CUBEHEAD'S PLL ALGS

The Complete Alg-Sheet to Learn PLL as a Whole

CHECKBOX

ALGORTIHM

DIFFICULTY

NAME

NOTES

Ua

1/18

(R U R' U R') U' R2 U' (R' U R' U R)

Looks like a long alg, but it flows super well and is regripless, which makes it one of my fastest PLL's. To help memorize: see how you move pairs around.

Bar in the front & edge on the left side is opposite relative to its side (or the edge on the right isn't)
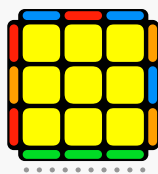
U2

PROBABILITY

AUF

RECOGNITION

EDGES ONLY

Also known as EPLL. Since the corners of these PLL's are already solved, you just need to solve the edges, which results in easy 2-gen* solutions. (*using just two layers)

☐ ● ● ● ●

Ua

1/18

U2

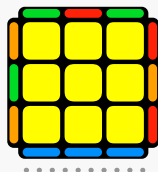**(R U R' U R') U' R2 U' (R' U R' U R)**

Looks like a long alg, but it flows super well and is regripless, which makes it one of my fastest PLL's. To help memorize: see how you move pairs around.

Bar in the front & edge on the left side is opposite relative to its side (or the edge on the right isn't)

☐ ● ● ● ●

Ub

1/18

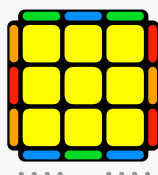**(R' U)(R' U')(R' U')(R' U) R U R2**

Make sure to watch the video to finger trick this one, since the third R' can be tricky. Notice how (R' U) & (R' U') repeat.

Bar in the front & edge on the right side is opposite relative to its side (or the edge on the left isn't)

☐ ● ● ● ●

H

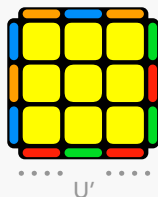*1/72*

M2 (U') M2 (U2) M2 (U') M2

You can perform this alg from any side. If you use left hand for M slices, do the inverse alg M2 (U) M2 (U2) M2 (U) M2.   ! Double-flick U2's !

All edges are opposite compared to its corners. If you notice this is the case for two sides, you can tell it's an H perm.

☐ ● ● ● ●

Z

1/36

U'

M' U' (M2 U')(M2 U') M' U2 M2

Make sure to hold a checkerboard (two sides with only two colors) on the right side for this alg. Inverse alg: y M' U (M2 U)(M2 U) M' U2 M2

Very similar to the H perm, although this one doesn't have any opposite colors on any side. This forms two checkerboard patterns (red/green and blue/orange}

My favorite PLL's: U-perms!

There's many great u-perm algs, I even use **5 U-perm algs** myself! The ones I showed you are easy to **recognize**, and **flow** really well after OLL. But if you don't like them, feel free to look for others online.

Right or left hand for M-slices..?

The H- and Z-perms both consist of **M and U** moves. I use my right hand for M slices, and left hand for U moves. But if you like to do it the other way around, do it. Just make sure to use the **inverse alg.**

CORNERS ONLY

Also known as CPLL. Since the edges of these PLL's are already solved, you just need to solve the corners. Notice how these are the only PLL's with x-rotations.
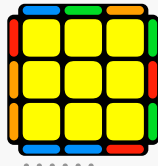
☐

Aa
1/18

● ● ● ●
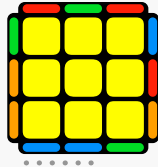
x (R' U R') D2 (R U' R') D2 R2 x'

The rotation and the R' are executed as an l'. Make sure to use alternating fingers (pinky/ring or ring/pinky) for the D moves.

Block in the left front, and headlights in the back.
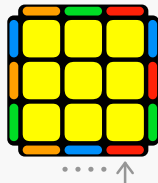
☐

Ab
1/18

● ● ● ●

x R2 D2 (R U R') D2 (R U' R) x'

Same alg as the Aa, just mirrored. Once again make sure to use alternating fingers for the D2's. That's all I ask from you.

