

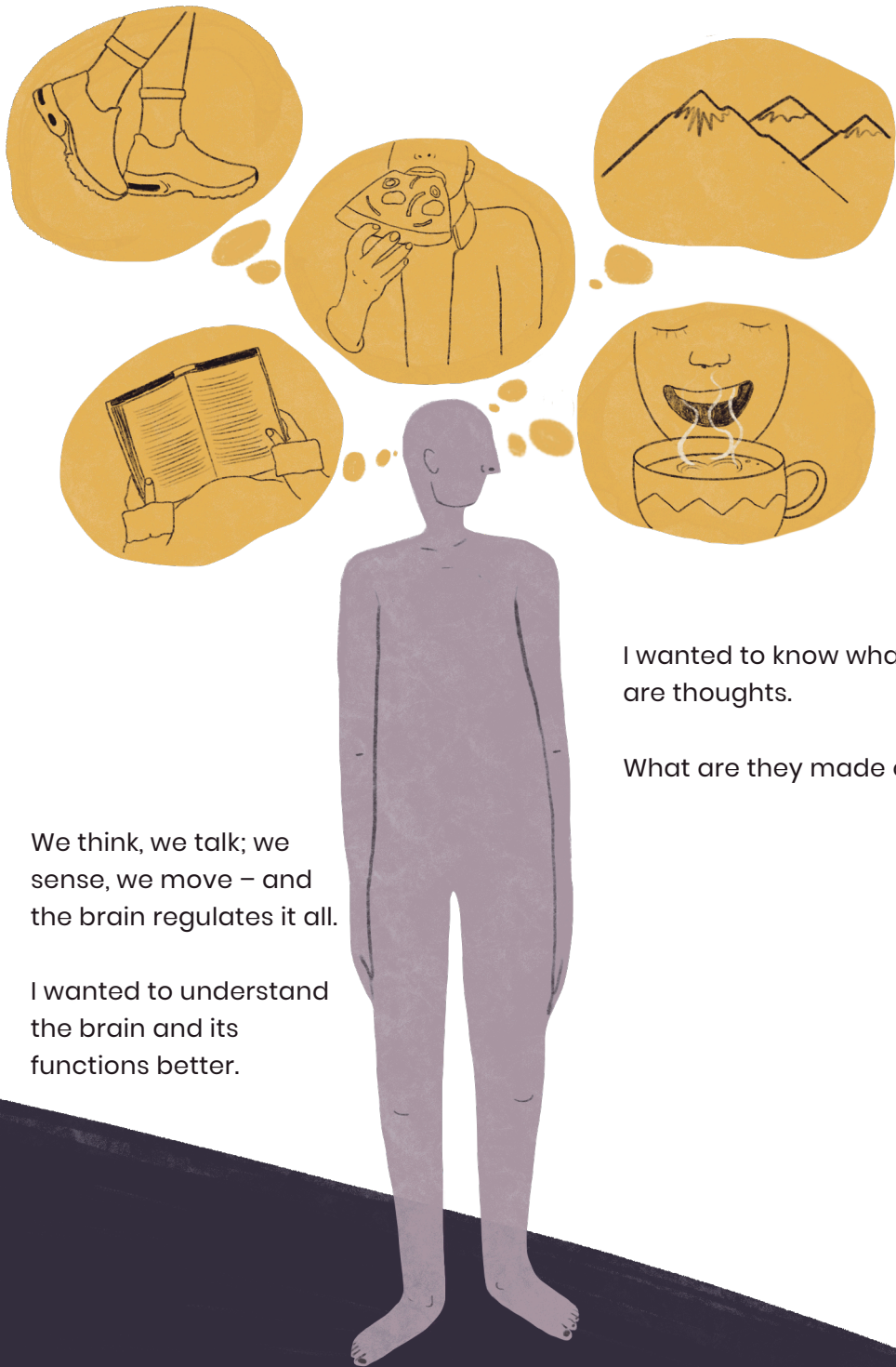
Fishing Expeditions In The Brain

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I am Vatsala.
And I am a brain-lover!

