartlett, M. (2013). Multiple Kernel Learning for Emotion Recognition in the Wild. ICMI'13. (**Best Paper Award**)
- Sikka, K., Dhall, A., and Bartlett, M. (2013). Weakly Supervised Pain Localization using Multiple Instance Learning. IEEE FG'13. (**Best Student Paper Honorable Mention Award**)(*Acceptance Rate (Oral): 12%*)
- Sikka, K., Wu, T., Susskind, J., and Bartlett, M. (2012). Exploring Bag of Words Architectures in the Facial Expression Domain. ECCV'12 Workshops. (*Oral Presentation, Acceptance Rate: 33%*)
- Singh, P. K., Sinha, N., Sikka, K., and Mishra, A. K. (2011). Texture information-based hybrid methodology for the segmentation of SAR images. International Journal of Remote Sensing (Taylor and Francis), 32(15), 4155-4173.
- Sikka, K., and Deserno, T. M. (2010). Comparison of algorithms for ultrasound image segmentation without ground truth. SPIE Medical Imaging, 7627, 76271C-76271C-9.
- Sikka, K., Sinha, N., Singh, P. K., and Mishra, A. K. (2009). A fully automated algorithm under modified FCM framework for improved brain MR image segmentation. Magnetic resonance imaging, 27(7), 994-1004.

Professional Experience

- Stanford Research Institute (SRI International), Princeton, New Jersey, USA, Jan'16-Mar'16
  - *Student Associate, Vision and Learning Group*
- Qualcomm R&D, San Diego, California, USA, Jun'11-Sept'11
  - *Augmented Reality Team*
  - *Interest point detector and local features*
- Medical Informatics Lab, RWTH Aachen, Germany May'09-July'09
  - *Summer Intern*
  - *Unsupervised algorithms for comparing segmentation maps*
  - *Advisor: Prof. Thomas M. Deserno, Dept. of Medical Informatics*

Honors

Best Student Paper Honorable Mention Award at IEEE International Conference on Automatic Face and Gesture Recognition 2013 (IEEE FG).

Best Paper Award at EmotiW'13 Challenge, International conference on Multimodal Interaction 2013 (ICMI).

Runner's up at EmotiW'13 Challenge, International conference on Multimodal Interaction 2013 (ICMI).

Awarded a travel grant at International Conference on Multimodal Interaction 2014 (ICMI) (Doctoral Consortium).

Jacobs Scholarship UCSD- three year fellowship- highest form of recognition for any PhD candidate in ECE Dept.

Awarded travel grant at IEEE Automatic Face and Gesture Recognition, 2013 (IEEE FG) (Doctoral Consortium).

Awarded an SPIE Contingency Student Travel Grant for SPIE Medical Conference, 2010.

DAAD- German Academic Exchange Service, Undergraduate Internships, 2009.

Languages

MATLAB, Python, C++, Tensorflow.

Relevant Courses

Deep Learning (Stanford CS231 online), Statistical Learning, Parameter Estimation, Convex Optimization, Digital Signal Processing, Computer Vision- Structure from Motion and Object Recognition, Bayesian Methods, Random Processes, Wavelets.

Workshop/Challenge Organizer

Co-organizer, Emotion Recognition In The Wild Challenge and Workshop (EmotiW 2014), ICMI 2014.

Journals Reviewer

IEEE Transactions on Neural Networks

IEEE Transaction on Affective Computing

IEEE Transaction on Multimedia

Computer Vision and Image Understanding

International Journal on Computer Vision

Elsevier Pattern Recognition Letters

Conference (workshops) Reviewer/Program Committee

IEEE FG 2015, 2018

CVPR 2018

ACII 2017

Second Workshop on Computer Vision for Affective Computing, IEEE AFGR 2018

Second Workshop on Computer Vision for Affective Computing, ICCV 2015

Emotion Recognition In The Wild Challenge, ICMI 2015

BMVC Workshops 2015

ICMI 2015

Technical Talks

Computer Vision and Pattern Recognition Conference (CVPR), Las Vegas, 2016.

Indian Institute of Technology Kanpur (IIT Kanpur), 2016.

Max Plank Institute of Informatics, Saarbrueken, Germany, 2016.

Stanford Research Institute (SRI) International, Princeton, 2016.

Computer Vision and Pattern Recognition Conference (CVPR), Boston 2015.

Imperial College London (ICL), 2015.

International Conference on Multimodal Interaction (ICMI), Istanbul, 2014

Automatic Face and Gesture Recognition (IEEE FG), Shanghai, 2013.

European Conference on Computer Vision (ECCV), 2012

University of California San Diego, 2012.

References available on request

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