Introduction to Neural Networks

Problem: Classify sentiment as
Positive/Negative
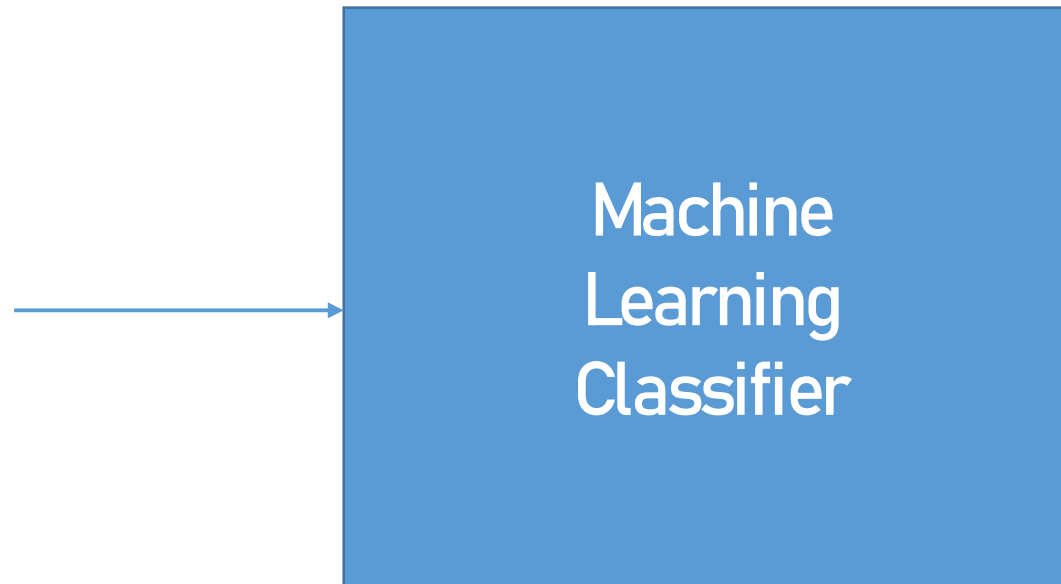
Problem: Classify sentiment as Positive/Negative
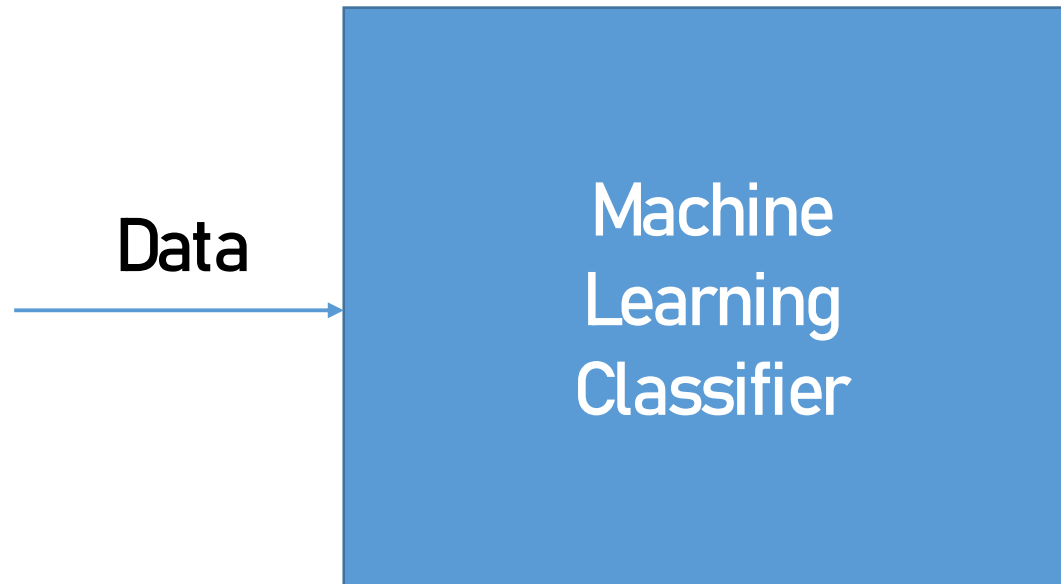
Machine Learning Classifier