Early on, I have been
fascinated with this complex
mash-up of neurons, housed
in our heads that controls so
much in our lives.

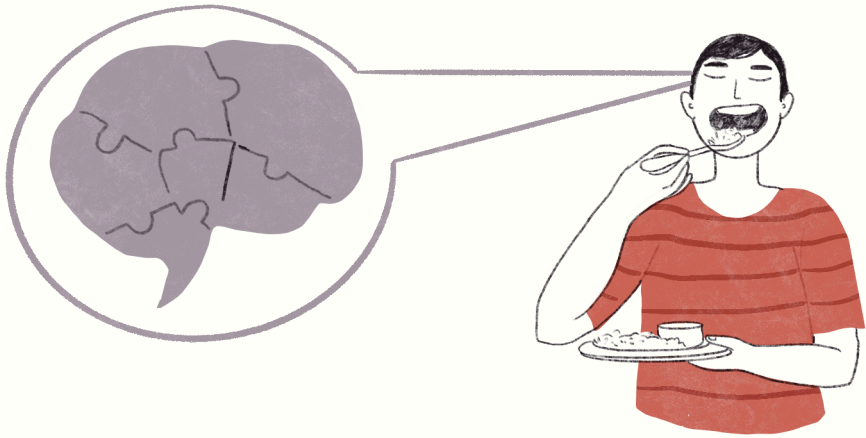


We think, we talk; we
sense, we move – and
the brain regulates it all.

I wanted to understand
the brain and its
functions better.

I wanted to know what
are thoughts.

What are they made of?



But we know too little of what happens inside the brain to start solving these puzzles. So, scientifically studying the nature of thoughts seemed difficult.

In comparison, movements are easier to deal with.



