2020 International Conference on Technologies and Applications of Artificial Intelligence (TAAI 2020)

Taipei, Taiwan
3-5 December 2020



IEEE Catalog Number: CFP2024L-POD

ISBN: 978-1-6654-4737-9

Copyright © 2020 by the Institute of Electrical and Electronics Engineers, Inc. All Rights Reserved

Copyright and Reprint Permissions: Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

*** This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.

 IEEE Catalog Number:
 CFP2024L-POD

 ISBN (Print-On-Demand):
 978-1-6654-4737-9

 ISBN (Online):
 978-1-6654-0380-1

ISSN: 2376-6816

Additional Copies of This Publication Are Available From:

Curran Associates, Inc 57 Morehouse Lane Red Hook, NY 12571 USA

Phone: (845) 758-0400 Fax: (845) 758-2633

E-mail: curran@proceedings.com Web: www.proceedings.com



The 25th International Conference on Technologies and Applications of Artificial Intelligence (TAAI) TAAI 2020

Table of Contents

Message from the General Chairs and Program Chairsxi
Organizing Committee xiii
Program Committeexv
Keynotesxviii
Session 1: Natural Language Processing I
Dependency Parsing of Financial News to Improve Sentiment Analysis for Predicting Market
Prices Jenq-Haur Wang (National Taipei University of Technology, Taiwan), Hung-Hsuan Wang (National Taipei University of Technology, Taiwan), and Long Wang (University of Science and Technology Beijing, China)
Analysis of Polysemy Using Variance Values for Word Embeddings by BERT
A Method to Extract Knowledge Explanation Sentences from Conversations in Comics with
Combination of Contents and Expressions
Making Negation-Word Entailment Judgment via Supplementing BERT with Aggregative Pattern . 17 Tzu-Man Wu (Computer Science Department, CentraleSupélec) and Keh-Yih Su (Institute of Information Science, Academia Sinica)
Extraction of Question-Related Sentences for Reading Comprehension Tests via Attention
Mechanism
Session 2: Computer Games and Reinforcement Learning
Learning Cube Strategy in Backgammon with Neural Networks

Yuanfeng Pang (The University of Electro-Communication, Japan) and Takeshi Ito (The University of Electro-Communication, Japan)	35
Learning of Evaluation Functions on Mini-Shogi Using Self-Playing Game Records	41
Cost Learning Network for Imbalanced Classification	47
Session 3: Vision and Sound	
Separation of Electric Guitar Sound Based on Stacked Recurrent Neural Network Wen-Hsing Lai (National Kaohsiung University of Science and Technology) and Siou-Lin Wang (National Kaohsiung University of Science and Technology)	52
Variational Autoencoders for Polyphonic Music Interpolation	56
Application of Exchanging Monte Carlo Method to Sample Deep Boltzmann Machines	62
The Design of Access Control by Using Data Dependency to Reduce the Inference of Sensitive Data	68
Kuei-Sheng Lee (National Central University), Yen-Cheng Lai (National Central University), Shao-Yu Chen (National Central University), Yi-Shin Lin (National Central University), and Meng-Feng Tsai (National Central University)	50
Session 4: Natural Language Processing II	
Music Retrieval Focusing on Lyrics with Summary of Tourist-Spot Reviews Based on Shared	72
Word-Vectors	73
Deep Case Estimation and Japanese Anaphora Resolution with a Verb-Associative Concept Dictionary Kiyoaki Ito (Takushoku University) and Takehiro Teraoka (Takushoku University)	79
Syntax-Aware Natural Language Inference with Graph Matching Networks	85

Learning)1
Yu-Chieh Chao (Computer Science & Information Engineering, National Central University, Taiwan) and Chia-Hui Chang (Computer Science & Information Engineering, National Central University, Taiwan)	_
Mining and Clustering Phrases for English for Special Purpose: Travel Writing	7
Session 5: Best Paper Award Session	
Timbre-Enhanced Multi-Modal Music Style Transfer with Domain Balance Loss	12
Cost-Sensitive Deep Learning with Layer-Wise Cost Estimation	8
Disambiguation of Japanese Idiomatic Expressions Using Bias in Occurrence of Verbs	4
Enhance Content Selection for Multi-Document Summarization with Entailment Relation	9
Personalized Travel Product Recommendation Based on Embedding of Multi-Behavior Interaction Network and Product Information Knowledge Graph	:5
Session 6: Web Intelligence and Social Networks	
Opinion Dynamics including Both Trust and Distrust in Human Relation for Various Network Structure	5 1
Mining Events through Activity Title Extraction and Venue Coupling	6

