

# **BioNLP and BioNLP-ST**

Toronto, Canada  
13 July 2023

ISBN: 978-1-7138-8222-0

**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. (2024)

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](mailto: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](mailto:curran@proceedings.com)  
Web: [www.proceedings.com](http://www.proceedings.com)

## TABLE OF CONTENTS

Multi-Source (Pre-)Training for Cross-Domain Measurement, Unit and Context Extraction..... <i>Y. Li, S. Martschat, S. Ponsetto</i>	1
Gaussian Distributed Prototypical Network for Few-Shot Genomic Variant Detection..... <i>J. Cao, N. Peek, A. Renehan, S. Ananiadou</i>	26
Exploring Partial Knowledge Base Inference in Biomedical Entity Linking .....	37
<i>H. Yuan, K. Lu, Z. Yuan</i>	
Boosting Radiology Report Generation by Infusing Comparison Prior .....	50
<i>S. Kim, F. Nooralahzadeh, M. Rohanian, K. Fujimoto, M. Nishio, R. Sakamoto, F. Rinaldi, M. Krauthammer</i>	
Using Bottleneck Adapters to Identify Cancer in Clinical Notes Under Low-Resource Constraints .....	62
<i>O. Rohanian, H. Jauncey, M. Nouriborji, V. Chauhan, B. Goncalves, C. Kartsonaki, L. Merson, D. Clifton</i>	
Evaluating and Improving Automatic Speech Recognition Using Severity .....	79
<i>R. Whetten, C. Kennington</i>	
Zero-Shot Temporal Relation Extraction with ChatGPT .....	92
<i>C. Yuan, Q. Xie, S. Ananiadou</i>	
Good Data, Large Data, Or No Data? Comparing Three Approaches in Developing Research Aspect Classifiers for Biomedical Papers.....	103
<i>S. Chandrasekhar, C. Huang, T. Huang</i>	
Sentiment-Guided Transformer with Severity-Aware Contrastive Learning for Depression Detection on Social Media .....	114
<i>T. Zhang, K. Yang, S. Ananiadou</i>	
Exploring Drug Switching in Patients: A Deep Learning-Based Approach to Extract Drug Changes and Reasons from Social Media .....	127
<i>M. Sarrouti, C. Tao, Y. Randriamihaja</i>	
Is the Ranking of PubMed Similar Articles Good Enough? an Evaluation of Text Similarity Methods for Three Datasets.....	133
<i>M. Neves, I. Schadock, B. Eusemann, G. Schonfelder, B. Bert, D. Butzke</i>	
How Much Do Knowledge Graphs Impact Transformer Models for Extracting Biomedical Events?.....	145
<i>L. Zanella, Y. Toussaint</i>	
An End-To-End Neural Model Based on Cliques and Scopes for Frame Extraction in Long Breast Radiology Reports .....	156
<i>P. Wajsbur, X. Tannier</i>	
DISTANT: Distantly Supervised Entity Span Detection and Classification .....	171
<i>K. Yano, M. Miwa, S. Ananiadou</i>	
Large Language Models as Instructors: A Study on Multilingual Clinical Entity Extraction .....	178
<i>S. Meoni, T. Ryffel, E. Clergerie</i>	