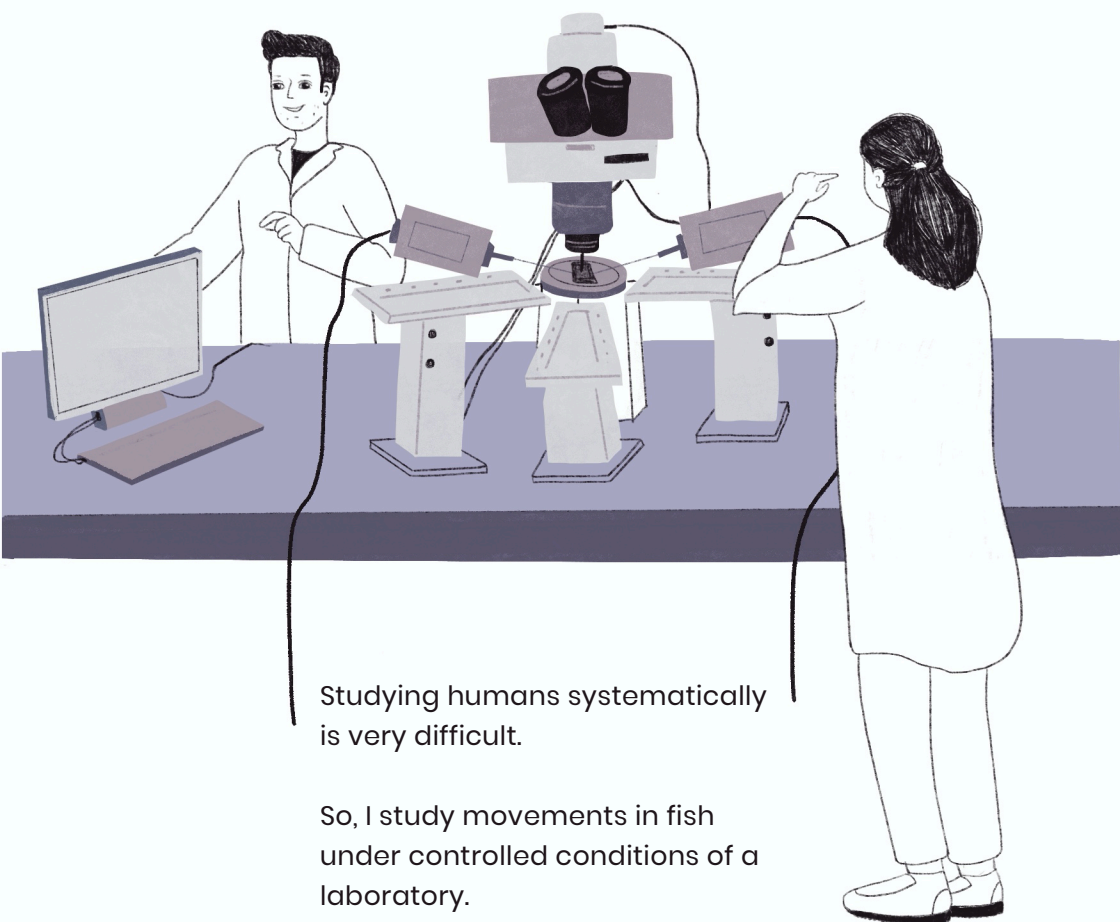


We see, hear, touch, smell or taste.
Sensory neurons relay the
information to our brain.

The brain processes it and sends
instructions via motor neurons to
our muscles to move.

Thus, we decide to move one way
or the other.



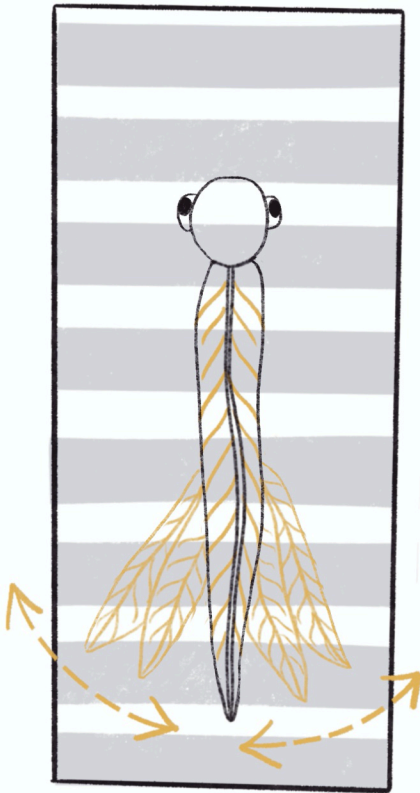


Studying humans systematically
is very difficult.

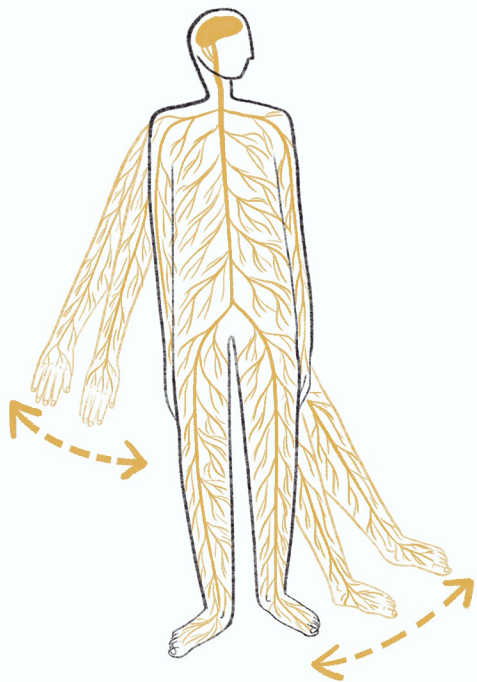
So, I study movements in fish
under controlled conditions of a
laboratory.

They are easy to work with because we can measure the sensory stimulus that we give.

Changes in stimulus alters movements of the fish.



