

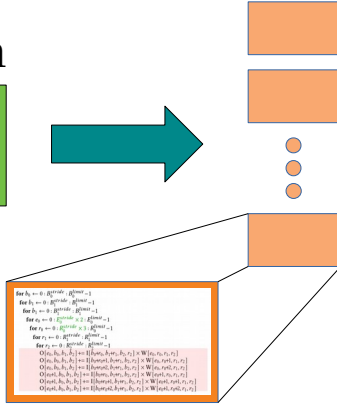
Algorithm

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for  $g_1 \leftarrow 0$  :  $C_1^{(rate)}$  :  $C_1^{(stride)} - 1$ 
  for  $g_2 \leftarrow 0$  :  $C_2^{(rate)}$  :  $C_2^{(stride)} - 1$ 
    for  $h_1 \leftarrow 0$  :  $H_1^{(rate)}$  :  $H_1^{(stride)} - 1$ 
      for  $h_2 \leftarrow 0$  :  $H_2^{(rate)}$  :  $H_2^{(stride)} - 1$ 
        ...
        for  $r_1 \leftarrow 0$  :  $R_1^{(rate)}$  :  $R_1^{(stride)} - 1$ 
          for  $r_2 \leftarrow 0$  :  $R_2^{(rate)}$  :  $R_2^{(stride)} - 1$ 
            for  $r_3 \leftarrow 0$  :  $R_3^{(rate)}$  :  $R_3^{(stride)} - 1$ 
              ...
              for  $r_N \leftarrow 0$  :  $R_N^{(rate)}$  :  $R_N^{(stride)} - 1$ 
                 $O[\mathbf{h}_1, \mathbf{h}_2, \dots, \mathbf{h}_N, \mathbf{r}_1, \dots, \mathbf{r}_N] \leftarrow \mathbf{W}[\mathbf{g}_1, \mathbf{g}_2, \dots, \mathbf{g}_N, \mathbf{r}_1, \dots, \mathbf{r}_N]$ 

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Unrollings



Projections

$$P(0): \langle (U_{R-W}^0, W_{rate}^0, W_{stride}^0), U_{R-N}^0, U_E^0, U_B^0, U_G^0 \rangle$$

$$P(1): \langle (U_{R-W}^1, W_{rate}^1, W_{stride}^1), U_{R-N}^1, U_E^1, U_B^1, U_G^1 \rangle$$

⋮

$$P(N): \langle (U_{R-W}^N, W_{rate}^N, W_{stride}^N), U_{R-N}^N, U_E^N, U_B^N, U_G^N \rangle$$