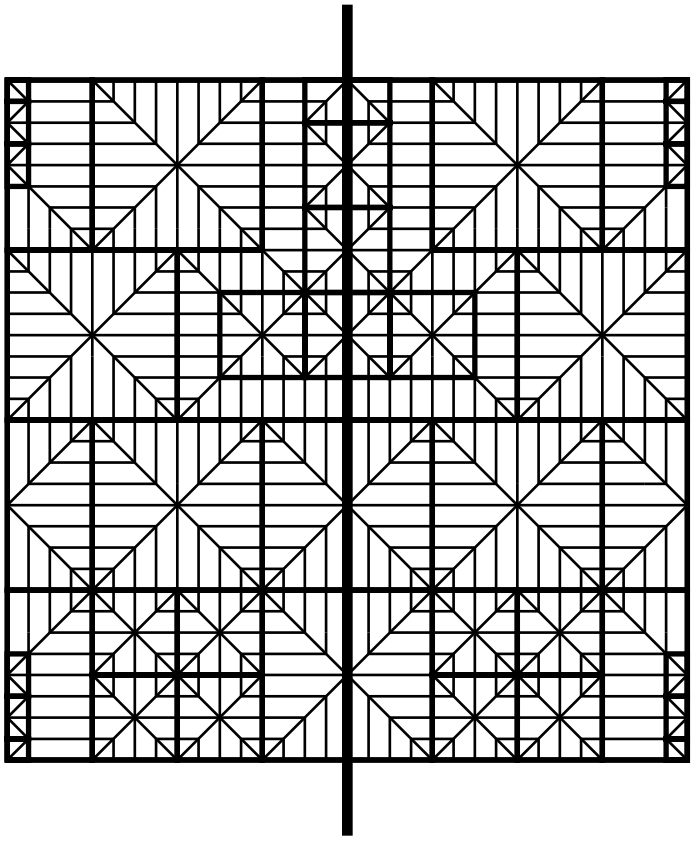
How to fold Box Pleated CPs

Part III - Collapsing I

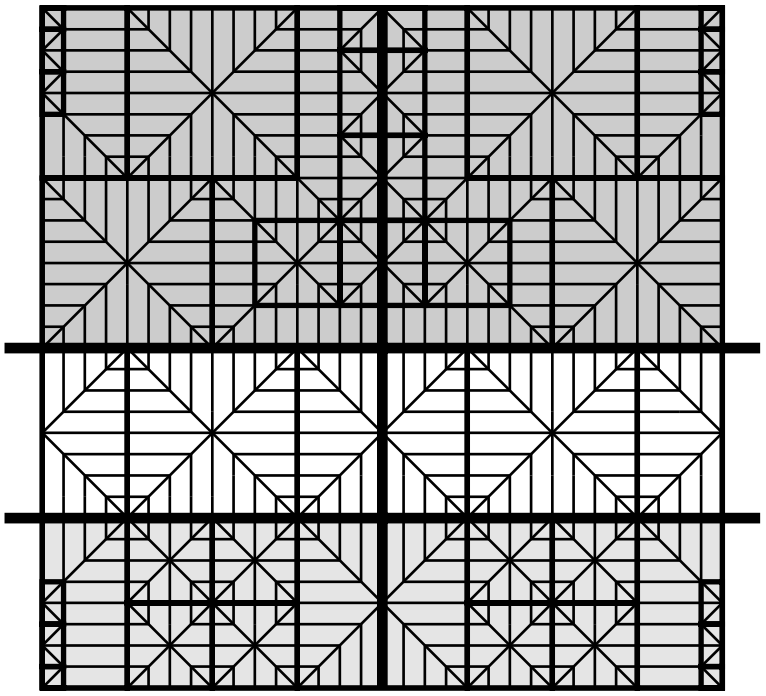
Before we start the collapsing, we're going to take another look at the structure of the CP which still holds some information that can help us a lot in the collapsing process.



The first thing to note is the symmetrie line of the CP.

Since most box pleated CPs are symmetric this will be the centre line of the square in most cases.

If the CP is not symmetric you will have to find a line that separates the CP logically in two halves. You will want to choose a line that goes through the centre of a lot of flaps because that makes the folding process easier.



