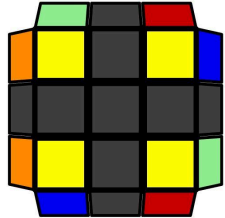
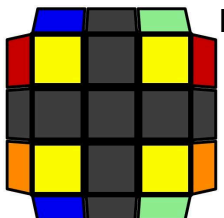


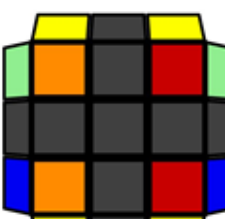
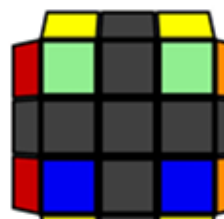
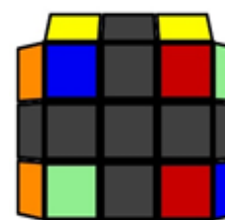

At least two algorithms are listed for every case. The first one will preserve edge orientation and the second one will flip edges. **The bolded algorithm will be the one that I can execute the fastest, so if you are learning CMLL, I recommend learning the bolded ones first. Additional algs will be below.** If you find any mistakes, or any better algorithms than the one I use, please contact me on Facebook or YouTube.

Video showing execution: <http://bit.ly/2j5WX86>

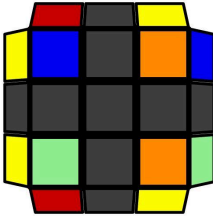
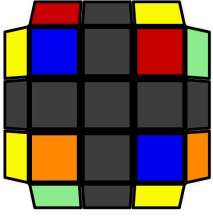
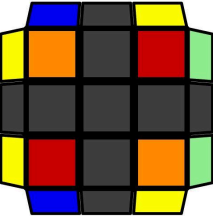
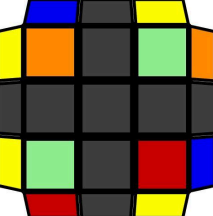
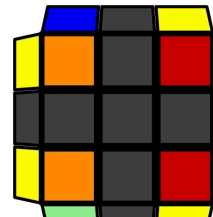
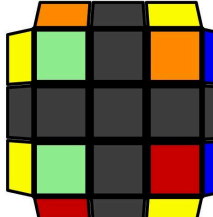
O

 <p>Adjacent Swap</p> <p>R U R' F' R U R' U' R' F R2 U' R' r U R' F' R U R' U' R' F R2 U' r' R U R' U' R' F R2 U' R' U' R U R' F' r U R' U' r' F R2 U' R' U' R U R' F' (U) r U' L U2 R' U R U2 r' L'</p>	 <p>Diagonal Swap</p> <p>F R U' R' U' R U R' F' R U R' U' R' F R F' r2 D r' U r D' R2 U' F' U' F r' U' r' D' r U' r' D r U' r' D' r U' r' D r2 F R U' R' U' R U R' F' r U R' U' r' F R F' F R' F R2 U' R' U' R U R' F' R U R' U' F'</p>
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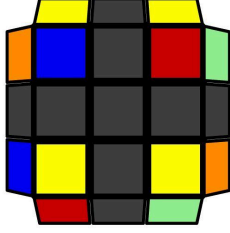
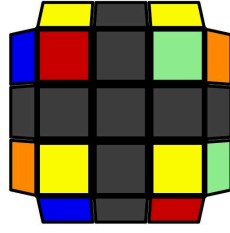
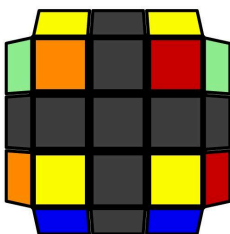
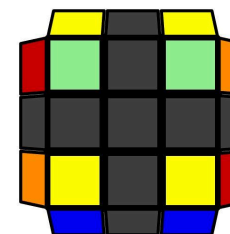
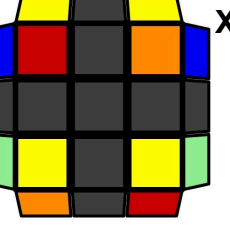
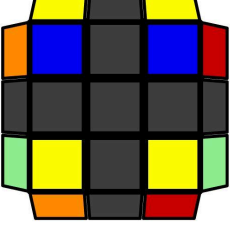
H

