Term Paper

For Research Directions

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by

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Bibliography

- Baudi, P. and Pichl, J. Sentence Pair Scoring: Towards Unified Framework. (C).
- Crowe, C. (2018). Initial Related Work. pages 1–4.
- Donahue, J., Hendricks, L. A., Guadarrama, S., Rohrbach, M., Venugopalan, S., Saenko, K., Darrell, T., Austin, U. T., Lowell, U., and Berkeley, U. C. Long-term Recurrent Convolutional Networks for Visual Recognition and Description.
- Enerative, F. O. R. G., Of, M. O., and Ideos, N. A. V. (2014). V (1) m: a b f g m n v. pages 1–15.
- Fan, Y., Lu, X., Li, D., and Liu, Y. (2016). Video-Based Emotion Recognition using CNN-RNN and C3D Hybrid Networks. (November).
- Ghosh, A. and Veale, T. (2016). Fracking Sarcasm using Neural Network. pages 161–169.
- Graves, A. Generating Sequences With Recurrent Neural Networks. pages 1–43.
- Graves, A. (2014). Towards End-to-End Speech Recognition with Recurrent Neural Networks. 32.
- Hurri, J. (2003). Simple-Cell-Like Receptive Fields Maximize Temporal. 691(3):663–691.
- Ji, S. and Yu, K. (2010). 3D Convolutional Neural Networks for Human Action Recognition.
- Karpathy, A., Toderici, G., Shetty, S., Leung, T., Sukthankar, R., and Fei-fei, L. (2015). Large-scale Video Classification with Convolutional Neural Networks Presenter: Esha Uboweja Problem Classification of videos in sports datasets. (June 2014).
- Lan, Z., Lin, M., Li, X., Hauptmann, A. G., and Raj, B. Beyond Gaussian Pyramid: Multi-skip Feature Stacking for Action Recognition.
- Le, Q. V., Zou, W. Y., Yeung, S. Y., and Ng, A. Y. Learning hierarchical invariant spatio-temporal features for action recognition with independent subspace analysis.

- Lee, J. Y. and Dernoncourt, F. (2016). Sequential Short-Text Classification with Recurrent and Convolutional Neural Networks.
- M, N. E. N. E. and Yuille, A. (2015). D c m r n n (-rnn). 1090(2014):1-17.
- Merri, B. V. and Fellow, C. S. (2014). Learning Phrase Representations using RNN Encoder Decoder for Statistical Machine Translation. pages 1724–1734.
- Michalski, V. and Memisevic, R. Modeling Deep Temporal Dependencies with Recurrent "Grammar Cells". pages 1–9.
- Mobahi, H., Weston, J., America, N. E. C. L., and Way, I. (1996). Deep Learning from Temporal Coherence in Video.
- Sainath, T. N., Vinyals, O., Senior, A., and York, N. No Title. pages 1–5.
- Simonyan, K. Two-Stream Convolutional Networks for Action Recognition in Videos. pages 1–9.
- Simonyan, K. and Zisserman, A. (2015). Very Deep Convolutional Networks for Large-Scale Image Recognition. *International Conference on Learning Representations (ICRL)*, pages 1–14.
- Soomro, K., Zamir, A. R., Shah, M., and Recognition, A. (2012). UCF101: A Dataset of 101 Human Actions Classes From Videos in The Wild. (November).
- Srivastava, N. (2014). Unsupervised Learning of Video Representations using LSTMs.
- Srivastava, N. (2015). Unsupervised Learning of Video Representations using LSTMs. 37.
- Susskind, J., Memisevic, R., Hinton, G., and Pollefeys, M. Modeling the joint density of two images under a variety of transformations.
- Sutskever, I. Sequence to Sequence Learning with Neural Networks. pages 1–9.
- Understanding, R. N. N. C.-f. L. DiSAN: Directional Self-Attention Network for RNN/CNN-Free Language Understanding.
- Vosoughi, S. and Roy, D. (2016). Tweet2Vec: Learning Tweet Embeddings Using. pages 16–19.
- Wang, J., Yang, Y., Mao, J., Huang, Z., Huang, C., and Xu, W. CNN-RNN: A Unified Framework for Multi-label Image Classification. pages 2285–2294.
- Wang, J., Yu, L.-c., Lai, K. R., and Zhang, X. (2016). Dimensional Sentiment Analysis Using a Regional CNN-LSTM Model. pages 225–230.
- Yin, W., Kann, K., and Yu, M. (2016). Comparative Study of CNN and RNN for Natural Language Processing.

Yin, W. and Sch, H. ABCNN: Attention-Based Convolutional Neural Network for Modeling Sentence Pairs.

Zaremba, W. and Com, V. G. (2013). arXiv : 1409 . 2329v3 [cs . NE] 3 Nov 2014.