The other thing to note are lines in the square packing perpendicular to the symmetry line that go all the way from one side to the other side of the square.

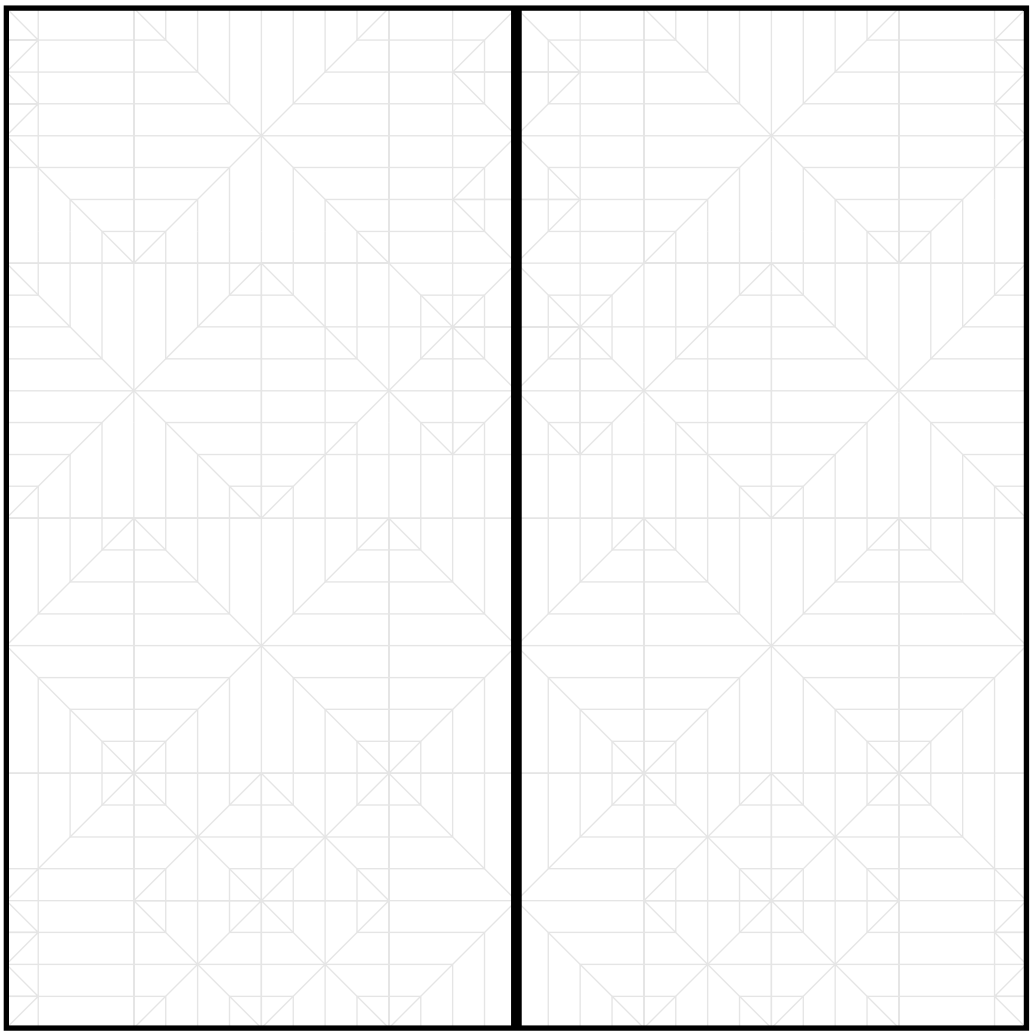
Those lines separate the CP into parts that can be collapsed more or less independent from the other parts of the CP.