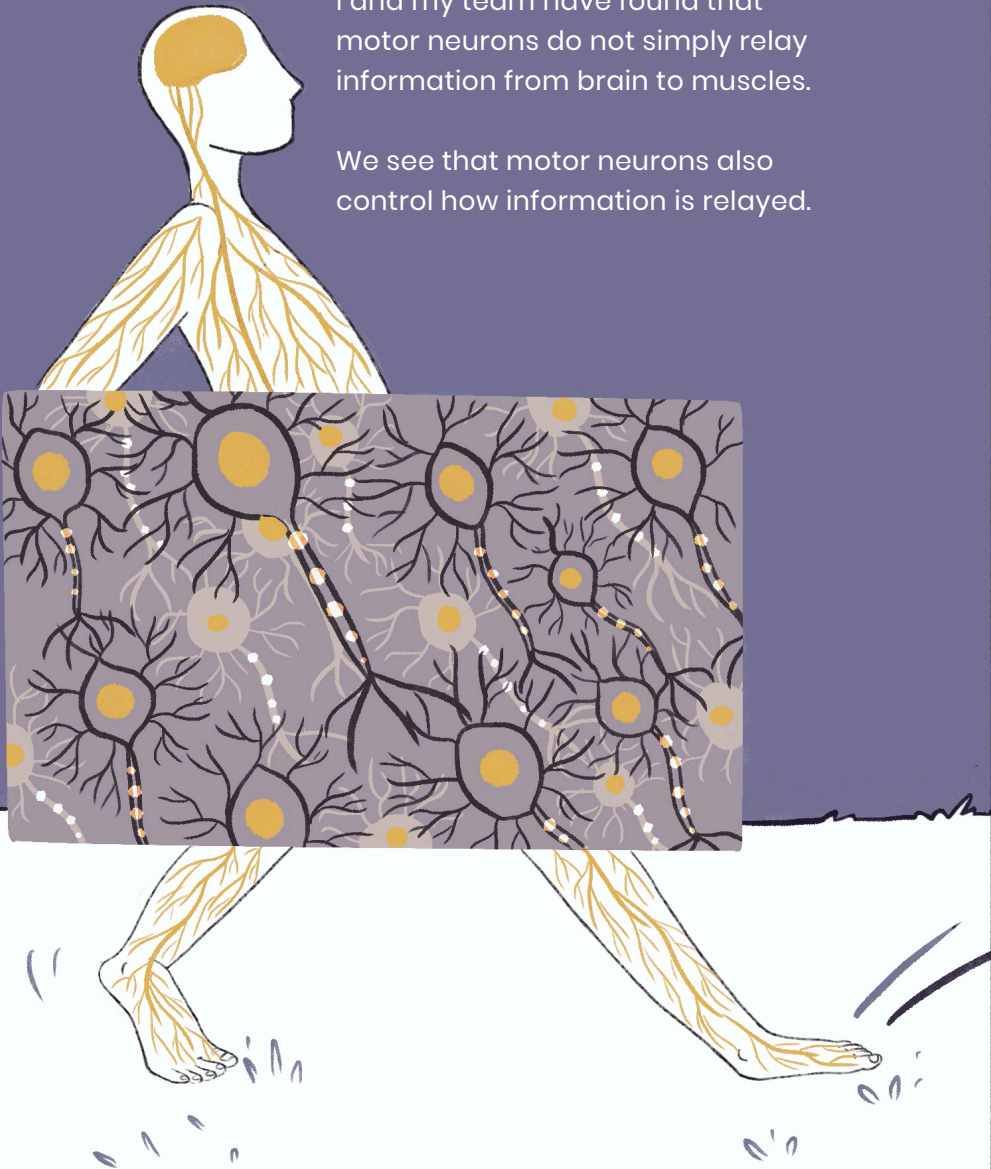
And we can measure movements of fish by observing its direction and speed.



This is my simplistic but robust way to study movement.

