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Том 20

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Table of Contents

Session IV. New Information Technologies in Education	
Concepts of Activization of Trainees Within Structural Model of Education	10
<i>D.N. Ashurova, M.U Raimova, Z.Kh. Yuldashev, M.A. Yuldasheva</i>	
Kazakh Morphological Analysis for Statistical Machine Translation: A Case Study	15
<i>A. Kartbayev, Y. Bekbolatov</i>	
A Concept Map Approach to Supporting Adaptive e-Learning	23
<i>M. Mansurova, A. Nugumanova, Ye. Baiburin, D. Zyryanov</i>	
Design and Development of Online Courses on EdX Platform	30
<i>M.E. Mansurova, A.Yu. Pyrkova, Ye. Alimzhanov</i>	
Positive Practice in the Implementation of Moodle in E-Learning	36
<i>V. Petrovic, J. Anja</i>	
Structuralization of Categories of the "Knowledge" Pedagogical Science in the Process of Informatization of the Society	42
<i>B.K. Shayakmetova, G.T. Omarov, Sh.Ye. Omarova, N.T. Orumbayeva</i>	
Database Design for the Sectoral Frame of IT Qualifications Within TEMPUS Project "QUADRIGA"	48
<i>B.A. Urmashiev, A.Yu. Pyrkova, M.E. Mansurova, E.P. Makashev, A.Zh. Burlibayev, M.S. Sarsembayev</i>	
Технология Создания Метрических Справочников и Конкордансов Русских Поэтических Текстов	54
<i>В.Б. Бараткин, О.Ю. Кожемякина, А.В. Забайкин</i>	
Об Одном Подходе к Обучению Программированию	61
<i>И.Н. Скопин</i>	
Session V. Technological Process Automation and Control	
Data Processing Automation of Geodynamic Monitoring on an Oil and Gas Field	73
<i>F. Abdoldina, A. Berlibayeva, G. Umirova</i>	
An Approach to the Development of Distributed Applications for Oil Extraction Problems	8
<i>D. Akhmed-Zaki, M. Mansurova, B. Matkerim</i>	
Technologies of Heterogeneous Programming Systems Integration in the Informational Computing Environment of Mathematical Modeling and Data Analysis	
<i>I.V. Bychkov, G.M. Ruzhnikov, R.K. Fedorov, A.S. Shumilov, I.A. Sidorov, V.P. Potapov</i>	

Synthesis of Plans in Multi-Agent System Using the Method of Positively Constructed Formulas	99
<i>A. Davydov, A. Larionov, I. Terekhin.</i>	
Algorithm for Recognition of Kazakhstan Vehicle License Plates	108
<i>B. Amirgaliyev, M. Kairanbay, C. Kenshimov, K. Kumatov, Z. Baibatyr, A. Jantassov</i>	
Analysis of the Possibilities for Using a Uniform Bragg Grating in a Tunable Dispersion Compensator	115
<i>P. Kisala, W. Wojcik, A. Kalizhanova, G. Kashaganova, N. Kussambayeva, G. Yussupova</i>	
Analysis of a Direct Expansion Solar Assisted Heat Pump Suitable for Comfort Applications	128
<i>S. Jayaraj, P. Lokesh, Ye. Belyayev, A. Kaltayev</i>	
Raspberry Pi, Mathematica, and Electrical Engineering Education	139
<i>M. Lutovac, P. Spalevic, N. Arsic</i>	
The Modeling and Control over Electrolytic Refining	152
<i>A.Sh. Lyubanova, D.N. Gron</i>	
About the Determination of Optimal Trajectory Condition of Stowage Material	158
<i>S. Mustafin, Zh. Musina, A. Zeinullina</i>	
Integrated Approach for Implementing the Virtual Information Infrastructure of the Automated Process Control System	16
<i>N.R. Musabekov, D.T. Kasymova, A.K. Muslimova, A.O. Utegenova, I.T. Utepbergenov</i>	
Discrete-Event Systems with State Observation Properties Studying	1
<i>N. Nagul</i>	
Simulation of the Control System Withdrawable Sensor Logging Stations	1
<i>K.A. Ozhikenov, R.M. Utebaev, R.S. Ismagulova, A.K. Ozhiken, G.D. Aitzhanova</i>	
Application of Programmable Logic Controllers for Efficient use of Photovoltaic Panels ...	
<i>V. Petrovic, A. Grujic</i>	
The Problem of Word Sense Disambiguation in Machine Translation System	
<u><i>D. Rakhimova, M. Abakan</i></u>	
Immune Network Technology of Complex Objects Control Based on Computing Clusters Using Virtual Machines	
<i>G. Samigulina., Z. Samigulina</i>	
Investigation of Artificial Immune System using Fuzzy Logic	
<i>O. Shiryayeva, T. Denisova</i>	
The Development of Information, Telecommunications, and Computer Technology to Work with Scientific Data in the Russian Far East	
<i>S. Smagin, A. Sorokin</i>	

The Problem of Word Sense Disambiguation in Machine Translation System

D.Rakhimova* and M.Abakan

Laboratory of Intelligent Information Systems,
Institute of Mathematics and Mechanics,
al-Farabi Kazakh National University, Almaty, Kazakhstan
di.diva@mail.ru, mayerabak@gmail.com

Abstract. This article presents a method for solving the lexical selection problem of nouns in an automatic text processing for different groups of natural languages. The proposed approach is based on micro-context that represented by BoW using feature vectors and NBC for calculating the weight of senses. Wight of senses uses to choose most probable sense of the disambiguated word in sentence. This method has been successfully applied in the machine translation from Russian into Kazakh. The practical results presented.

Keywords: Word Sense Disambiguation, Bag-of-Word, NBC, micro-context, weight, senses.

1 Introduction

The problems of machine translation of texts emerged more than two decades ago. Its essence is to build the machine, on which input enters text in one natural language, and the output generated by a text in another language. Now in the role of the mentioned machine uses electronic computing machines, which are developed algorithms, translators and dictionaries. When translating a sentence from source to target language, a machine translation system has to perform several sub-tasks in order to generate a correct translation. Such a translation should comply to two main properties: faithfulness and fluentness. An important factor in faithfulness is called lexical selection: it is the process of selecting the appropriate translation of source words or phrases amongst the different alternative translation candidates for these words or phrases. It is this process, which described in this deliverable. Fluent translations should be as indistinguishable from sentences originally written in the target language as feasible. An important factor in fluency is the reordering process: the process of appropriately reordering target words and phrases. It would be nice if every word of the language would have one and only one value. But this is not so. When one word has several meanings, they say that there is lexical ambiguity. The fact that ambiguity can accumulate make the analysis very difficult. For example, if the sentence consists of two words and each can have two meanings in the worst case it can be translated in four different ways. Naturally, you may need to consider all possible cases of transfer to select only one of them.

2 Overview of scientific researches and approaches

An important task for machine translation is to find the correct translation of the word in the dictionary, that is, from an existing set of alternative words. Very difficult to find a suitable translation when the number of alternatives increases. This selection plays important role

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