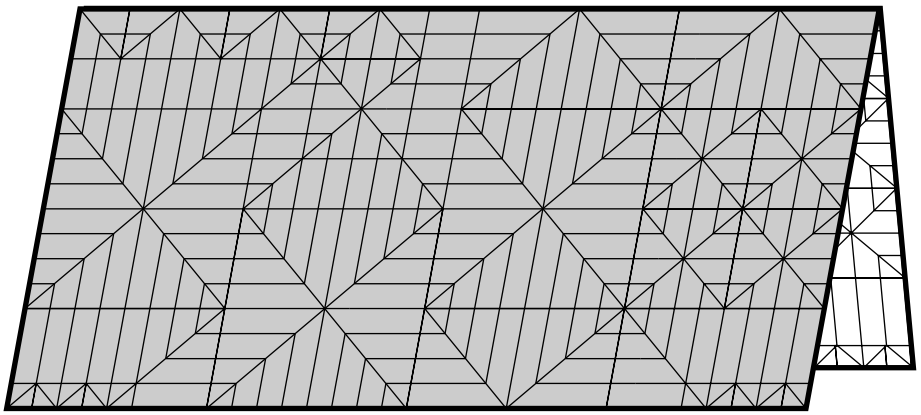
For each of the steps that will come now I will display a partial CP that shows all the creases necessary for getting a collapsed stage at this point, as well as the full CP greyed out as comparison to see the progress. The new or changed creases for each step will be displayed thicker.

For now we will focus on the top part of the CP that will become head and fore legs.

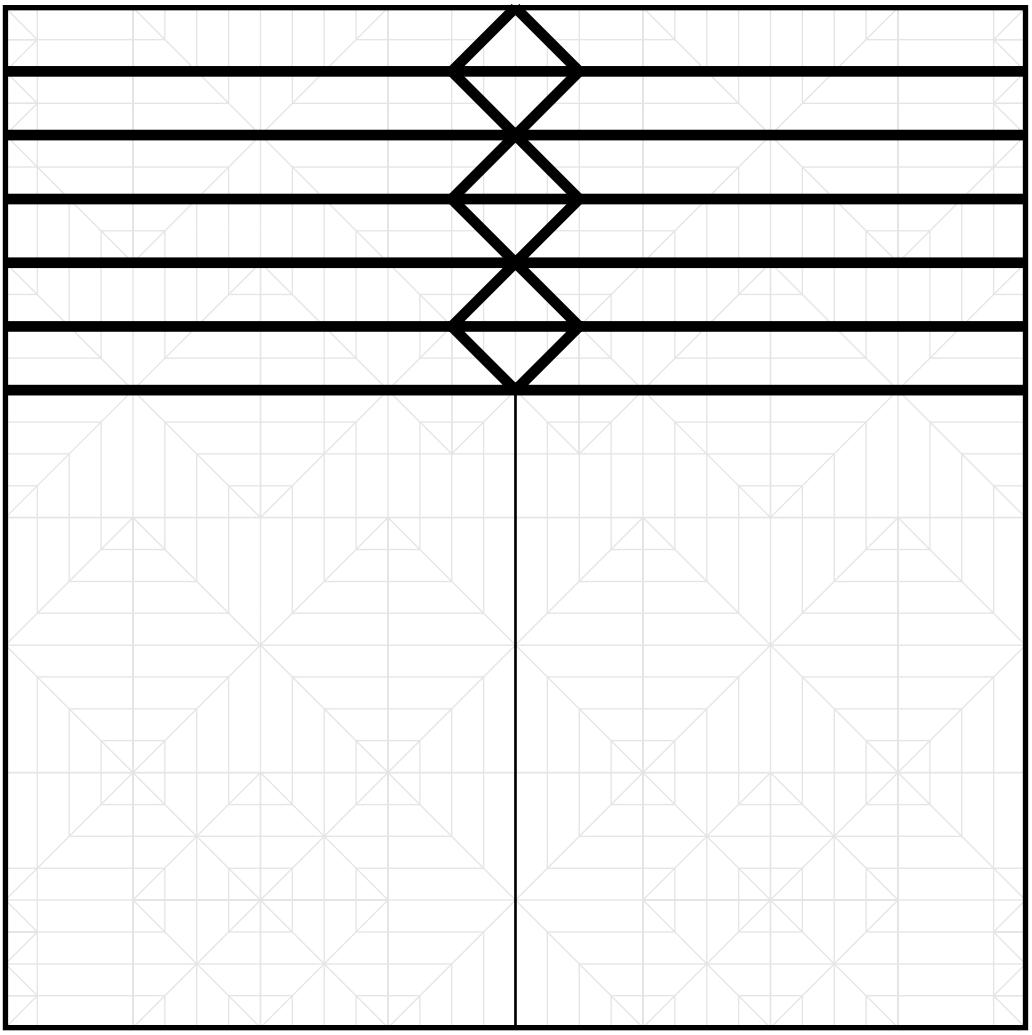
Guide by Gerwin Sturm (2007/01)
Porcupine 1.2 designed by Gerwin Sturm (2007/01/23)

