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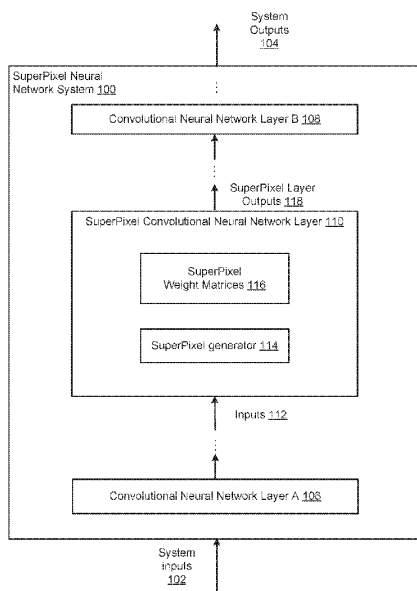


FIG. 1A

(57) Abstract: Methods, systems, and apparatus for efficiently performing a computation of a convolutional neural network layer. One of the methods includes transforming a X by Y by Z input tensor into a X' by Y' by Z' input tensor, wherein X' and Y' are smaller than or equal to X and Y, respectively, and Z' is larger than or equal to Z; obtaining modified weight matrices that operate on the X' by Y' by Z' input tensor to generate a U' by V' by W' output tensor that includes a transformed U by V by W output tensor, wherein U' and V' are smaller than or equal to U and V, respectively, and W' is larger than or equal to W; and processing the X' by Y' by Z' input tensor using the modified weight matrices to generate the U' by V' by W' output tensor.

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