Block in the left front, and headlights on the right.

☐

E
1/36

● ● ● ●

x' (R U' R' D) (R U R' D') (R U R' D) (R U' R' D') x

Get ready to hate this one. Make sure you push the D' 's with you ring finger (watch video to be sure).

No blocks or bars. Make sure that the two pieces pointed to with arrows are the same color, otherwise you'll end up with a H perm.
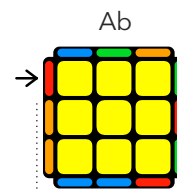
Notice the symmetry of the alg: (R U' R') **D** (R U R') **D'** (R U R') **D** (R U' R') **D'**

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3 PLL's have a big block; **Aa**, **Ab**, and **V**. You can tell which one you're dealing with by *seeing which corners are opposite color to the block.*
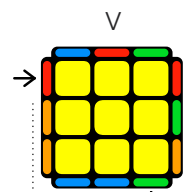
Since you hold the block on the left for all these cases, it's good (and easy) to be able to distinguish them from that side.
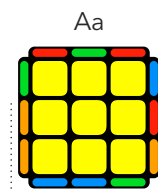
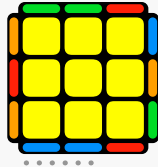| Aa	Ab	V
FR corner is opposite	LB corner is opposite	Both corners are opposite

ADJACENT SWAP

These are all the PLL's with headlights (- the G-perms). Lots of similarities between algs here, and lovely finger tricks. Let's find out why the J perm is so awesome.

☐

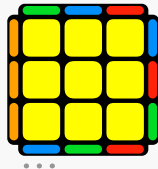### T

1/18

(R U R' U') (R' F R2 U') R' U' (R U R' F')

Probably the best knowns PLL.
To memorize this one it can help to track the pairs

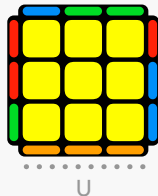*Two bars attached to headlights, hold the headlights on the left*

● ● ● ●

☐

F

1/18

(R' U' F') (R U R' U') (R' F R2 U') (R' U' R U) (R' U R)

(R' U' F') followed by T- perm with different ending.
Long alg, but really easy to recognize (and pretty fast if executed properly)

Block in the left front, and headlights on the right.

● ● ● ●

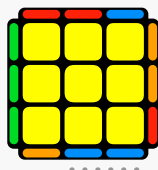
☐

Ja

1/18

(R' U L' U2) (R U' R' U2) R L

Alernation between R and L moves can be tricky, but super fast if you master it.
You can also execute the last "L" as "r" (I do that when there's no AUF)

J-shaped big bar, and small bars always on the left side. (hold big bar front)

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If you're good at lefty moves, do lefty-Jb: y' (L' U' L F) (L' U' L U) L F' L2' U L

☐

Jb

1/18

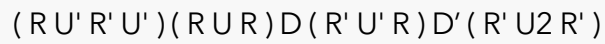**(R U R' F') (R U R' U') R' F R2 U' R'**

Most people's favorite PLL (and Youtuber) for a reason; it's very fast. notice how
(R U R' F') is really similar to (R U R' U')

L-shaped big bar, and small bars always on the right side. (hold big bar left)

● ● ● ●

The Jb algorithm, is the exact same as a T-perm but in a different order.

Ra

1/18

● ● ● ○

(R U' R' U') (R U R) D (R' U' R) D' (R' U2 R')

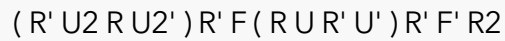Key here is to be able to push the D' with your left ring finger.

One bar attached to the right side of the headlights. Hold headlights left

Rb

1/18

● ● ○ ○

(R' U2 R U2') R' F (R U R' U') R' F' R2

One of my favorites. Key here is to dubbelflick the U moves (right/left hand). The end of the alg has some similarities to a T perm

One bar attached to the left side of the headlights. Hold headlights in front.

