

for establishing the final similarity score. It denotes while proposed methods are fed with more accurate and richer information derived from appropriate resources the probability for having more reliable result increases. Following these rules, it is shown our proposed measures *First Order Context Vector Similarity Measure* and *Second Order Context Vector Similarity Measure* are more effective methods than other methods for semantic similarity.

References:

- [1] S. Muthaiyah and L. Kerschberg, "A Hybrid Ontology Mediation Approach for the Semantic Web," *International Journal of E-Business Research*, vol. 4, 2008, pp. 79-91.
- [2] B. Chen, G. Foster, and R. Kuhn, "Bilingual sense similarity for statistical machine translation," In *Proceedings of the ACL*, 2010, pp. 834-843.
- [3] M. Pucher, "WordNet-based semantic relatedness measures in automatic speech recognition for meetings," In *Proceedings of the ACL*, 2007. pp. 129-132.
- [4] S. Pakhomov, B. McInnes, T. Adam, Y. Liu, T. Pedersen and G. Melton, "Semantic similarity and relatedness between clinical terms: an experimental study," In *Proceedings of AMIA*, 2010. pp. 572-576.
- [5] R. Rada, H. Mili, E. Bicknell and M. Blettner, "Development and application of a metric on semantic nets" *IEEE Transactions on Systems, Man and Cybernetics* vol. 19, 1989, pp. 17-30.
- [6] J. Caviedes, and J. Cimino, "Towards the development of a conceptual distance metric for the UMLS." *Journal of Biomedical Informatics*, vol. 372, 2004, pp. 77-85.
- [7] Z. Wu and M. Palmer, "Verb semantics and lexical selections" In *proceedings of the 32nd Annual Meeting of the Association for Computational Linguistics*, 1994.
- [8] C. Leacock and M. Chodorow, "Combining local context and WordNet similarity for word sense identification in WordNet: An Electronic Lexical Database," 1998, pp. 265-283.
- [9] J. Zhong, H. Zhu, J. Li and Y. Yu, "Conceptual graph matching for semantic search," *Proceedings of the 10th International Conference on Conceptual Structures*, pp. 92.
- [10] H. A. Nguyen and H. Al-Mubaid, "New ontology-based semantic similarity measure for the biomedical domain," In *IEEE Eng Med Bio l Proc.*, 2006, pp. 623-628.
- [11] P. Resnik, "Using Information Content to Evaluate Semantic Similarity in a Taxonomy," In *Proceedings of the 14th International Joint Conference on Artificial Intelligence*, 1995, pp. 448-453.
- [12] J. J. Jiang and D. W. Conrath, "Semantic similarity based on corpus statistics and lexical taxonomy," In *International Conference on Research in Computational Linguistics*, 1997.
- [13] D. Lin, "An information-theoretic definition of similarity" In *15th International Conference on Machine Learning*, Madison, USA, 1998.
- [14] S. Patwardhan and T. Pedersen, "Using WordNet-based context vectors to estimate the semantic relatedness of concepts." In *Proceedings of the EACL 2006 workshop, making sense of sense: Bringing computational linguistics and psycholinguistics together*. Trento, Italy, 2006.
- [15] O. Bodenreider and A. Burgun, "Characterizing the definitions of anatomical concepts in WordNet and specialized sources," In *Proceedings of the First Global WordNet Conference*, 2002.
- [16] S. Pakhomov, B. McInnes, T. Adam, Y. Liu, T. Pedersen and G. Melton, "Semantic similarity and relatedness between clinical terms: an experimental study," In *Proceedings of AMIA*, 2010, pp. 572-576.
- [17] T. Pedersen, Y. Liu, B. McInnes, G. Melton-Meaux and S. Pakhomov, "Semantic Relatedness Study Using Second Order Co-occurrence Vectors Computed from Biomedical Corpora, UMLS and WordNet," *Appears in the Proceedings of the 2nd ACM SIGHIT International Health Informatics Symposium*, 2012, pp. 879.
- [18] S. Banerjee and T. Pedersen, "An adapted Lesk algorithm for word sense disambiguation using WordNet," In *Proceedings of the Third International Conference on Intelligent Text Processing and Computational Linguistics*, Mexico City, 2002.
- [19] M. Lesk, "Automatic sense disambiguation using machine readable dictionaries: how to tell a pine cone from an ice cream cone," *SIGDOC '86: Proceedings of the 5th annual international conference on Systems documentation*, New York, USA, 1986, pp. 24-26.
- [20] B. McInnes, T. Pedersen and S. Pakhomov, "UMLS-Interface and UMLS-Similarity: Open Source Software for measuring paths and semantic similarity," In *Proceedings of AMIA*, pp. 431-435.
- [21] T. Pedersen, S. Patwardhan, and J. Michelizzi, "WordNet::Similarity: measuring the relatedness of concepts," In *Demonstration Papers at HLT NAACL*, 2004, pp. 38-41.