THE FIRST INTERNATIONAL CONFERENCE

ON

NATURAL LANGUAGE PROCESSING AND ARTIFICIAL INTELLIGENCE FOR CYBER SECURITY

NLPAICS'2024

P R O C E E D I N G S

Edited by:
Ruslan Mitkov, Saad Ezzini, Cengiz Acarturk, Tharindu Ranasinghe, Paul Rayson, Mo El-Haj, Ignatius Ezeani, Matthew Bradbury, Nouran Khallaf

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PROCEEDINGS

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Message from the General Chair

In today's digital world, Cyber Security has emerged as a heightened priority for both individual users and organisations. As the volume of online information grows exponentially, traditional security approaches often struggle to identify and prevent evolving security threats. The inadequacy of conventional security frameworks highlights the need for innovative solutions that can effectively navigate the complex digital landscape for ensuring robust security. Natural Language Processing and Artificial Intelligence in Cyber Security have vast potential to significantly enhance threat detection and mitigation by fostering the development of advanced security systems for autonomous identification, assessment, and response to security threats in real-time. Recognising this challenge and the capabilities of Natural Language Processing (NLP) and Artificial Intelligence (AI) approaches to fortify Cyber Security (CS) systems, the First International Conference on Natural Language Processing and Artificial Intelligence for Cyber Security (NLPAICS'2024) serves as a gathering place for researchers in NLP and AI methods for Cyber Security. We invite contributions that present the latest NLP and AI solutions for mitigating risks in processing digital information.

This first-of-its-kind event covers a number of topics related to Cyber Security falling under (but not limited to) the following more general areas: Societal and Human Security and Safety; Speech Technology and Multimodal Investigations for Cyber Security; Data and Software Security; Human-Centric Security and Support; Anomaly Detection and Threat Intelligence; Systems and Infrastructure Security; Financial Cyber Security; Ethics, Bias, and Legislation in Cyber Security; Datasets and resources for Cyber Security Applications and Specialised Security Applications and Open Topics. It also features a Special Theme Track "Future of Cyber Security in the Era of LLMs and Generative AI".

We would like to thank all colleagues who made this unique international event possible. We would like to start by thanking all colleagues who submitted papers to NLPAICS'2024 and travelled to Lancaster to attend the event. We are grateful to all members of the Programme Committee for carefully evaluating all submissions (every submission was reviewed by 3 reviewers) and providing substantial feedback on all papers, helping the authors of accepted papers to improve and polish the final versions of their papers. A special thanks goes to all keynote speakers (Iva Gumnishka, Sevil Şen, Paolo Rosso and Jacques Klein). The role of the sponsors (Mind Bridge AI, Data Science Institute, Security Lancaster, UCREL) is acknowledged with gratitude.

Last but not least, we would like to use this paragraph to acknowledge the members of the Organising Committee whose dedication and efforts during the last 10 months made the organisation of this event possible. A big 'Thank you' goes to Prof Nigel Davies, Dr Saad Ezzini, Dr Tharindu Ranasinghe, Prof Paul Rayson, Dr Cengiz Acartürk, Dr Mo El-Haj, Dr Matthew Bradbury, Dr Ignatius Ezeani, Dr Amal Haddad Haddad, Dr Nouran Khallaf, Julia Carradus, Sofiia Denysiuk, and Isla Cambell.

Welcome to NLPAICS'2024 in Lancaster and we hope you will enjoy the event.

Prof Ruslan Mitkov
NLPAICS'2024 Conference Chair

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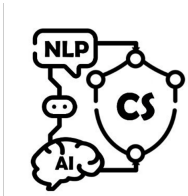

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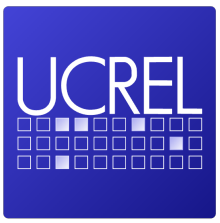

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10:35–11:00 *Explainability of Machine Learning Approaches in Forensic Linguistics: A Case Study in Geolinguistic Authorship Profiling*
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