Event-Independent Temporal Positioning: Application to French Clinical Text .....	191
<i>N. Bannour, B. Rance, X. Tannier, A. Neveol</i>	
ADEQA: A Question-Answer Based Approach for Joint ADE-Suspect Extraction Using Sequence-To-Sequence Transformers .....	206
<i>V. Arannil, T. Deb, A. Roy</i>	
Privacy Aware Question-Answering System for Online Mental Health Risk Assessment .....	215
<i>P. Chhikara, U. Pasupulety, J. Marshall, D. Chaurasia, S. Kumari</i>	
AliBERT: A Pre-Trained Language Model for French Biomedical Text.....	223
<i>A. Berhe, V. Martenot, L. Davy, G. Draznieks, V. Masdeu, J. Zucker</i>	
Multiple Evidence Combination for Fact-Checking of Health-Related Information .....	237
<i>P. Deka, A. Jurek-Loughrey, P. Deepak</i>	
Building a Corpus for Biomedical Relation Extraction of Species Mentions .....	248
<i>O. Khettari, S. Quiniou, S. Chaffron</i>	
Automated Extraction of Molecular Interactions and Pathway Knowledge Using Large Language Model, Galactica: Opportunities and Challenges .....	255
<i>G. Park, B. Yoon, X. Luo, V. Lopez-Marrero, P. Johnstone, S. Yoo, F. Alexander</i>	
Automatic Glossary of Clinical Terminology: A Large-Scale Dictionary of Biomedical Definitions Generated from Ontological Knowledge.....	265
<i>F. Remy, T. Demeester</i>	
Comparing and Combining Some Popular NER Approaches on Biomedical Tasks .....	273
<i>H. Verma, S. Bergler, N. Tahaei</i>	
Extracting Drug-Drug and Protein-Protein Interactions from Text Using a Continuous Update of Tree-Transformers .....	280
<i>S. Roy, R. Mercer</i>	
Resolving Elliptical Compounds in German Medical Text .....	292
<i>N. Kammer, F. Borchert, S. Winkler, G. Melo, M. Schapranow</i>	
Augmenting Reddit Posts to Determine Wellness Dimensions Impacting Mental Health .....	306
<i>C. Liyanage, M. Garg, V. Mago, S. Sohn</i>	
End-To-End Clinical Temporal Information Extraction with Multi-Head Attention.....	313
<i>T. Miller, D. Dligach, S. Bethard, G. Savova</i>	
Intermediate Domain Finetuning for Weakly Supervised Domain-Adaptive Clinical Ner .....	320
<i>S. Suresh, N. Tavabi, S. Golchin, L. Gilreath, R. Garcia-Andujar, A. Kim, J. Murray, B. Bacevich, A. Kiapour</i>	
Evaluation of ChatGPT on Biomedical Tasks: A Zero-Shot Comparison with Fine-Tuned Generative Transformers .....	326
<i>I. Jahan, M. Laskar, C. Peng, J. Huang</i>	
BIOptimus: Pre-Training an Optimal Biomedical Language Model with Curriculum Learning for Named Entity Recognition .....	337
<i>V. Pavlova, M. Makhlouf</i>	
Biomedical Language Models Are Robust to Sub-Optimal Tokenization.....	350
<i>B. Gutierrez, H. Sun, Y. Su</i>	

Distantly Supervised Document-Level Biomedical Relation Extraction with Neighborhood Knowledge Graphs .....	363
<i>T. Matsubara, M. Miwa, Y. Sasaki</i>	
BioNART: A Biomedical Non-AutoRegressive Transformer for Natural Language Generation .....	369
<i>M. Asada, M. Miwa</i>	
Biomedical Relation Extraction with Entity Type Markers and Relation-Specific Question Answering .....	377
<i>K. Yamada, M. Miwa, Y. Sasaki</i>	
Biomedical Document Classification with Literature Graph Representations of Bibliographies and Entities.....	385
<i>R. Ida, M. Miwa, Y. Sasaki</i>	
Zero-Shot Information Extraction for Clinical Meta-Analysis Using Large Language Models.....	396
<i>D. Kartchner, I. Al-Hussaini, O. Kronick</i>	
Can Social Media Inform Dietary Approaches for Health Management? a Dataset and Benchmark for Low-Carb Diet.....	406
<i>S. Zou, X. Dai, S. Karimi, P. Taylor, G. Brinkworth</i>	
Promoting Fairness in Classification of Quality of Medical Evidence.....	413
<i>S. Suster, T. Baldwin, K. Verspoor</i>	
WeLT: Improving Biomedical Fine-Tuned Pre-Trained Language Models with Cost-Sensitive Learning .....	427
<i>G. Mobasher, W. Muller, O. Krebs, M. Gertz</i>	
Hospital Discharge Summarization Data Provenance .....	439
<i>P. Landes, A. Chaise, K. Patel, S. Huang, B. Eugenio</i>	
RadAdapt: Radiology Report Summarization Via Lightweight Domain Adaptation of Large Language Models .....	449
<i>D. Veen, C. Uden, M. Attias, A. Pareek, C. Bluethgen, M. Polacin, W. Chiu, J. Delbrouck, J. Chaves, C. Langlotz, A. Chaudhuri, J. Pauly</i>	
Overview of the Problem List Summarization (ProbSum) 2023 Shared Task on Summarizing Patients' Active Diagnoses and Problems from Electronic Health Record Progress Notes.....	461
<i>Y. Gao, D. Dligach, T. Miller, M. Churpek, M. Afshar</i>	
Overview of the BioLaySumm 2023 Shared Task on Lay Summarization of Biomedical Research Articles .....	468
<i>T. Goldsack, Z. Luo, Q. Xie, C. Scarton, M. Shardlow, S. Ananidou, C. Lin</i>	
Overview of the RadSum23 Shared Task on Multi-Modal and Multi-Anatomical Radiology Report Summarization.....	478
<i>J. Delbrouck, M. Varma, P. Chambon, C. Langlotz</i>	
GRASUM at BioLaySumm Task 1: Background Knowledge Grounding for Readable, Relevant, and Factual Biomedical Lay Summaries .....	483
<i>D. Rosati</i>	
DeakinNLP at ProbSum 2023: Clinical Progress Note Summarization with Rules and Language Models.....	491
<i>M. Liu, D. Zhang, W. Tan, H. Zhang</i>	