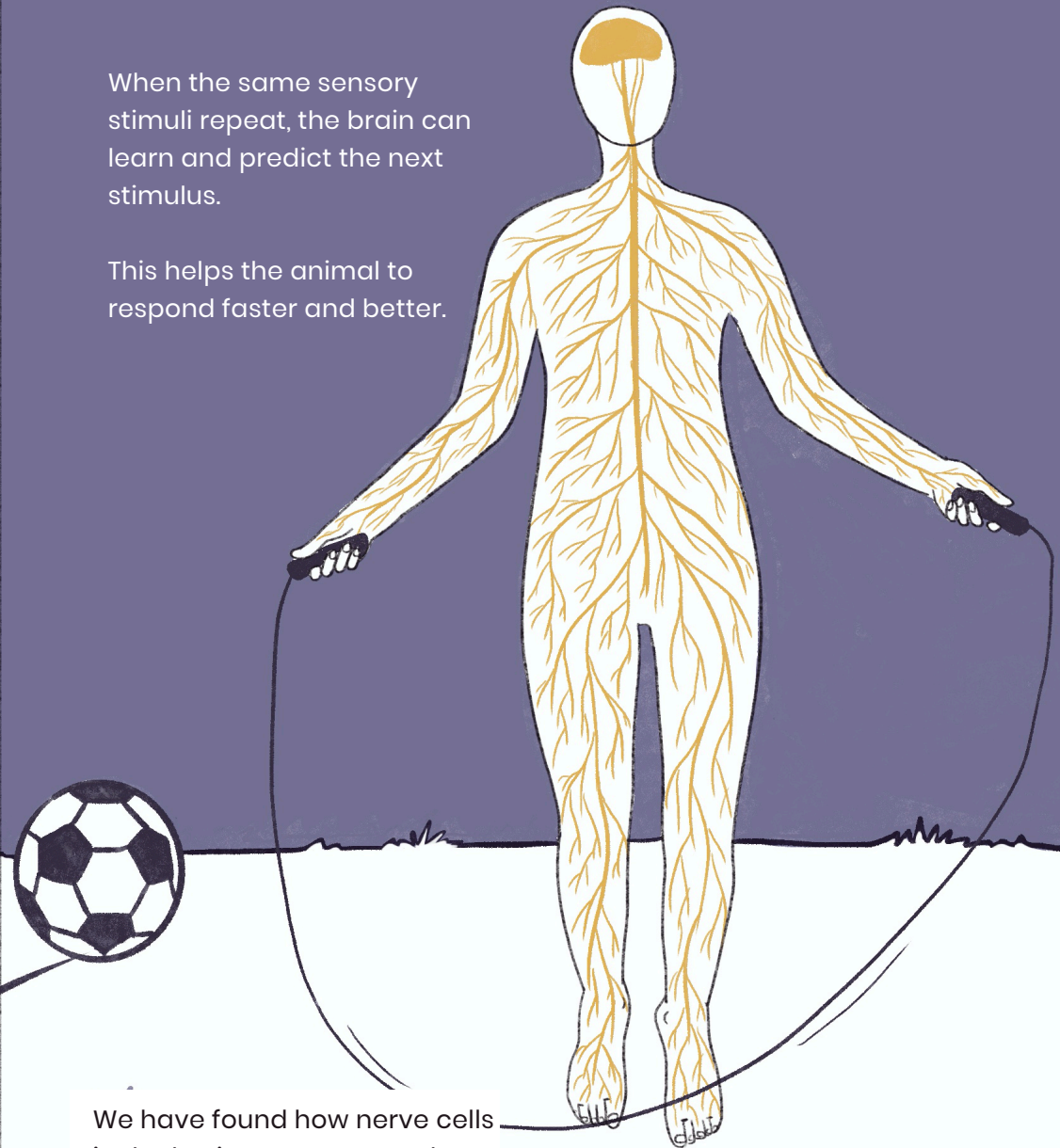
I and my team have found that motor neurons do not simply relay information from brain to muscles.

We see that motor neurons also control how information is relayed.

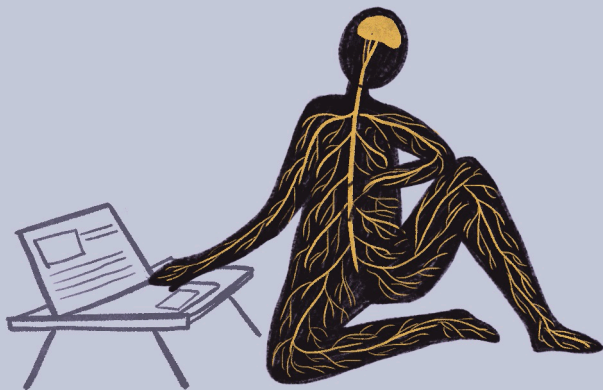


When the same sensory stimuli repeat, the brain can learn and predict the next stimulus.