T-perm or Ra-perm..?

With the headlights on the left, both look really similar since they both have **one bar attached in the front**. Instead of rotating to check for a bar on the other side, look at the **center piece on the left**.
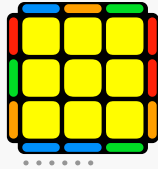
T

Opposite

Ra

Not opposite

DIAGONAL SWAP

These are all the PLL's without headlights (E-perm technically belongs to this group as well).

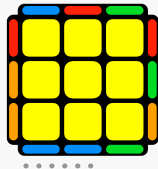Most algorthims are very long, and hard to memorize. (execpt for Y, let's start with that one)

☐

Y
1/18

● ● ○ ○

F (R U' R' U') (R U R' F') (R U R' U') (R' F R F')

The alg consists of two OLL's : F (R U' R' U') (R U R' F') and (R U R' U') (R' F R F').
Once you can do them seperately, learning the alg is very easy.

Two bars with a corner in between (notice how the corner in between is opposite color to the bars)

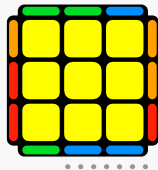
☐

V
1/18

● ● ● ○

(R' U R' U') y (R' F' R2 U') (R' U R' F) R F

The only PLL I do with a rotation. It is hard to master, but once you do it is a solid alg. I use my right index finger for both last F-moves.

Block in the left front, no headlights.

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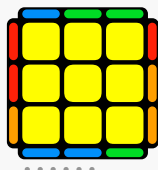
Na
1/72

● ● ○ ○

(R U R' U) (R U R' F') (R U R' U') R' F (R2 U' R') (U2 R U' R')

Super long alg, but very easy to memorize.
It's basically (R U R' U) (Jb- perm) (U2 R U' R')

*Bars on the right, each side of the cube with the corner opposite colored.
(I think of it as arrows pointing to the left)*

☐

Nb
1/72

● ● ● ●

(R' U R U') (R' F' U' F) (R U R' F) R' F' (R U' R)

One of the most difficult algs to learn, since it's pretty random moves, and you only get a n-perm in 1/72 solves. So make sure you practice this one well.

*Bars on the left, each side of the cube with the corner opposite colored.
(I think of it as arrows pointing to the right)*

N-perm or J-perm..?

I used to confuse J-perms and N-perms really often, since both have lots of bars. One way to quickly distinguis both is by looking at the **opposite colored corners** relative to the bar.

Jb

Na ↓

→

←

←

↑

1 corner is
opposite

All corners
are opposte
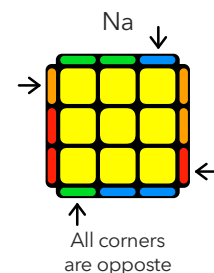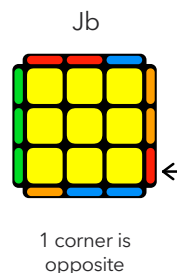
G-PERMS

Also known as the "aah-I-messed-up-again"-perms. G-perm algs are (on average) the most risky algs. That's why I mostly use algs with D moves, since I tend to mess up these less than the algs with wide u moves etc. However, once you nail the executions, G-perms can be the most enjoyable algs. So focus a lot on finger tricks, thank me later.
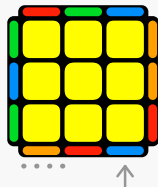

Ga
1/18
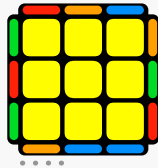
R2 U (R' U R' U') (R U' R2) D U' (R' U R D')

One of my faster G perms, and probabably the easiest to recognize. Start with thumb on bottom and make sure to push the last D' with your left ring finger

Headlights left, bar in front not attached to headlights

Gb
1/18
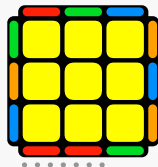
D (R' U' R U) D' (R2 U R' U) (R U' R U') R2'

I finger trick it in a pretty unique way so you probably need to watch the video for this one

Headlights left, bar in right back opposite to headlights.