Problem: Classify sentiment as
Positive/Negative

Machine Learning Classifier

Problem: Classify sentiment as
Positive/Negative

Data →

Machine Learning Classifier

Problem: Classify sentiment as
Positive/Negative

Problem: Classify sentiment as
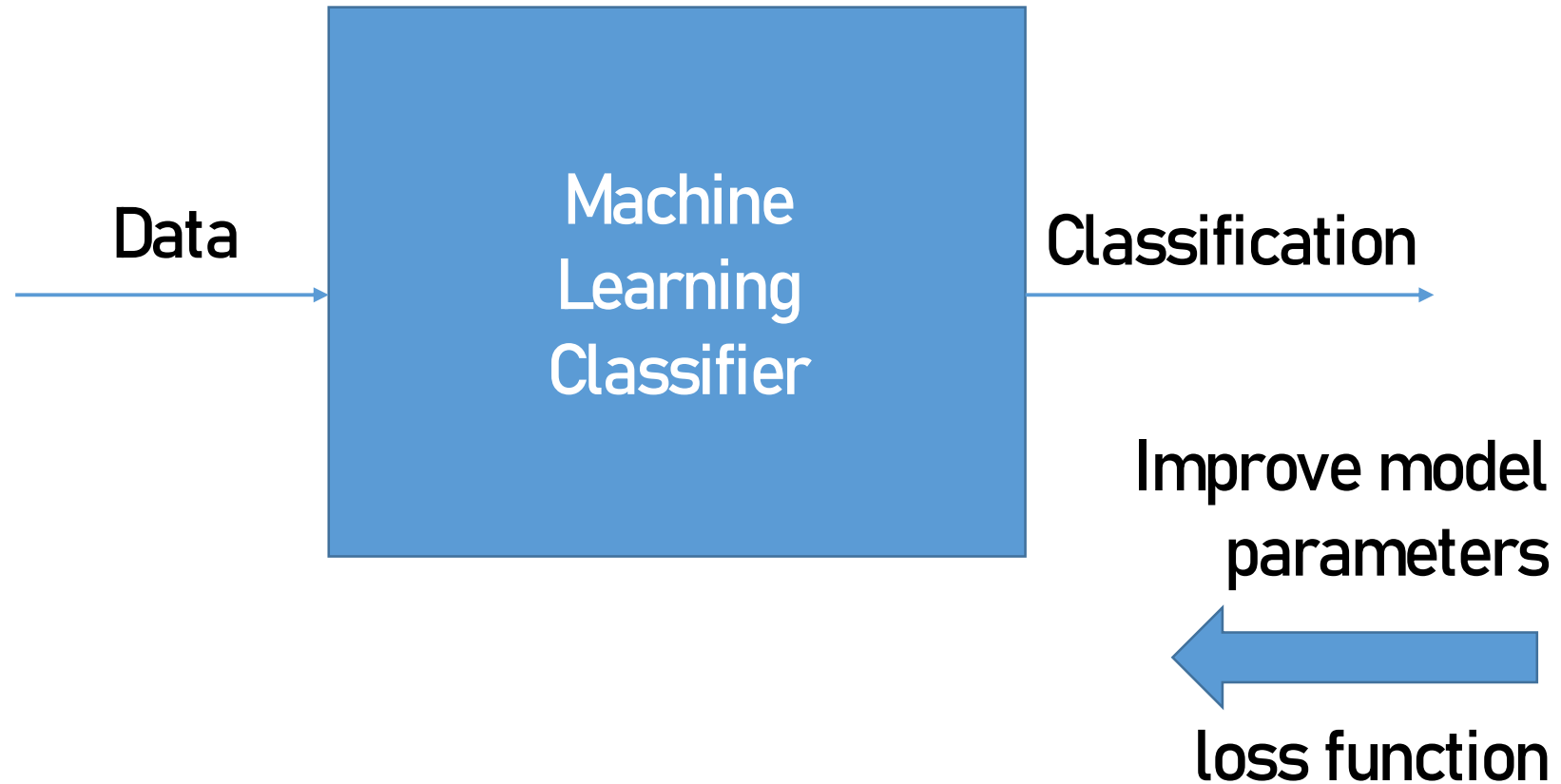# Positive/Negative