 <p>Columns</p> <p>R U2 R' U' R U R' U' R U' R' r U2 R' U' R U R' U' R U' r' (U) R U R' U R U' R' U R U2' R' r U' r' U' r U r' U r U r'</p>	 <p>Rows</p> <p>F R U R' U' R U R' U' R U R' U' F' R' F R U2' R' F' R U F R U R' U F'</p>
 <p>Column</p> <p>(U) F R U' R' U R U2 R' U' R U R' U' F' (U) R U2' R2' F R F' U2 R' F R F'</p>	 <p>Row</p> <p>(U') R U R' U R U' r' F R' F' r (U2) r U' r2' D' r U' r' D r2 U r' r U' r' F U2' r2' F r U' r</p>

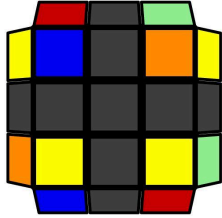
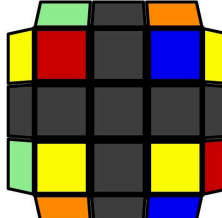
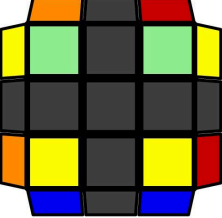
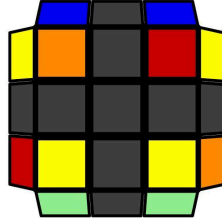
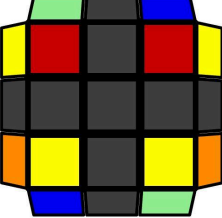
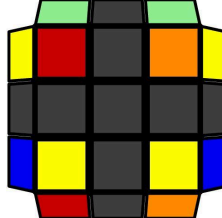
Pi

 <p>Right Bar</p> <p>R U2' R2' U' R2 U' R2' U2' R FRUR'U'RUR'U'F' fRUR'U'RUR'U'f' (U2)FURU'R'URU'R'F' (U2)F'L'U'LU'L'U'LU'F r'Ur2U'r2'U'r2Ur' rU'r2'Ur2Ur2'U'r R'U2rU'r'U2rUr'U2R</p>	 <p>Back Slash</p> <p>(U)FURU'R'URU'R2'F'RURU'R' (U)FR'F'R U2R U'R'UR U2'R' (U)RU2R'U'RUR'R2ULU'RUL'</p>
 <p>X Checkerboard</p> <p>R'F2DR2U'R2'D'F2R (U')R'FRUFU'RUR'U'F'</p>	 <p>Forward Slash</p> <p>RUR'U'R'FR2UR'U'RUR'U'F' R U2R'U'RUR'U2'R'FRF' (U')R'U2RUR'UR2U'L'UR'U'L</p>
 <p>Columns</p> <p>(U2)r'FRF'rU'R'U'RUR' (U')rU'r2'D'rUr'Dr2Ur' (U2)R'URU'R2'FR2UR'U'F'R R'ULU'RUR'L'U'LU'L'</p>	 <p>Left Bar</p> <p>(U)RU2R'U'F'RU2R'U'RUR'FRUR' (U')R'U'R'FRF'RUR'U2R (U2)R'U'RUR'U'F'U'FR</p>