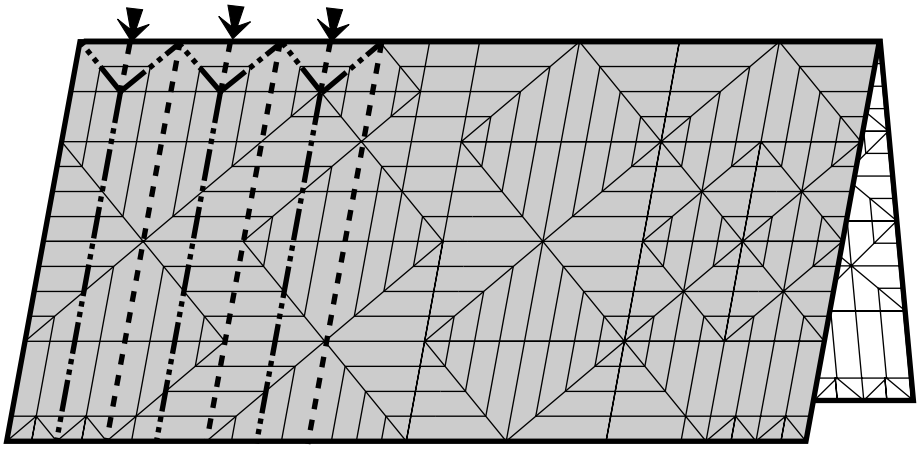
We start by folding the model in half along the symmetrie line, so that the coloured side is outside.



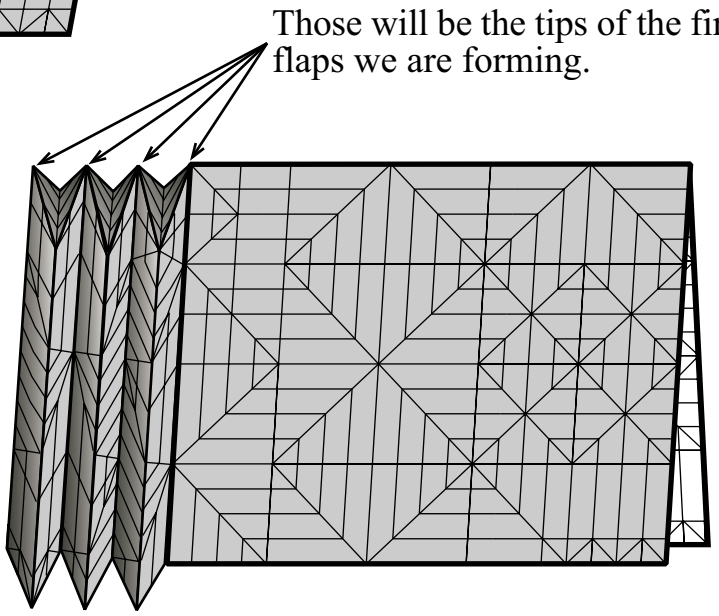


Next we form a series of structures that are similar to small waterbomb bases.