Data →

Machine Learning Classifier

Classification →

Problem: Classify sentiment as Positive/Negative

Traditional ML systems rely on experts for feature selection

Representation ML systems find out the important features themselves

Representation ML systems find out the important features themselves

Neural Networks are representation-based systems

What is a Neural network?

- Class of Algorithms that learn which features matter

- Synonymous to deep learning

- Network of neurons working together on a common goal

What is a Neural network?

- Class of Algorithms that learn which features matter

- Synonymous to deep learning

- Network of neurons working together on a common goal
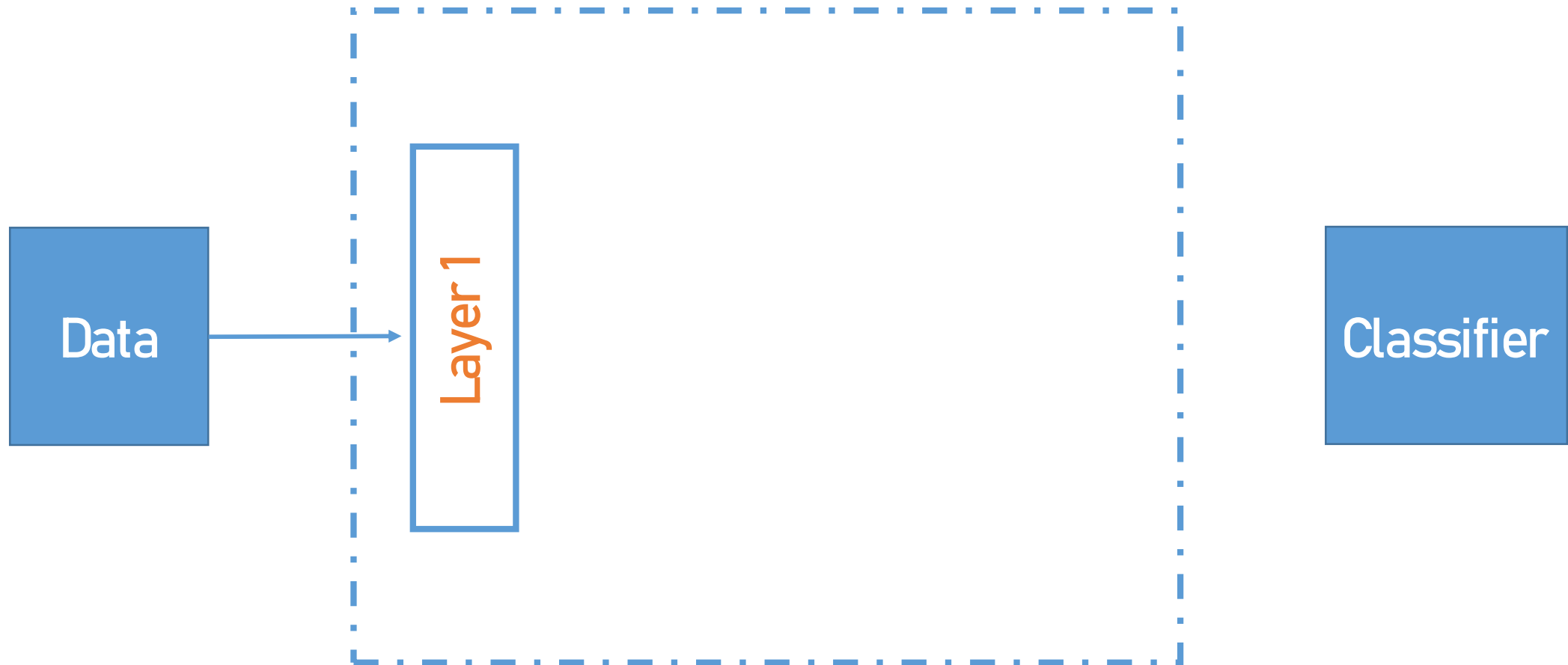
What is a Neural network?

