**Neural Networks in AI**: Neural networks are computational models inspired by the human brain's network of neurons. These models consist of layers of nodes (neurons) that process input data and pass it through the network, adjusting the weights of connections to learn and make decisions. This architecture allows neural networks to recognize patterns and generalize from data.

Compared to traditional machine learning algorithms, which often require manual feature extraction and simpler model structures, neural networks can automatically detect and learn features from large datasets. This makes them highly effective for tasks involving complex pattern recognition, such as image and speech recognition, where they outperform traditional methods by capturing intricate data representations.

**Weak AI vs. Strong AI**: Weak AI, also known as narrow AI, is designed for specific tasks. Examples include virtual assistants like Google Assistant and image recognition systems in autonomous vehicles. These systems are proficient at their specialized functions but lack the ability to perform tasks outside their training.

Strong AI, or general AI, seeks to achieve human-level intelligence, capable of reasoning, learning, and performing various tasks across different domains. While strong AI is still theoretical, its development poses risks such as ethical dilemmas in decision-making, job displacement, and ensuring AI systems adhere to human values. The impact on society could be significant, with potential benefits in efficiency and innovation but also challenges in managing ethical and safety concerns.

**Natural Language Processing (NLP) in AI**: NLP enables machines to understand and generate human language. This involves training algorithms to recognize linguistic patterns, context, and semantics. Machines learn to process and interpret language data through techniques like tokenization, parsing, and semantic analysis.

Challenges in NLP include handling ambiguous language, understanding context-dependent meanings, and interpreting idiomatic expressions. Despite these challenges, successful NLP applications such as chatbots for customer service and sentiment analysis tools for market research have emerged.

Advanced NLP could significantly enhance customer service by providing more accurate and context-aware responses, improve language translation services for seamless communication, and enable automated content creation, streamlining various industries and improving productivity.