

**Joint Workshop of the 5th
Financial Technology and Natural
Language Processing (FinNLP)
and 2nd Multimodal AI for
Financial Forecasting (Muffin) in
conjunction with IJCAI 2023
(FinNLP-Muffin 2023)**

Macao, China
20 August 2023

ISBN: 978-1-7138-9051-5

Printed from e-media with permission by:

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

Some format issues inherent in the e-media version may also appear in this print version.

Copyright© (2023) by the Association for Computational Linguistics
All rights reserved.

Printed with permission by Curran Associates, Inc. (2025)

For permission requests, please contact the Association for Computational Linguistics
at the address below.

Association for Computational Linguistics
209 N. Eighth Street
Stroudsburg, Pennsylvania 18360

Phone: 1-570-476-8006

Fax: 1-570-476-0860

acl@aclweb.org

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
Email: curran@proceedings.com
Web: www.proceedings.com

Table of Contents

Model-Agnostic Meta-Learning for Natural Language Understanding Tasks in Finance	
Bixing Yan, Shaoling Chen, Yuxuan He and Zhihan Li -----	1
ChatGPT as Data Augmentation for Compositional Generalization: A Case Study in Open Intent Detection	
Yihao Fang, Xianzhi Li, Stephen Thomas and Xiaodan Zhu -----	13
Beyond Classification: Financial Reasoning in State-of-the-Art Language Models	
Guijin Son, Hancarl Jung, Moonjeong Hahm, Keonju Na and Sol Jin -----	34
Textual Evidence Extraction for ESG Scores	
Naoki Kannan and Yohei Seki -----	45
A Scalable and Adaptive System to Infer the Industry Sectors of Companies: Prompt + Model Tuning of Generative Language Models	
Lele Cao, Vilhelm von Ehrenheim, Astrid Berghult, Cecilia Henje, Richard Anselmo Stahl, Joar Wandborg, Sebastian Stan, Armin Catovic, Erik Ferm and Hannes Ingelhart -----	55
Using Deep Learning to Find the Next Unicorn: A Practical Synthesis on Optimization Target, Feature Selection, Data Split and Evaluation Strategy	
Lele Cao, Vilhelm von Ehrenheim, Sebastian Krakowski, Xiaoxue Li and Alexandra Lutz -----	63
Breaking the Bank with ChatGPT: Few-Shot Text Classification for Finance	
Lefteris Loukas, Ilias Stogiannidis, Prodromos Malakasiotis and Stavros Vassos -----	74
DeRisk: An Effective Deep Learning Framework for Credit Risk Prediction over Real-World Financial Data	
Yancheng Liang, Jiajie Zhang, Hui Li, Xiaochen Liu, Yi Hu, Yong Wu, Jiaoyao Zhang, Yongyan Liu and Yi Wu -----	81
Reducing tokenizer's tokens per word ratio in Financial domain with T-MuFin BERT Tokenizer	
Braulio Blanco Lambruschini, Patricia Becerra-Sanchez, Mats Brorsson and Maciej Zurad -----	94
LoKI: Money Laundering Report Generation via Logical Table-to-Text using Meta Learning	
Harika Cm, Debasmita Das, Ram Ganesh V, Rajesh Kumar Ranjan and Siddhartha Asthana -----	104
Multi-Lingual ESG Issue Identification	
Chung-Chi Chen, Yu-Min Tseng, Juyeon Kang, Anaïs Lhuissier, Min-Yuh Day, Teng-Tsai Tu, Hsin-Hsi Chen -----	111
Leveraging Contrastive Learning with BERT for ESG Issue Identification	
Weiwei Wang, Wenyang Wei, Qingyuan Song and Yansong Wang -----	116
Leveraging BERT Language Models for Multi-Lingual ESG Issue Identification	
Elvys Linhares Pontes, Mohamed Benjannet and Lam Kim Ming -----	121

EaSyGuide : ESG Issue Identification Framework leveraging Abilities of Generative Large Language Models

Hanwool Lee, Jonghyun Choi, Sohyeon Kwon and Sungbum Jung ----- 127

Jetsons at the FinNLP-2023: Using Synthetic Data and Transfer Learning for Multilingual ESG Issue Classification

Parker Glenn, Alolika Gon, Nikhil Kohli, Sihan Zha, Parag Pravin Dakle and Preethi Raghavan ----- 133

HKESG at the ML-ESG Task: Exploring Transformer Representations for Multilingual ESG Issue Identification

Ivan Mashkin and Emmanuele Chersoni ----- 140

Team HHU at the FinNLP-2023 ML-ESG Task: A Multi-Model Approach to ESG-Key-Issue Classification

Fabian Billert and Stefan Conrad ----- 146