



Proceedings of the 4th Financial Narrative Processing Workshop FNP 2022  
Language Resources and Evaluation Conference  
24 June 2022, Marseille, France.

**Proceedings of the 4th Financial Narrative Processing  
Workshop  
(FNP 2022)**

**PROCEEDINGS**

Editors:  
Mahmoud El-Haj  
Paul Rayson  
Nadhem Zmandar

**Proceedings of the LREC 2022 workshop on  
Proceedings of the 4th Financial Narrative Processing  
Workshop  
( FNP 2022)**

Edited by: Mahmoud El-Haj, Paul Rayson and Nadhem Zmandar

**ISBN: 979-10-95546-74-0**

**EAN: 9791095546740**

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## Message from the General Chair

Welcome to the 4th Financial Narrative Processing Workshop (FNP 2022). This year the workshop is held at the 13th Edition of the Language Resources and Evaluation Conference (LREC 2022) in Marseille, France on 24 June 2022 (a full-day event). This is an international gathering of researchers and speakers working on Financial Narratives from computing, accounting and finance. Following the success of the First FNP 2018 at LREC'18 in Japan, the Second FNP 2019 at NoDaLiDa 2019 in Finland, the Multiling 2019 Financial narrative Summarisation task at RANLP in Bulgaria, the 1st Joint Workshop on Financial Narrative Processing and MultiLing Financial Summarisation (FNP-FNS 2020) at COLING 2020 in Barcelona, Spain and the 3rd Financial Narrative Processing Workshop (FNP 2021) in Lancaster UK, we have received a great deal of positive feedback and interest in continuing the development of the financial narrative processing field, especially from our shared task participants. This has resulted in the organization of the 4th Financial Narrative Processing Workshop (FNP 2022). The FNP 2022 workshop achieved our aim of supporting the rapidly growing area of financial text mining. We ran three different shared tasks focusing on text summarization, structure detection and causal sentence detection, namely FNS, FinToc and FinCausal shared tasks respectively. The shared tasks attracted several teams from different universities and organisations from around the globe. The shared tasks resulted in the large scale experimental results and state of the art methods applied mainly to financial data. This shows the importance and growth of this field and we want to continue to be associated with top NLP venues. The workshop focused mainly on the use of Natural Language Processing (NLP), Machine Learning (ML), and Corpus Linguistics (CL) methods related to all aspects of financial text summarisation, text mining and financial narrative processing (FNP). There is a growing interest in the application of automatic and computer-aided approaches for extracting, summarising, and analysing both qualitative and quantitative financial data. In recent years, previous manual small-scale research in the Accounting and Finance literature has been scaled up with the aid of NLP and ML methods, for example, examining approaches to retrieving structured content from financial reports and studying the causes and consequences of corporate disclosure and financial reporting outcomes. We accepted 25 submissions. Each paper was reviewed by up to three reviewers. The submissions distribution is as follows: 6 main workshop papers and 19 shared task papers. The papers covered a diverse set of topics in financial narratives processing reporting work on financial reports from different stock markets around the globe presenting analysis of financial reports and using state of the art NLP methods such as the use of latest word embeddings. The quantity and quality of the contributions to the workshop are strong indicators that there is a continued need for this kind of dedicated Financial Narrative Processing workshop. We would like to acknowledge all the hard work of the submitting authors and thank the reviewers for the valuable feedback they provided. We hope these proceedings will serve as a valuable reference for researchers and practitioners in the field of financial narrative processing and NLP in general.



## **Organizers**

Dr Mahmoud El-Haj, Lancaster University (General Chair)  
Dr Paul Rayson, Lancaster University (FNP Program Chair)  
Nadhem Zmandar, Lancaster University (Publication Chair and FNS Organiser)