TALP-UPC at ProbSum 2023: Fine-Tuning and Data Augmentation Strategies for NER .....	497
<i>N. Torrero, G. Sant, C. Escolano</i>	
PULSAR: Pre-Training with Extracted Healthcare Terms for Summarising Patients' Problems and Data Augmentation with Black-Box Large Language Models.....	503
<i>H. Li, Y. Wu, V. Schlegel, R. Batista-Navarro, T. Nguyen, A. Kashyap, X. Zeng, D. Beck, S. Winkler, G. Nenadic</i>	
Team Converge at ProbSum 2023: Abstractive Text Summarization of Patient Progress Notes.....	510
<i>G. Kolhatkar, A. Paranjape, O. Gokhale, D. Kadam</i>	
CUED at ProbSum 2023: Hierarchical Ensemble of Summarization Models.....	516
<i>P. Manakul, Y. Fathullah, A. Liusie, V. Raina, M. Gales</i>	
ELiRF-VRAIN at BioNLP Task 1B: Radiology Report Summarization.....	524
<i>V. Ahuir, E. Segarra, L. Hurtado</i>	
SINAI at RadSum23: Radiology Report Summarization Based on Domain-Specific Sequence-To- Sequence Transformer Model.....	530
<i>M. Chizhikova, M. Galiano, L. Lopez, M. Valdivia</i>	
KnowLab at RadSum23: Comparing Pre-Trained Language Models in Radiology Report Summarization.....	535
<i>J. Wu, A. Hasan, D. Shi, H. Wu</i>	
Nav-Nlp at RadSum23: Abstractive Summarization of Radiology Reports Using BART Finetuning .....	541
<i>K. Bhagavan, M. Chowdhary, M. Vardhan, R. Sharma</i>	
E-Health CSIRO at RadSum23: Adapting a Chest X-Ray Report Generator to Multimodal Radiology Report Summarisation .....	545
<i>A. Nicolson, J. Dowling, B. Koopman</i>	
Shs-Nlp at RadSum23: Domain-Adaptive Pre-Training of Instruction-Tuned LLMs for Radiology Report Impression Generation.....	550
<i>S. Karn, R. Ghosh, P. Kusuma, O. Farri</i>	
UTSA-NLP at RadSum23: Multi-Modal Retrieval-Based Chest X-Ray Report Summarization.....	557
<i>T. Wang, X. Zhao, A. Rios</i>	
KU-DMIS-MSRA at RadSum23: Pre-Trained Vision-Language Model for Radiology Report Summarization.....	567
<i>G. Kim, H. Kim, L. Ji, S. Bae, C. Kim, M. Sung, H. Kim, K. Yan, E. Chang, J. Kang</i>	
VBD-NLP at BioLaySumm Task 1: Explicit and Implicit Key Information Selection for Lay Summarization on Biomedical Long Documents .....	574
<i>P. Phan, T. Tran, H. Trieu</i>	
APTSumm at BioLaySumm Task 1: Biomedical Breakdown, Improving Readability by Relevancy Based Selection .....	579
<i>A. Poornash, A. Deshmukh, A. Sharma, S. Saha</i>	
NCUUE-NLP at BioLaySumm Task 2: Readability-Controlled Summarization of Biomedical Articles Using the PRIMERA Models.....	586
<i>C. Chen, J. Yang, L. Lee</i>	

Pathology Dynamics at BioLaySumm: The Trade-Off Between Readability, Relevance, and Factuality in Lay Summarization .....	592
<i>I. Al-Hussaini, A. Wu, C. Mitchell</i>	
IKM_Lab at BioLaySumm Task 1: Longformer-Based Prompt Tuning for Biomedical Lay Summary Generation.....	602
<i>Y. Wu, Y. Lin, H. Kao</i>	
MDC at BioLaySumm Task 1: Evaluating GPT Models for Biomedical Lay Summarization .....	611
<i>O. Turbitt, R. Bevan, M. Aboshokor</i>	
LHS712EE at BioLaySumm 2023: Using BART and LED to Summarize Biomedical Research Articles .....	620
<i>Q. Liu, X. Ren, V. Vydiswaran</i>	
IITR at BioLaySumm Task 1:Lay Summarization of BioMedical Articles Using Transformers .....	625
<i>V. Reddy, K. Sumedh, R. Sharma, P. Reddy</i>	
CSIRO Data61 Team at BioLaySumm Task 1: Lay Summarisation of Biomedical Research Articles Using Generative Models .....	629
<i>M. Sim, X. Dai, M. Rybinski, S. Karimi</i>	
ISIKSumm at BioLaySumm Task 1: BART-Based Summarization System Enhanced with Bio-Entity Labels.....	636
<i>C. Colak, I. Karadeniz</i>	

## **Author Index**