With the ongoing advancements in robotics and autonomous systems, the magnitude of unstructured data has become enormous, in which conventional data processing procedures lack successful adaptation. Besides, breaking down perplexing, high dimensional, and noisy data is a colossal challenge, emphasising the urgency of creating novel approaches that can produce a justifiable structure. To address these issues, Deep Learning (DL) models have yielded exceptional outcome in the last decade.

DL has transfigured the evolution of robotics by setting new horizons. The capacity of deep neural networks for representing hierarchical features from a wide variety of sensory data, including image, audio, text, etc., make them ground-breaking in many related tasks. Meanwhile, under no human supervision they succeed in carrying out harsh, noisy and dynamic tasks, rendering them capable of intelligent behaviours suitable for autonomous and cognitive robotics. Hence, distinctive domains of robotics, including human-computer/robot interaction, have been greatly assisted by DL techniques, by efficiently overcoming existing complex obstacles within the field, as well as by announcing further issues and solutions in more advanced challenges.

A wide variety of researches are being conducted to explore and discover possible challenges and opportunities of exploiting DL schemes in robotics. This Special Issue is focused on inviting research ideas, articles and experimental studies related to “Deep Learning and Robotics” for learning, analysing and forecasting the various aspects of DL in Robotics applications.

Topics of interest include, but are not limited to:

- Implementation of deep neural networks in robotics
- Recent trends in the field of deep learning
- Robotics sensors assisted by artificial intelligence
- Deep learning architectures for perception of the environment
- Neural networks in human-computer interaction
- Signal and image processing using machine learning
- Computer vision for robotics
- Benefits and barriers of deep neural networks in mobile applications
- Opportunities and challenges in the exploitation of deep learning in robotics
- Applications of deep learning in physical and/or simulated environments
- Deep learning algorithms in embedded systems

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