- Class of Algorithms that learn which features matter

- Synonymous to deep learning

- Network of neurons working together on a common goal
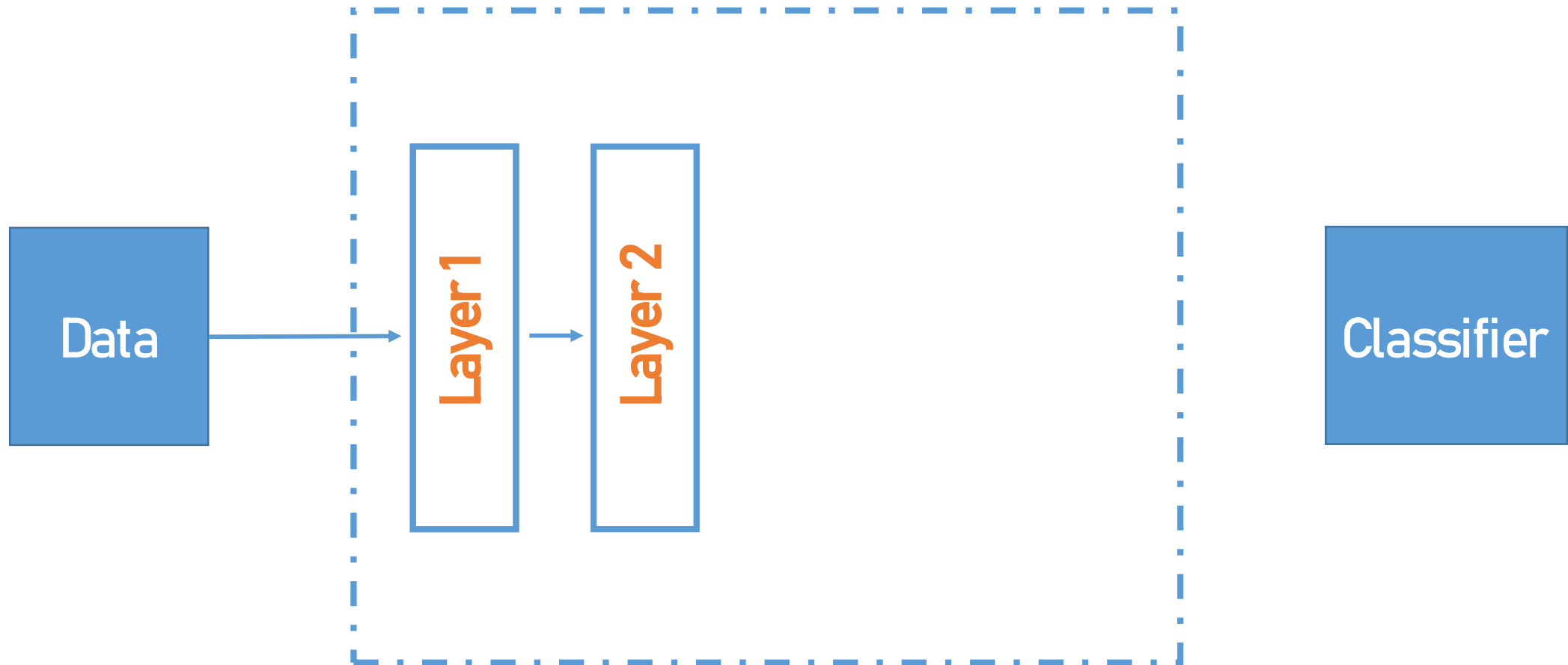
Neural Networks Architecture