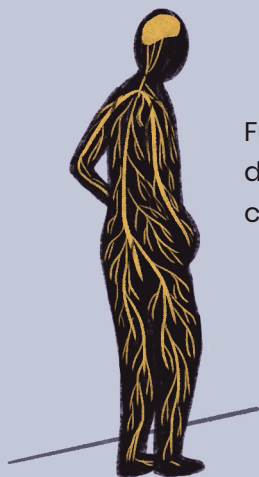
This helps the animal to respond faster and better.



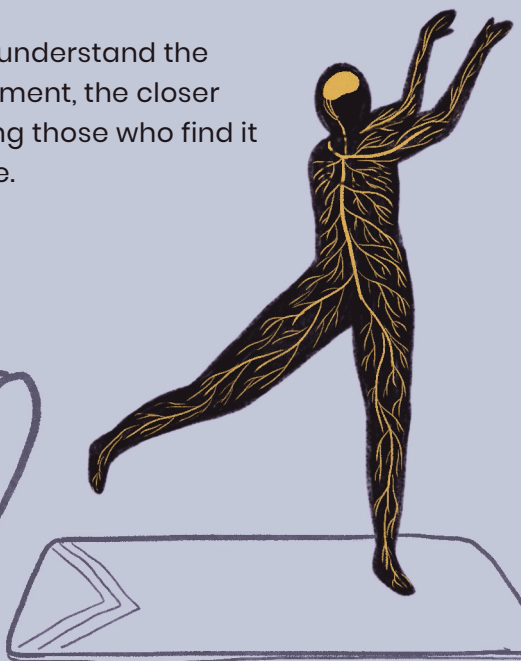
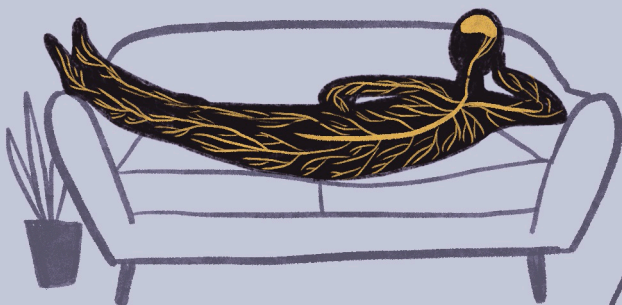
We have found how nerve cells in the brain can manage these feats.