Finding the Social Networking Service Factors of Homestay Intention in Vietnam Based on GM(1,N) Model	142
Kuei-Chien Chiu (Chaoyang University of Technology), Chih-Sung Lai (National Taichung University of Education Taichung, Taiwan), Hsing-Hui Chu (Chaoyang University of Technology Taichung, Taiwan), Duchanh Tranthi (National Taichung University of Education Taichung, Taiwan), and Rung-Ching Chen (Chaoyang University of Technology)	1 12
Empirically Testing Deep and Shallow Ranking Models for Click-Through Rate (CTR)	
Prediction	147
Session 7: International Poster Light Talks	
Deep-Learning Rain Detection and Wiper Control Featuring Gaussian Extraction Yu-Tang Huang (Graduate Institute of Manufacturing Technology National Taipei University of Technology Taipei, Taiwan ROC), Chih-Hung G. Li (Graduate Institute of Manufacturing Technology National Taipei University of Technology Taipei, Taiwan ROC), and Chi-Cheng Lai (Compal Electronics, Inc Compal Electronics, Inc. Taipei, Taiwan ROC)	. 153
Developer Recommendation for Bug Reports Based on Ontological Aspects	. 159
MATDC: A Multi-Turn Multi-Domain Annotated Task-Oriented Dialogue Dataset in Chinese Yu-Hsiang Tseng (National Taiwan University), Shu-Kai Hsieh (National Taiwan University), Richard Lian (National Taiwan University), Chiung-Yu Chiang (National Taiwan University), Yu-Lin Chang (National Taiwan University), Li-Ping Chang (National Taiwan University), and Ji-Lung Hsieh (National Taiwan University)	. 165
A Deep Learning Approach for Efficient Palm Reading	. 171
A Capsule Conditional Generative Adversarial Network Jieh-Ren Chang (National Ilan University, Taiwan), You-Shyang Chen (Hwa Hsia University of Technology, Taiwan), Yipeng Bao (National Ilan University, Taiwan), and Tzu-Lin Hsu (National Ilan University, Taiwan)	. 175
Multi-Modal, Multi-Labeled Sports Highlight Extraction Jiabin He (National Taiwan University of Science and Technology, Taiwan) and Hsing-Kuo Pao (National Taiwan University of Science and Technology, Taiwan)	. 181
A Chinese Character-Level and Word-Level Complementary Text Classification Method	187

Aspect-Based Sentiment Analysis on Convolution Neural Network and Multi-Hierarchical Attention	193
Zhixiong Lou (Beijing University of Posts and Telecommunications, China), Yuexin Wu (Beijing University of Posts and Telecommunications, China), Chunxiao Fan (Beijing University of Posts and Telecommunications, China), and Wentong Chen (Beijing University of	
Posts and Telecommunications, China)	100
Evaluation of Loss Function for Stable Policy Learning in Dobutsu Shogi	. 199
Causality Model for Text Data with a Hierarchical Topic Structure	. 205
Playing AI Dots-And-Boxes Using Endgame Theory and Nimstring Sprague-Grundy Values Andrew Lin (Washington Technology University)	211
A Gradient Boosting Method for Effective Prediction of Housing Prices in Complex Real Estate Systems	. 217
Bandar Almaslukh (Prince Sattam bin Abdulaziz University Al-Kharj, Saudi Arabia)	
Hoeffding Tree Method with Feature Selection for Forecasting Daily Demand Orders	. 223
Determining the Logical Relation between Two Sentences by Using the Masked Language Model of BERT	228
Construction of Document Feature Vectors Using BERT Hirotaka Tanaka (Ibaraki University), Rui Cao (Ibaraki University), Jing Bai (Ibaraki University), Wen Ma (Ibaraki University), and Hiroyuki Shinnou (Ibaraki University)	. 232
Construction of Domain-Specific DistilBERT Model by Using Fine-Tuning	237
Refined Prediction of Mouse and Human Actions Based on a Data-Selective Multiple-Stage Approach of 3D Convolutional Neural Networks	. 242
Behind the Name: A Comparative Framework for Age Estimation of Taiwanese Names	. 248

Analyses of Tabular Alphazero on Nogo	. 254
Chu-Hsuan Hsueh (Japan Advanced Institute of Science and Technology, Japan), Kokolo Ikeda (Japan Advanced Institute of Science and Technology, Japan), Sang-Gyu Nam (Japan Advanced Institute of Science and Technology, Japan), and I-Chen Wu (National Chiao Tung University, Taiwan)	
Consenses: Disambiguating Content Word Groups Based on Knowledge Base and Definition Embedding	. 260
Probabilistic Segmentation of Word Forms into Affixes and Word Roots	266
Author Index	271