

Deep Reinforcement Learning in Metaverse

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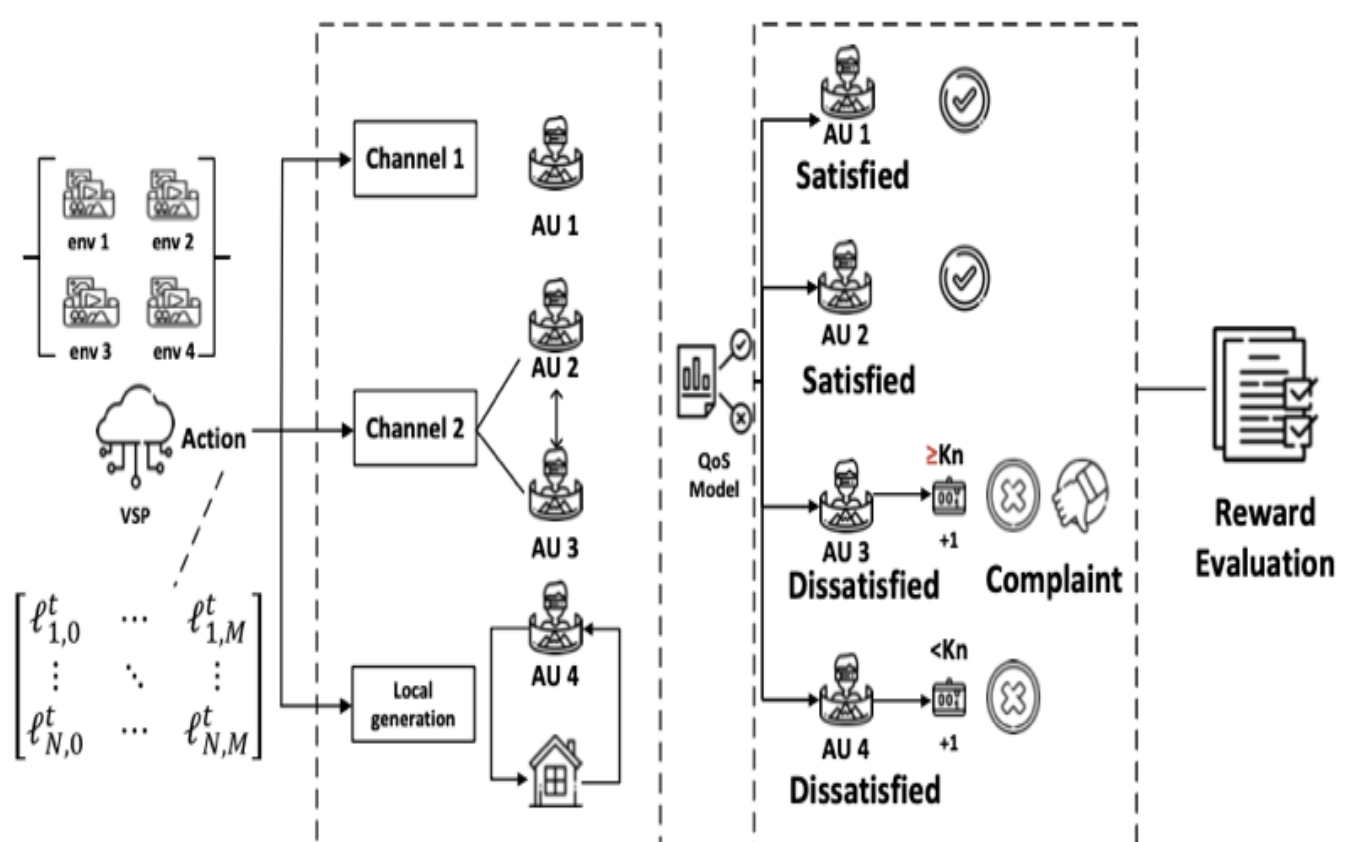
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Motivation:

The Metaverse is a new hot topic in the technical industry which is gaining a lot of popularity as it aims to provide its users with a socialization experience which is both participatory and realistic. Despite the swift progress of today's technologies, achieving a seamless and immersive AR experience in the Metaverse demands an overwhelming amount of computation. This work introduces a novel QoS model using deep reinforcement learning approaches for AR socialization on a multichannel wireless network.

Approach:

We aim to optimize the allocation of channels between virtual service providers and AR users to improve user experience by devising a QoS model which accounts for relevant factors to optimize AU-VSP channel allocation using deep reinforcement learning approach due to the nature of the problem being sequential. It involves multiple interactions. Between AUs and VSP, resulting in varying levels of AU satisfaction across all iterations.



Conclusion and Results:

The proposed model takes into account various factors such as delay, transmit power, channel allocation, user satisfaction and maximum tolerable display to achieve the best possible result and to provide the AU with a smooth experience. After comparing with various pre-existing reinforcement learning algorithms, the QoS model performs better in all aspects.

