Chapter 4
Advanced Applications of Generative AI and Natural Language Processing Models:
Advancing Capabilities Safely in an Uncertain World

Shwetha Baliga

https://orcid.org/0000-0001-7506-5835

R.V. College of Engineering, India

Harshith K. Murthy

R.V. College of Engineering, India

Apoorv Sadhale

R.V. College of Engineering, India

Dhruti Upadhyaya

R.V. College of Engineering, India

ABSTRACT

The discourse surrounding AI has sparked widespread discussions, with notable concerns arising from its current limitations. One such concern involves AI models struggling to understand the context of human requests, leading to unexpected or nonsensical outcomes. While instances like the conversation with ChatGPT may have garnered attention, they should be regarded as fascinating illustrations of the model's capabilities rather than indications of meaningful independence. In shaping perspectives on this subject, three noteworthy books have played a pivotal role: Superintelligence by Nick Bostrom, Life 3.0 by Max Tegmark, and A Thousand Brains by Jeff Hawkins. These books offer well-articulated and thought-provoking insights, contributing to the ongoing discussion surrounding AI. By exploring the risks, limitations, and potential implications of AI, it becomes evident that thoughtful consideration and proactive measures are necessary to navigate the evolving landscape of artificial intelligence.

INTRODUCTION

Throughout history, mankind has continuously advanced and refined a multitude of technologies in pursuit of sophistication and advancement to have a higher and better standard of living. This endeavor aims to create products that streamline various processes. From the moment humans came into existence, they have engaged in a wide range of activities to adapt to diverse environments. This effort reached its peak in the mid-1700s with the advent of the Industrial Revolution. During this era, numerous nations recognized the potential to manufacture a variety of goods to meet the increasing demand of their growing populations. Since then, humanity has made tremendous progress, including the development and implementation of artificial intelligence. Artificial intelligence in a broad sense is how intelligent machines especially computer programs, can be designed and built to make intelligent decisions (King T et.al.,). It is similar to the task of using computers as a means of overcoming human intelligence.

No one disputes the fact that artificial intelligence will have a profound impact on society. What can be debated is how far, how, and in what way this impact will be positive or negative. This impact will be experienced, where felt, and on what timeline it will occur. A group of scientists including Stephen Hawking once said, "Success in creating Artificial Intelligence (AI) would be the biggest event in human history. Unfortunately, it might also be the last". Artificial Intelligence is an extremely sharp technology, both on the positive as well as negative ends and both these ends have not been clearly understood. Despite having positive societal impacts, it may pose substantial long-term risks, but an existential threat precedes an ethical risk

A risk can occur today as well as tomorrow. Despite the significant benefits associated with artificial intelligence, there is a chance that it could have far-reaching negative connotations for various people who encounter it, either directly or indirectly, and is also capable of playing a significant role in increasing criminal activities. One of the uses of such technology is that it is only as good as the data put into it. If the data fed into the system is misguiding, then there is a high probability that it could cause serious problems as the outcome. Artificial Intelligence (AI) has the potential to play a significant role in the increasing criminal activities soon.

Even though the discussion of risk is not dependent on the view that artificial intelligence has now reached a point where it will become superintelligent, it becomes more urgent if such a success is a non-negligible possibility within the next few decades. When the stakes are high, even to the point of human extinction, it gains even greater urgency. Before proceeding further, it is important to emphasize that the primary concern is with the initial outcomes that result directly from the creation of AI solutions, whether they are unintentionally or intentionally misused, or if the data inputs that power them are mishandled. There are additional notable outcomes, including the extensively debated possibility of extensive job reductions in certain sectors because of AI-powered workplace automation. Additionally, there are secondary effects, such as the decline of expertise (such as the diagnostic abilities of healthcare practitioners) as AI systems become more significant. These possibilities and the risks associated with such misuse will be dealt with in detail in the coming sections.

Related Content

Issues in the Syntactic Parsing of Queries for a Natural Language Interface to Databases

Alexander Gelbukh, José A. Martínez F., Andres Verasteguiand Alberto Ochoa (2021). *Handbook of Research on Natural Language Processing and Smart Service Systems (pp. 157-179).*

www.irma-international.org/chapter/issues-in-the-syntactic-parsing-of-queries-for-a-natural-language-interface-to-databases/263100

Enhancing User Privacy in Natural Language Processing (NLP) Systems: Techniques and Frameworks for Privacy-Preserving Solutions

Chandan Kumar Behera, D. Lakshmiand Isha Kondurkar (2024). *Advanced Applications of Generative AI and Natural Language Processing Models (pp. 159-185).*

www.irma-international.org/chapter/enhancing-user-privacy-in-natural-language-processing-nlp-systems/335838

Optimized Generalised Metric Learning Model for Iterative, Efficient, Accurate, and Improved Coronary Heart Diseases

P. Preethy Jemima, R. Gokul, R. Ashwinand S. Matheswaran (2024). *Advanced Applications of Generative AI and Natural Language Processing Models (pp. 373-388).*

www.irma-international.org/chapter/optimized-generalised-metric-learning-model-for-iterative-efficient-accurate-and-improved-coronary-heart-diseases/335847

NLP for Chatbot Application: Tools and Techniques Used for Chatbot Application, NLP Techniques for Chatbot, Implementation

Shyamala Devi Nithyanandam, Sharmila Kasinathan, Devi Radhakrishnanand Jebathangam Jebapandian (2021). *Deep Natural Language Processing and AI Applications for Industry 5.0 (pp. 142-168).*

www.irma-international.org/chapter/nlp-for-chatbot-application/284207

Language Processing and Python

Belsini Glad Shiya V.and Sharmila K. (2021). *Deep Natural Language Processing and AI Applications for Industry 5.0 (pp. 93-119).*

www.irma-international.org/chapter/language-processing-and-python/284205