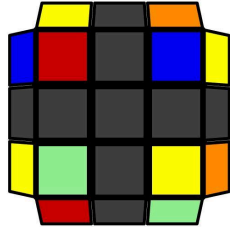
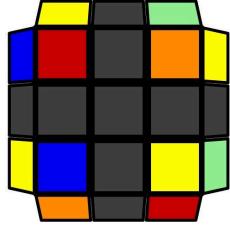
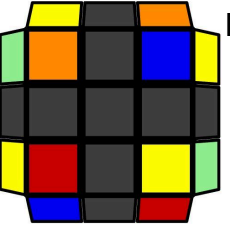
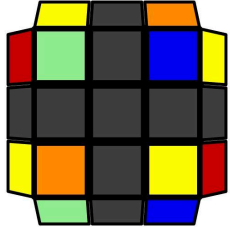
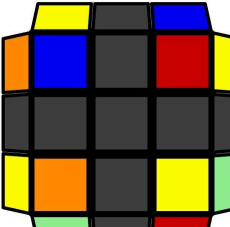
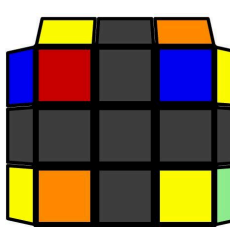
U

 <p>Forward Slash</p> <p>(U2) R2 D R' U2 R D' R' U2 R' r U' r' U' r U' r' U' F' U2' F</p>	 <p>Back Slash</p> <p>R2' D' R U2 R' D R U2 R R' F R U R' F R U F U2' F'</p>
 <p>Front Row</p> <p>(U) R U2' R2' U' R2 U' R' U R' U' R U R' U R R2' F U' F U F2 R2 U' R' F R R' U' R U' R' U2' R2 U R' U R U2' R'</p>	 <p>Rows</p> <p>R' F R U' R' U' R U R' F' R U R' U' R' F R F' R (U') F R2 D R' U R D' R2' U' F'</p>
 <p>X Checkerboard</p> <p>R U R' U' R' F2 R2 U' R' U' R U R' F2 (U2) r U' r' U' D' r U' r' D r (U2) R' F U' R F R' U R F' (U') R' D R U' R U' R' U R' D' R r' U r' D' r U r' D r U' r</p>	 <p>Back Row</p> <p>R U' R' U' R U R D R' U R D' R2 (U') F R U R' U' F' (U') f R U R' U' f' (U) F U R U' R' F'</p>

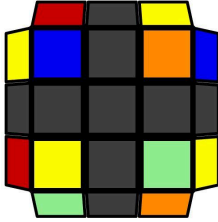
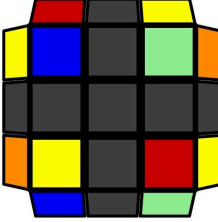
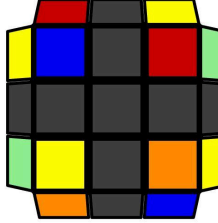
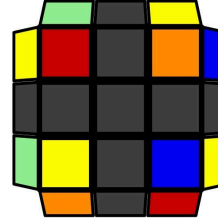
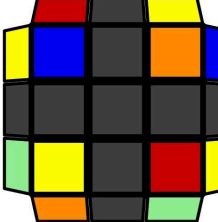
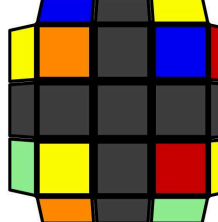
T

 <p>Left Bar</p> <p>(U') r U R' U' r' F R F' (U') R U R' U' R' F R F'</p>	 <p>Right Bar</p> <p>(U) l' U' L U l F' L' F (U) L' U' L U L F' L' F (U') F R U' R' U R U R' F'</p>
 <p>Rows</p> <p>(U') R U R' U' R U' R' U' R' U' R2 U' R2' U2' R F R' F R2 U' R' U' R U R' F2 R U2' R' U' R U' R2' U2' R U R' U R</p>	 <p>Front Row</p> <p>R' U r U2' R2' F R F' r r' U r U2' R2' F R F' R</p>
 <p>Back Row</p> <p>(U2) F R U R' U' R U' R' U' R U R' F' r' D' r U r' D r U' r U r' (U) R' D R U' R U R' U R' D' R r U' r D r' U r D' r' U r'</p>	 <p>Columns</p> <p>R' U R2 D r' U2 r D' R2' U' R (U2) r2' D' r U r' D r2 U' r' U' r (U2) r U' r2' D' r U2 r' D r2 U r'</p>