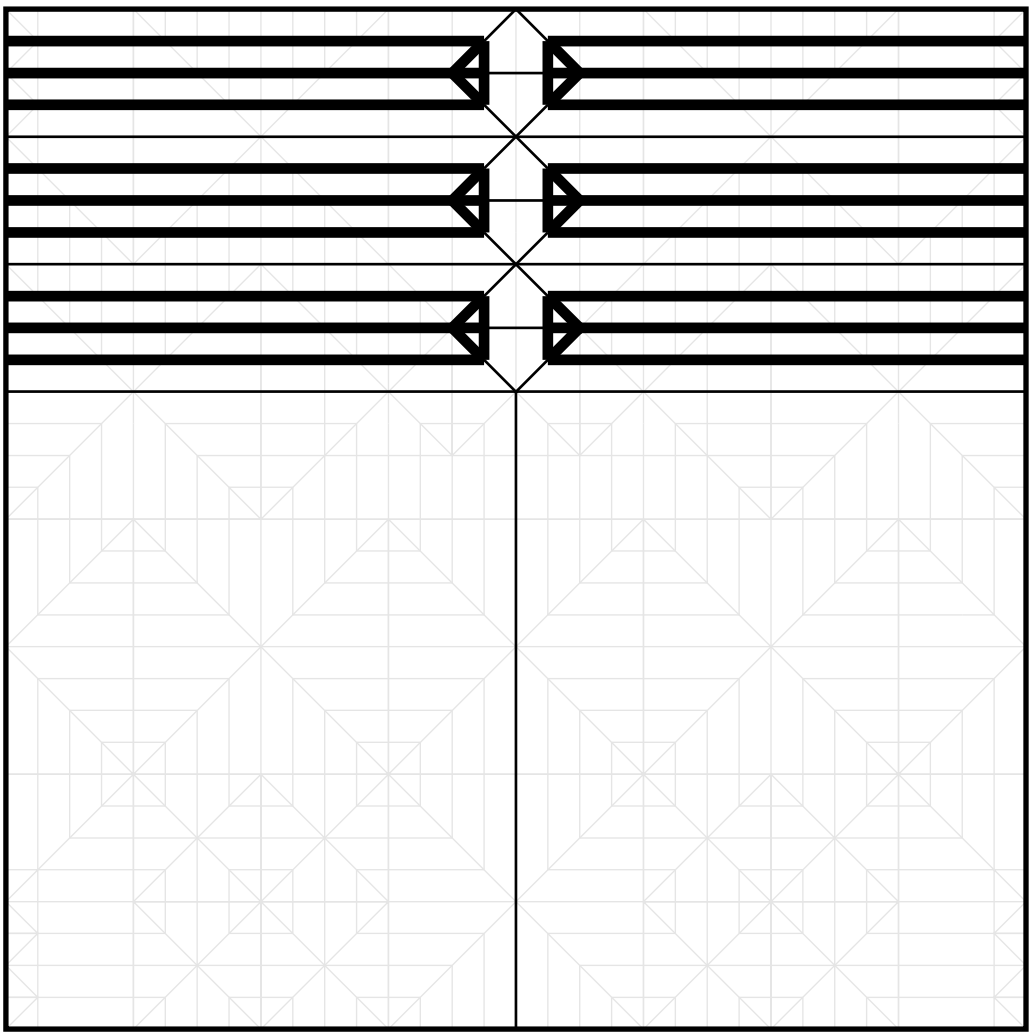


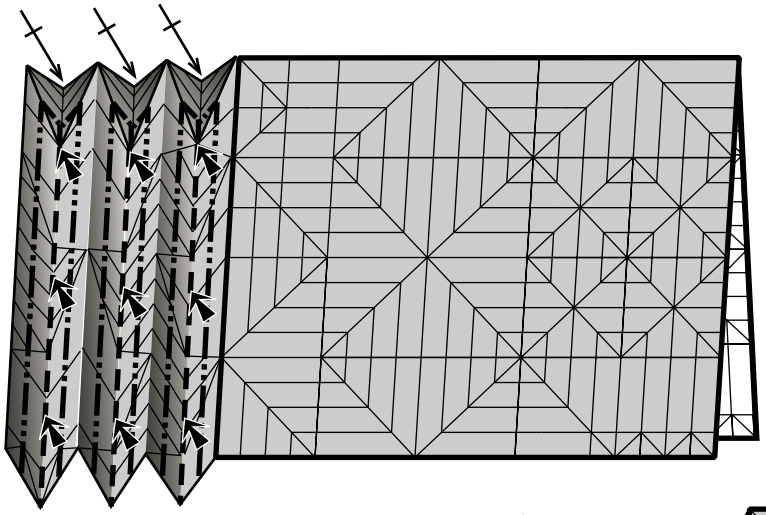


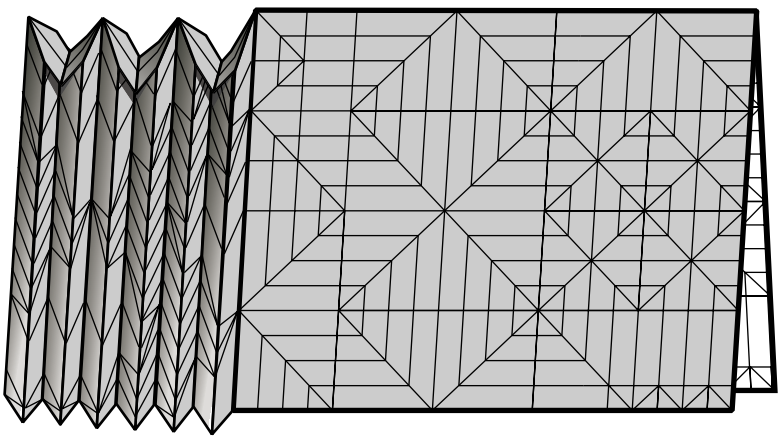
Those will be the tips of the first flaps we are forming.



Perform some open sinks to thin the flaps. If at that point you have flaps that are longer than 2 units, you will have to open sink in and out accordingly.

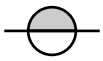


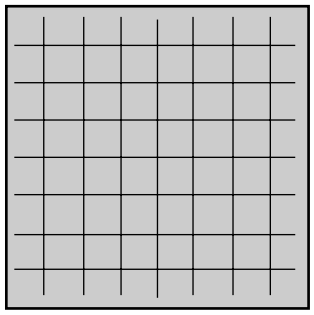




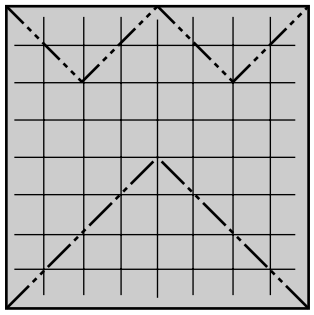