Notice how the left/front side are almost an H perm, except for the blue sticker in front/right (arrow)
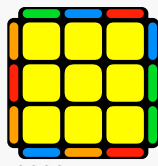

Gc
1/18

R2' F2 (R U2 R U2') R' F (R U R' U') R' F R2

This is the only G-perm I don't use D-moves for. Alg is long and difficult, but pretty fool-proof once you master it. Double flicking U2's is important here.

Headlights on the RIGHT, bar in front not attached to headlights.

Gd
1/18

(R U R' U') D (R2 U' R U') (R' U R' U) R2 D'

My favourite G-perm! The entire alg flows super well.
Make sure to do the U' and D simultaneously.

Headlights left, bar in right/front opposite to headlights

EDGES ONLY

Ua
(R U R' U R') U' R2
U' (R' U R' U R)

Ub
(R' U) (R' U') (R' U')
(R' U) R U R2

H
M2 (U) M2 (U2) M2
(U) M2

Z
M' U (M2' U M2') U
(M' U2 M2)

CORNERS ONLY

Aa
x (R' U R') D2
(R U' R') D2 R2 x'

Ab
x R2 D2 (R U R')
D2 (R U' R) x'

E
x' (R U' R' D) (R U R' D')
(R U R' D) (R U' R' D') x

ADJACENT

T
(R U R' U') (R' F R2 U')
R' U' (R U R' F')

F
(R' U' F') (R U R' U')
(R' F R2 U') (R' U' R U)
(R' U R)

Jb
(R U R' F') (R U R' U')
R' F (R2 U' R')

Ja
(R' U L' U2)
(R U' R' U2 R) L

Ra
(R U' R' U') (R U R) D
(R' U' R) D' (R' U2 R')

Rb
(R' U2 R U2') R' F (R U
R' U') R' F' R2

DIAGONAL

Y
F (R U' R' U') (R U R' F')
(R U R' U') (R' F R F')

V
(R' U R U') y (R' F' R2)
(U' R' U R') F R F

Na
(R U R' U) (R U R' F')
(R U R' U') R' F
(R2 U' R') (U2 R U' R')

Nb
(R' U R U') (R' F' U' F)
(R U R' F) R' F' (R U' R)

G (ANGSTERS)

Ga
R2 U (R' U R' U')
(R U' R2) D U'
(R' U R D')

Gb
D (R' U' R U) D'
(R2 U R' U) (R U' R U')
R2'

Gc
R2' F2 (R U2 R U2') R'
F (R U R' U') R' F R2

Gd
(R U R' U') D (R2 U' R U')
(R' U R' U) R2 D'

PRACTICE SCHEDULES

EASY

WEEK 1	*Ua*	*Ub*	*H*	*Z*	*Aa*	*Ab*	*E*
WEEK 2	*T*	*F*	*Jb*	*Ja*	*Ra*	*Rb*	*Y*
WEEK 3	*V*	*Na*	*Nb*	*Ga*	*Gb*	*Gc*	*Gd*

±20min learning alg & ±15min alg trainer /day

MODERATE

WEEK 1	*Ua* *Ub*	*H* *Z*	*Ab* *Aa* *E*	*P*	*T* *F*	*Ja* *Jb*	*Ra* *Rb*
WEEK 2	*P*	*Y* *V*	*Na* *Nb*	*P*	*Ga* *Gb*	*Gc* *Gd*	*P*

±30min learning algs & ±15min alg trainer /day

P = ±30min practice using alg trainer

FELIKS

WEEK 1	*Ua* *H* *Ub* *Z*	*Ab* *Aa* *E*	*T* *Ja* *F* *Jb*	*Ra* *Rb* *Y*	*Na* *Nb* *v*	*Ga* *Gb*	*Gc* *Gd*

±60min learning algs & ±20min alg trainer /day