

Automatic modulation recognition via aligned signals and key features

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Abstract

Deep learning-based classification algorithms have been used for automatic modulation recognition (AMR). However, most methods only focus on end-to-end mapping and neglect the classic key features. In this paper, signals are enforced with key classification features to propose a novel deep learning model for AMR by learning the shared latent space of the aligned signals and key features (LLAF); this is done to increase the generalizability of the model and to ensure the physical plausibility of the results. To obtain adequate signal representations, an encoder-decoder architecture is proposed to learn the shared latent space, and the architecture is trained to approximate prior label distributions for precise signal classification. Simulation results verify the high recognition accuracy of the proposed LLAF model under different signal-to-noise ratios (SNRs).

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