

QuantumNLP 2025

The 1st Workshop on QuantumNLP

Proceedings of the 1st Workshop on QuantumNLP

November 24, 2025

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Introduction

We are pleased to present the proceedings of the **1st Workshop on QuantumNLP: Integrating Quantum Computing with Natural Language Processing**, which was successfully held on **November 24, 2025**, as a satellite event of the 14th IJCNLP-AAACL 2025 in Mumbai, India. This inaugural workshop was conducted in a **hybrid format**, which allowed participants to join us both in person in Mumbai and virtually from around the globe.

The QNLP Workshop served as a premier venue for interdisciplinary research at the intersection of Quantum Computing and Natural Language Processing. Our aim ****was**** to bring together experts to discuss foundational concepts and cutting-edge developments in harnessing quantum computational paradigms to revolutionize complex NLP tasks.

We **received** a total of **12 submissions** this year, reflecting the strong and growing interest in this emerging field. Every submission **was assigned** to the Technical Program Committee and **received** thorough review and consideration. Following a rigorous evaluation process, we **accepted 9 papers** for presentation, resulting in an overall acceptance rate of **75%**. This rate allowed us to foster nascent, high-potential research and encourage contributions in this complex and rapidly evolving domain.

The papers selected for the program covered a diverse array of topics central to Quantum NLP research. Themes **included** the mathematical underpinnings of quantum information, novel Quantum Machine Learning (**QML**) algorithms, the application of quantum word embeddings, and the development of Hybrid Quantum-Classical Algorithms for sequence modeling and language tasks. The structure of the hybrid event successfully accommodated both physical and remote presenters, ensuring a high-quality interactive experience for all who attended.

A workshop of this technical depth required the dedicated effort of many individuals, and we extend our sincere gratitude to all of them. We thank the **Technical Program Committee (TPC)** members for committing their valuable time and expertise to the crucial task of reviewing and guiding the selection process, which ensured the high quality of our technical program. We are also grateful to our organizers for their work in adapting the event logistics to successfully deliver the hybrid experience.

Finally, we thank all the authors who submitted their fine work to the workshop and all participants for joining us—whether physically or virtually—and for contributing to the successful launch and growth of the Quantum Natural Language Processing research community.

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Partha Pakray, Program Chair

Sivaji Bandyopadhyay, Program Chair

QuantumNLP 2025 Workshop

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Keynote Talk

Quantum Machine Learning: Concepts and Applications

Hachem Kadri

Aix-Marseille University, France

2025-11-24 10:00:00 – Room: Hybrid Session

Abstract: Quantum Machine learning is an emerging field of research, with fast growth. It is largely driven by the desire to develop artificial intelligence that leverage quantum technologies to enhance the speed and capabilities of learning algorithms. In this talk, I will begin by outlining the main concepts and motivations behind QML and by presenting various forms of interaction between machine learning, quantum computing and quantum information. I will then illustrate these interactions through concrete examples, focusing in particular on quantum extensions of classical ML models such as linear regression and the perceptron.

Bio: Professor Hachem Kadri is a Professor of Artificial Intelligence in the Department of Computer Science at Aix-Marseille University and a member of the Machine Learning group QARMA at LIS Lab, France.

His research interests lie broadly in machine learning, covering topics such as kernel methods, functional data analysis, statistical learning theory, deep learning, and, more recently, quantum machine learning (QML). He is the Principal Investigator (PI) for the ANR Starting Grant project, QuantML — Quantum Machine Learning: Foundations and Algorithms (2019–2024). Prof. Kadri’s recent work includes publications on C^* -algebraic ML and the computational-statistical tradeoffs of the Quantum Perceptron. He has held positions as an Assistant Professor at Aix-Marseille University and as a postdoctoral researcher at INRIA Lille – Nord Europe. He received his Ph.D. in Electrical Engineering in 2008 from the National Engineering School of Tunis (ENIT).

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