

# **LITERATURE SURVEY**

## **1) INTRODUCTION**

**Author: Nishika Gupta**

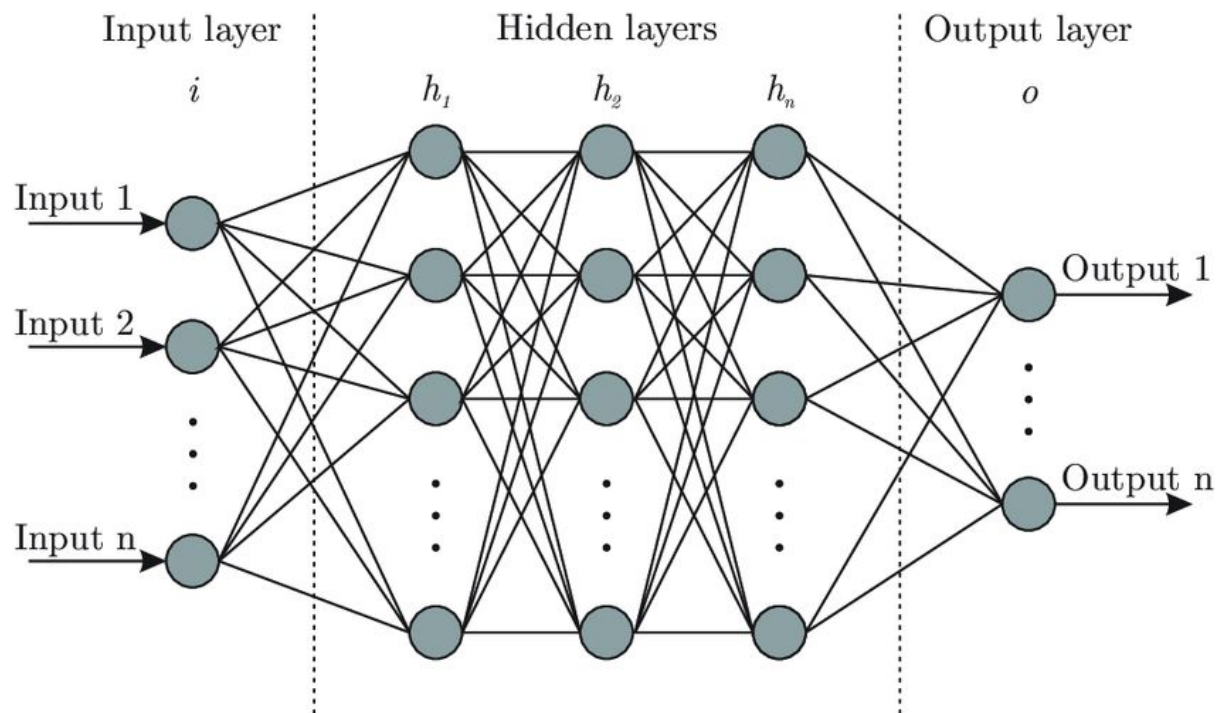
Artificial Intelligence is the science and engineering of making intelligent machines, especially intelligent computer programs. Artificial Intelligence (AI) is intelligence exhibited by machines. In computer science the field of AI defines itself as the study of intelligent agents. Generally, the term AI is used when a machine simulate functions that human associate with other human minds such as learning and problem solving. In the last few years, there has been an arrival of large amount of software that utilizes elements of artificial intelligence. Subfield s of AI such as Machine Learning, Natural Language processing, Image Processing and Data mining have become an important topic for today tech giants.

## **2) Artificial Neural Networks**

**Author: Enzo Grossi and Massimo Buscemab**

The coupling of computer science and theoretical bases such as nonlinear dynamics and chaos theory allows the creation of 'intelligent' agents, such as artificial neural networks (ANNs), able to adapt themselves dynamically to problems of high complexity. ANNs are able to reproduce the dynamic interaction of multiple factors simultaneously, allowing the study of complexity; they can also draw conclusions on individual basis and not as average trends.

These tools can offer specific advantages with respect to classical statistical techniques.



This article is designed to acquaint gastroenterologists with concepts and paradigms related to ANNs. The family of ANNs, when appropriately selected and used, permits the maximization of what can be derived from available data and from complex, dynamic, and multidimensional phenomena, which are often poorly predictable in the traditional 'cause and effect' philosophy.

### **3)Trends in Intelligent Communications Systems**

**Author: Konstantinous Koufos**

The remainder of this paper is organized as follows. In Section 2, we give a short review of intelligent functions at the RAN, and discuss purely data-driven and model-aided ML techniques as suggested by Renzo et al. We review the standardisation activities at the 5G core recommended by 3GPP and ETSI, and at the RAN by the O-RAN Alliance. We also discuss research and standardisation gaps identified by ITU FG-ML5G. Furthermore, we review the trends in ML algorithms running on low-power micro-controller units, often referred to as TinyML, which was mostly omitted by the previous survey papers. Section 4 provides a summary of recent and currently funded projects in Europe, the U.K., and the U.S. on intelligent communications and networking. Section 5 summarizes the main research gaps identified during the combined review of research papers, projects, and standards, and concludes this survey.

## **4) Natural Language Processing (NLP)**

**Author: Diksha Khurana**

Natural language processing has recently gained much attention for representing and analysing human language computationally. It has spread its applications in various fields such as machine translation, email spam detection, information extraction, summarization, medical, and question answering etc.

The paper distinguishes four phases by discussing different levels of NLP and components of Natural Language Generation (NLG) followed by presenting the history and evolution of NLP, state of the art presenting the various applications of NLP and current trends and challenges.