FNS Organiser: Dr Marina Litvak, Shamoon Academic College of Engineering  
FNS Organiser: Dr George Giannakopoulos, NCSR Demokritos  
FNS Organiser: Dr Ahmed AbuRaed, University of British Columbia  
FNS Organiser: Nikiforos Pittaras, NCSR Demokritos  
FNS Organiser: Mahmoud El-Haj (Lancaster University)  
FNS Organiser: Nadhem Zmandar (Lancaster University)  
FNS Organiser: Paul Rayson (Lancaster University)  
FNS Organiser: Nikiforos Pittaras (NCSR, Demokritos).  
FNS Organiser: Marina Litvak (Sami Shamoon College of Engineering).  
FNS Organiser: George Giannakopoulos (SKEL Lab – NCSR Demokritos)  
FNS Organiser: Antonio Moreno Sandoval (UAM, Madrid).  
FNS Organiser: Blanca Carbajo Coronado (UAM, Madrid)  
FNS Organiser: Aris Kosmopoulos (NCSR, Demokritos),  
FinToc Organiser: Dr Ismail El Maarouf, Fortia Financial Solution  
FinToc Organiser: Abderrahim Aitazzi, Fortia  
FinToc Organiser: Dr Juyeon Kang, Fortia Financial Solution  
FinToc Organiser: Blanca Carbajo Coronado, Universidad Autónoma de Madrid  
FinToc Organiser: Dr Ismail El Maarouf, Fortia Financial Solutions  
FinToc Organiser: Dr Juyeon Kang, Fortia Financial Solutions  
FinToc Organiser: Prof. Ana Gisbert, Universidad Autónoma de Madrid  
FinToc Organiser: Prof. Antonio Moreno Sandoval, Universidad Autónoma de Madrid  
FinCausal Organiser: Dominique Mariko, Yseop Lab  
FinCausal Organiser: Hanna Abi-Akl, Yseop Lab  
FinCausal Organiser: Hugues de Mazancourt, Yseop Lab  
FinCausal Organiser: Estelle Labidurie, Yseop Lab

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Andrew Moore (Lancaster University, UK)  
Nikiforos Pittaras (NCSR, Demokritos)  
Paul Rayson (SCC, Lancaster University, UK)  
Dominique Mariko (Yseop, France)



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## Workshop Program

**9:00–9:15**     **Opening and Welcome**  
Chair: Mahmoud El-Haj

9:15–10:00     *Keynote Speaker*  
Dr Bayan Abu Shawar

**10:00–13:30**     **Session 1: Main Workshop Papers**  
Chairs: Houda Bouamor, Paul Rayson

*FinRAD: Financial Readability Assessment Dataset - 13,000+ Definitions of Financial Terms for Measuring Readability*

Sohom Ghosh, Shovon Sengupta, Sudip Naskar and Sunny Kumar Singh

**11:00–11:30**     **Coffee Break**

*Discovering Financial Hypernyms by Prompting Masked Language Models*

Bo Peng, Emmanuele Chersoni, Yu-Yin Hsu and Chu-Ren Huang

*Sentiment Classification by Incorporating Background Knowledge from Financial Ontologies*

Timen Stepišnik-Perdih, Andraž Pelicon, Blaž Škrlj, Martin Žnidaršič, Igor Lončarski and Senja Pollak

*Detecting Causes of Stock Price Rise and Decline by Machine Reading Comprehension with BERT*

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*XLNET-GRU Sentiment Regression Model for Cryptocurrency News in English and Malay*

Nur Azmina Mohamad Zamani, Jasy Suet Yan Liew and Ahmad Muhyiddin Yusof

No Day Set (continued)

13:30–14:30 Lunch Break

14:30–15:30 Session 2: FNS Shared Task

Chair: Nadhem Zmandar

*The Financial Narrative Summarisation Shared Task (FNS 2022)*

Mahmoud El-Haj, Nadhem ZMANDAR, Paul Rayson, Ahmed AbuRa'ed, Marina Litvak, Nikiforos Pittaras, George Giannakopoulos, Aris Kosmopoulos, Blanca Carbajo-Coronado and Antonio Moreno-Sandoval

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## No Day Set (continued)

### 16:10–16:40 Session 3: FinTOC Shared Task

Chair: Juyeon Kang

*The Financial Document Structure Extraction Shared Task (FinTOC 2022)*

Juyeon Kang, Abderrahim Ait Azzi, Sandra Bellato, Blanca Carbajo Coronado, Mahmoud El-Haj, Ismail El Maarouf, Mei Gan, Ana Gisbert and Antonio Moreno Sandoval

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*GREYC@FinTOC-2022: Handling Document Layout and Structure in Native PDF Bundle of Documents*

Emmanuel Giguët and Nadine Lucas

### 16:45–17:55 Session 4: FinCausal Shared Task

Chair: Dominique Mariko

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Dominique Mariko, Hanna Abi-Akl, Kim Trottier and Mahmoud El-Haj

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