**Artificial Intelligence-aided Reconfigurable Intelligent Surface-aided 6G Networks**

Recently, reconfigurable intelligent surface (RIS) has been a remarkable enabler for sixth generation (6G) wireless communication with many applications. However, RIS has numerous technical challenges to withstand its practical realizations, including network configuration, cascaded massive/passive channel estimations, and antenna phase shifts (PSs) adjustment. Besides, it opens the door for new practical optimization challenges when aided by different wireless communication systems, e.g., RIS relay selection in wireless RIS relaying, user/RIS association in multiple base station (BS) multiple RIS systems, network planning, and path trajectory optimization in RIS mounted unmanned aerial vehicles (UAVs), etc. Here, we aim to provide a comprehensive presentation about the state-of-the-art AI-enabled RIS-aided wireless communications, including its current network architectures, employed AI approaches, and future challenges and directions.

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Description automatically generated with medium confidence

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