Before we continue we will make a small excursus about Elias stretches, with some simpler examples before we perform a rather extensive Elias stretch on the model at hand.

The Elias stretch is a very important technique in box pleating, which generally is used for separating two flaps from each other.

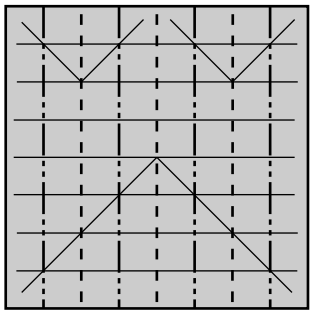




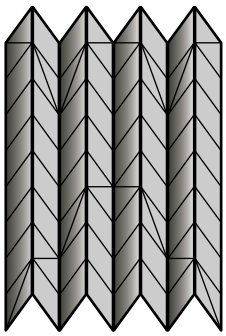
Let's start with an 8 x 8 grid...



...and add some diagonals to it.

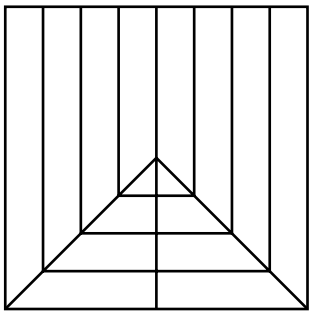


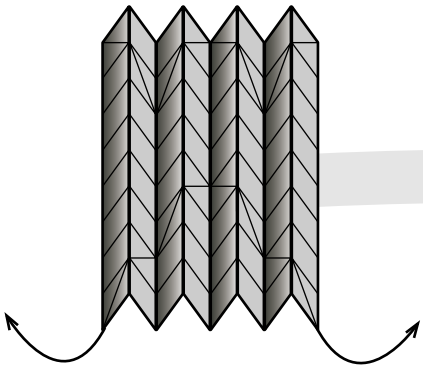
Now pleat vertically...



