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# Flatness-based MPC : from ReLU Neural Networks to MIP constraints

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## Résumé

This work studies the application of rectified linear unit artificial neural networks (ReLU-ANN) to handle the convoluted constraints caused by flatness-based feedback linearization in a mixed-integer program (MIP) setting. The procedure includes approximating the input with a ReLU-ANN, converting the network to an MIP and embedding it into an optimization-based controller. The effectiveness of the method is shown via simulation tests with the model predictive control strategy.

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