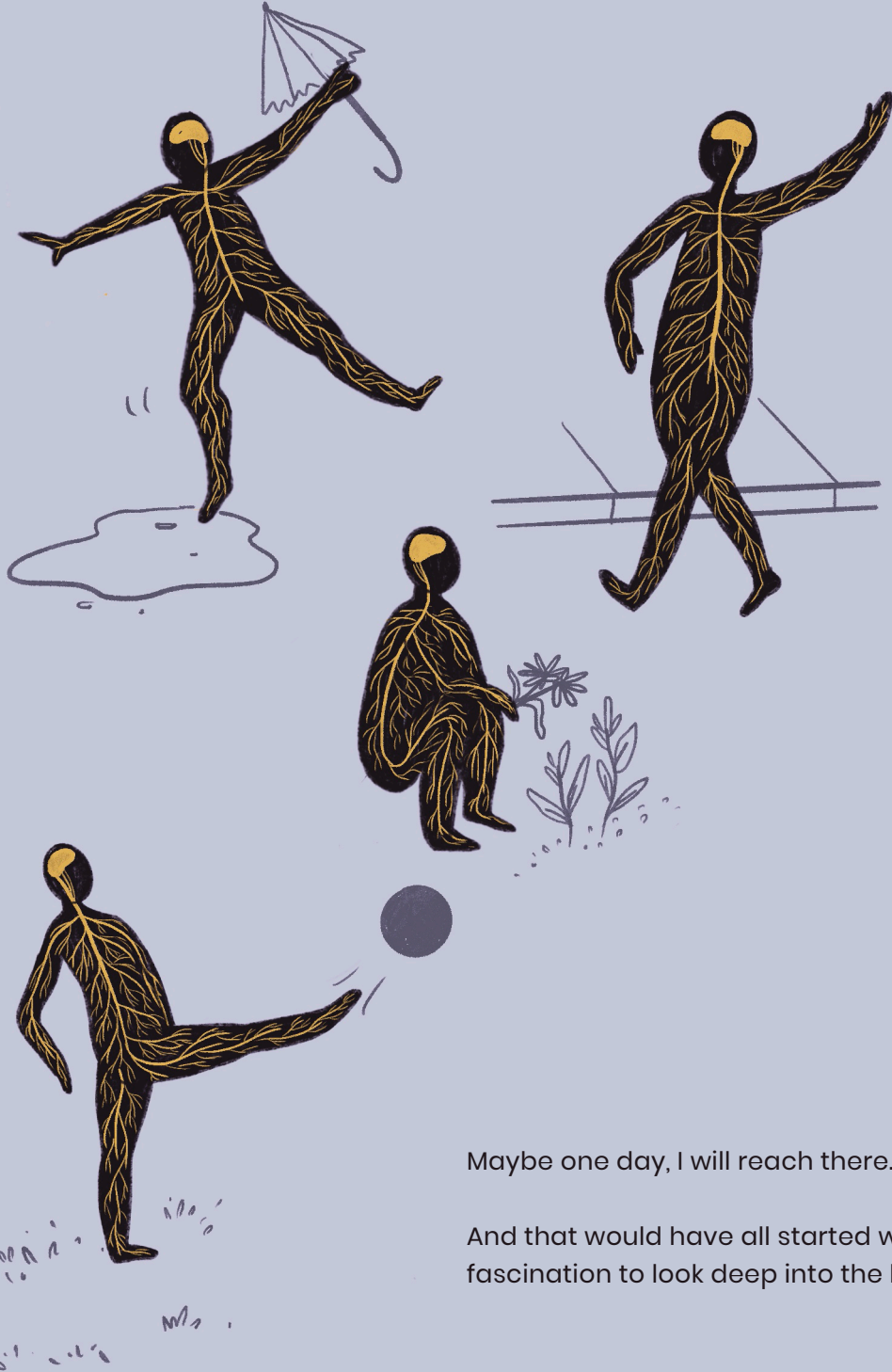


Further, I want to delineate the different layers of movement control from the brain to the spine.



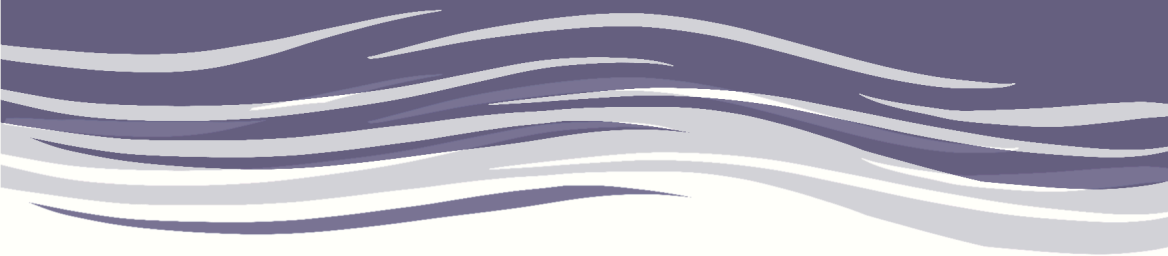
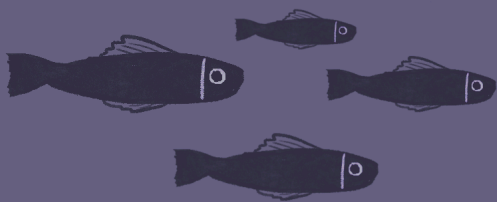
The deeper we understand the details of movement, the closer we get to helping those who find it difficult to move.





Maybe one day, I will reach there.

And that would have all started with my
fascination to look deep into the brain.



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Words by Somdatta Karak