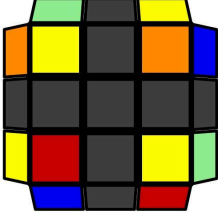
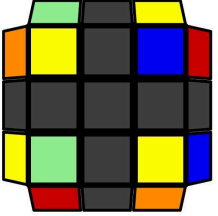
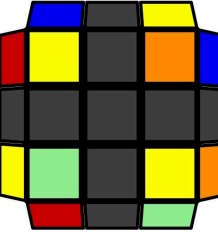
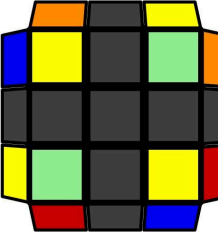
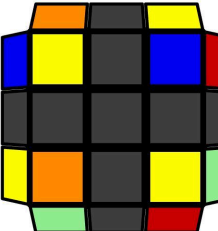
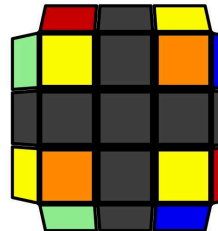
S

 <p>Left Bar</p> <p>(U) R U R' U R U2 R' (U) r U R' U R U2 r'</p>	 <p>X Checkerboard</p> <p>(U) L' U2 L U2' F' L' F M' (U) L' U2 L U2' L F' L' F</p>
 <p>Forward Slash</p> <p>(U) M F R' F' R U2 R U2' r' (U) F R' F' R U2 R U2' R'</p>	 <p>Columns</p> <p>(U) R U R' U' R' F R F' R U R' U R U2' R' R U R' U R U' R D R' U' R D' R2'</p>
 <p>Right Bar</p> <p>(U') R U R' U L' U R U' L U2 R' (U') R U R' U R' F R F' R U2' R'</p>	 <p>Back Slash</p> <p>(U) R U' L' U R' U' L (U) r U' r' F R' F' R (U') L U' R' U L' U' R</p>

As

 <p>Right Bar</p> <p>(U) R' U' R U' R' U2' R (U) r' U' R U' R' U2' r (U2) R U2 R' U' R U' R'</p>	 <p>Columns</p> <p>(U') R2 D R' U R D' R' U R' U' R U' R' (U') r R D R' U R D' R' U R' U' R U' r'</p>
 <p>Back Slash</p> <p>(U') M F' L F L' U2' L' U2 L M' (U') F' L F L' U2' L' U2 L</p>	 <p>X Checkerboard</p> <p>(U') R U2' R' U2 r' F R F' M' (U') R U2' R' U2 R' F R F'</p>
 <p>Forward Slash</p> <p>(U') L' U R U' L U R' (U') R' F R F' r U r' (U) R' U L U' R U L'</p>	 <p>Left Bar</p> <p>(U') R' U' R U' L U' R' U L' U2 R R' U' R U' R' U R' F R F' U R</p>

L

 <p>Mirror</p> <p> $R^2 D' R U' R' D R U R$ $(U^2) F R U' R' U' R U R' F'$ $(U') F' r U r' U' r' F r$ $(U') F' r U R' U' r' F R$ </p>	 <p>Inverse</p> <p> $(U^2) F R' F' r U R U' r'$ $(U^2) F R' F' R U R U' R'$ </p>
 <p>Pure</p> <p> $R U^2 R' U' R U R' U' R U R' U' R U' R'$ $R U R' U' R' F R F' R' F R F' r U r'$ $R U R' U R U' R' U R U' R' U R U^2 R'$ </p>	 <p>Front Commutator</p> <p> $(U^2) R U^2 R D R' U^2 R D' R^2'$ $R U R' U R' F R F' U^2 R' F R F'$ $(U^2) R U R' U' F' U^2' F U R U R'$ </p>
 <p>Diag</p> <p> $R' U' R U R' F' R U R' U' R' F R^2$ $(U^2) R U^2' R^2' F R F' R U^2' R'$ $(U^2) r U^2' R^2' F R F' R U^2' r'$ </p>	 <p>Back Commutator</p> <p> $(U) R' U^2 R' D' R U^2 R' D R^2$ $(U^2) R U R' U' R' F R^2 U' R' U R U R' F'$ </p>