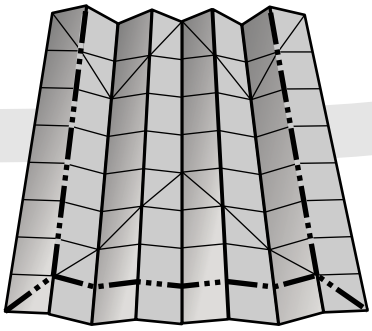
...to get something like this.

We now want to perform an Elias stretch to separate the bottom two corners. In the CP the finished Elias stretch would look like this.
Note that all folds we are going to make are on already existing creases (as is the case for most steps in collapsing a box pleated base).

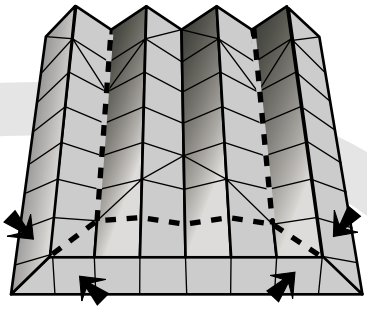




First we have to stretch the layers apart, which is easy in this example.

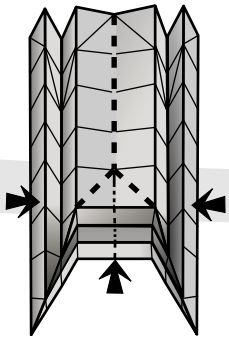


Then we start by forming the shown mountain folds.

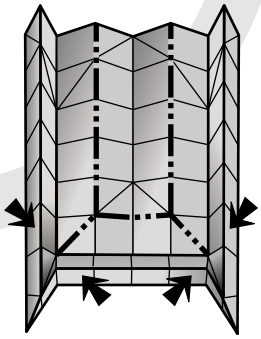


Next we form the shown valley folds and pinch the corners.

Elias stretch done.
We now have created two separate flaps.



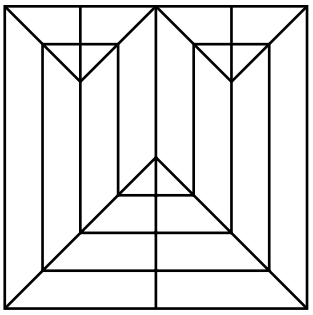
Finish the Elias stretch by closing the model.
The shown creases will form mostly by themselves.

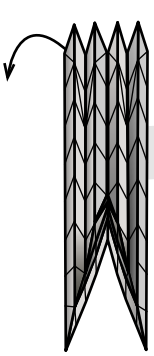


Pinch the corners further while forming the shown mountain folds.

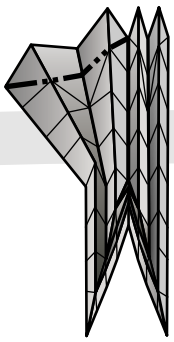
We can now practice the Elias stretch a bit more by making two smaller ones at the top.

When both of them are done the CP would look like this. Note that with those two Elias stretches we will get three distinct flaps at the top. They will be shorter than the flaps at the bottom though.

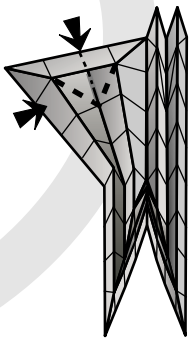




Open out the layers on the left a bit.

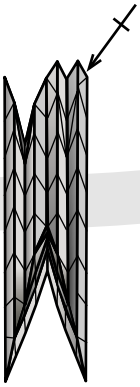


Form the shown mountain fold.



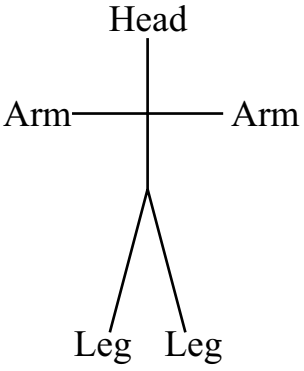
Close the model using the shown creases.

Done.



Make another Elias stretch on the right.

Taking a look at this base and the associated stick figure, it might be suitable for a human-like figure (with a bit short arms).
So just give it a try and see what you can turn this base into.



In the next part we will perform an Elias stretch that is a lot more complex (and doesn't really look like an Elias stretch) on the Porcupine model.