

**AU-KBC Research Centre for Emerging Technologies
&
Department of Computer Technology
MIT Campus of Anna University, Chennai-44**



Speaker: Prof. Ruslan Mitkov
Professor
Computing and Communications
Lancaster University, UK.

On the occasion of the 75th year celebration of MIT Campus

AU-KBC & Department of CT jointly organizes the first talk of a series of talks

**Venue: Conference Hall,
Charles Babbage Block,
CT Department**

Time: 11.30am -12.30pm

Date: 13th December 2023

All Students, Researchers and Faculty members are cordially invited.

“The past, the present and the future of Natural Language Processing and Translation Technology. What does the future hold? A non-clairvoyant’s view.”

Computers are ubiquitous – they can be found and used everywhere. But how good are computers at understanding, producing, and translating natural languages? In other words, what is the level of their linguistic intelligence? This presentation will examine the linguistic intelligence of computers and will ask the question of how far advances in Artificial Intelligence (AI) can go (and an attempt will be made to predict the future!). Illustrations will be provided through key applications addressing parts of the translation process such as Machine Translation and Translation Memory systems and the challenges ahead will be commented on. The presentation begins with a brief historical flashback, plotting the timeline of the linguistic intelligence of computers against that of humans. It then gives another snapshot in time depicting early work on Machine Translation. Over the last 20 years, as will be discussed in the presentation, advances in Natural Language Processing (NLP) have significantly increased the linguistic intelligence of computers but this intelligence still lags behind that of humans. The presentation will go on to explain why it is so difficult for computers to understand, translate and, in general, to process natural languages; it is a steep road, and a long and winding one, for both computers and researchers. The talk will briefly present well-established NLP techniques that computers use when ‘learning’ to speak our languages, including initial rule-based and knowledge-based methods and more recent machine learning as well as deep learning methods, which have been highly promising. A selection of Natural Language Processing applications developed by the speaker which have impact beyond academia will be outlined and recent advances in Machine Translation will be noted. The latest Large Language Models (LLMs) will not go unnoticed.

I am no clairvoyant, but at some of my plenary talks I have been asked to predict how far computers will go in their ability to learn and translate language. At the end of my presentation I shall share with you my predictions and, in general, my vision for the future of Natural Language Processing and Translation Technology. I shall exercise caution given that now the landscape of NLP is changing dynamically due to the emergence of LLMs. These predictions, though tentative, will be relevant to the impact that AI advances can have on the work of translators and interpreters in the future.

Ruslan Mitkov – short bio

Prof Dr Ruslan Mitkov is Professor in Computing and Communications at Lancaster University, one of the top-10 UK universities. Prior to joining Lancaster University, Prof Mitkov worked at the University of Wolverhampton where he created and led the internationally leading Research Group in Computational Linguistics, and was also Director of the Research Institute of Information and Language Processing as well as Director of the Responsible Digital Humanities Lab. Dr Mitkov has been working in Natural Language Processing (NLP), Computational Linguistics, Corpus Linguistics, Machine Translation, Translation Technology and related areas since the early 1980s.

Whereas Prof Mitkov is best known for his seminal contributions to the areas of anaphora resolution, automatic generation of multiple-choice tests and intelligent translation memory systems, his extensively cited research (**more than 300 publications including 15 books, 35 journal articles and 35 book chapters**) also includes but is not limited to topics such as machine translation, natural language processing for language disabilities, automatic summarisation, computer-aided language processing, corpus annotation, bilingual term extraction, automatic identification of cognates and false friends, NLP-driven corpus-based study of translation universals and text simplification. His recent research includes the employment of Deep Learning, Large Language Models and Artificial Intelligence in Natural Language Processing, linguistics and language research in general. Prof Mitkov is not only known for his original research outputs with high scientific impact, but also known for his vision and innovative applied research which seeks to enhance the work efficiency of different professions (teachers, translators and interpreters) or seeks to improve the quality of life (people with disabilities).

Prof Mitkov is author of the monograph *Anaphora resolution* (Longman) and sole Editor of *The Oxford Handbook of Computational Linguistics* (Oxford University Press) which has been hailed as the most successful Oxford Handbook and whose second, substantially revised edition was published in June 2022. Current prestigious projects include his role as Executive Editor of the *Journal of Natural Language Engineering* (Cambridge University Press), Editor-in-Chief of the *Natural Language Processing* book series of John Benjamins publishers, and Consulting Editor of Oxford University Press publications in Computational Linguistics.

Prof Mitkov has been invited as a keynote speaker at 220 international conferences and is/has been Chair of more than 70 conferences on Natural Language Processing, Translation Technology and Applied Linguistics topics.

Mitkov designed and is Director of the first and only Erasmus Mundus Master's programme in Technology for Translation and Interpreting - an innovative and inspirational programme, with a strong research focus but an equally strong emphasis on business; leading companies in the global translation and language industry participate as associated partners.

Prof Mitkov has been an external examiner of many doctoral theses and curricula in the UK and abroad, including Master's programmes related to NLP, Translation and Translation Technology.

Ruslan Mitkov received his **MSc from the Humboldt University in Berlin, his PhD from the Technical University in Dresden and worked as a Research Professor at the Institute of Mathematics, Bulgarian Academy of Sciences, Sofia**. He is a Fellow of the Alexander von Humboldt Foundation, Germany, Marie Curie Fellow, Distinguished Visiting Professor at the University of Franche-Comté in Besançon, France and Distinguished Visiting Researcher at the University of Malaga, Spain. Ruslan Mitkov is Vice President of AsLing an international Association for promoting Language Technology.

In September 2022 the renowned National Board of Medical Examiners (USA) presented Prof Mitkov with a certificate of distinguished collaboration which resulted in lasting impact on the strategic planning and decision making of the US organisation and their employment of NLP solutions to assessment for the last 17 years.

In recognition of his outstanding professional/research achievements, Prof Mitkov was awarded the title of Doctor Honoris Causa three times. First, he became Doctor Honoris Causa at Plovdiv University in November 2011. At the end of October 2014 Dr Mitkov was conferred Professor Honoris Causa at Veliko Tarnovo University and on 25 October 2022 Prof R Mitkov received the title 'Doctor Honoris Causa' for the third time, this time awarded by New Bulgarian University, Sofia.

Ruslan Mitkov was selected as 'Doctor of Excellence' at the University of Alicante.

For additional information, please visit Prof Mitkov's webpage (<https://wp.lancs.ac.uk/mitkov/>).