Data

Classifier

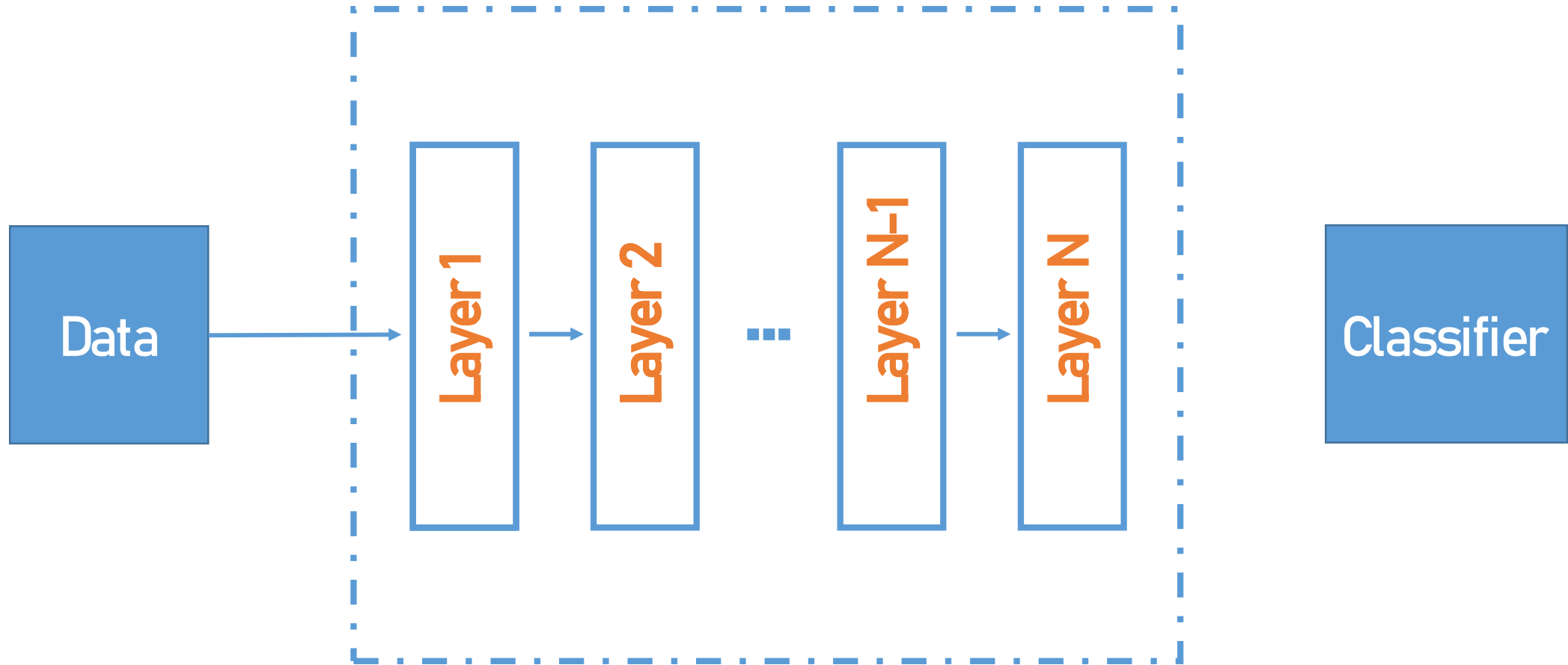# Neural Networks Architecture

Data →

Classifier

Neural Networks Architecture

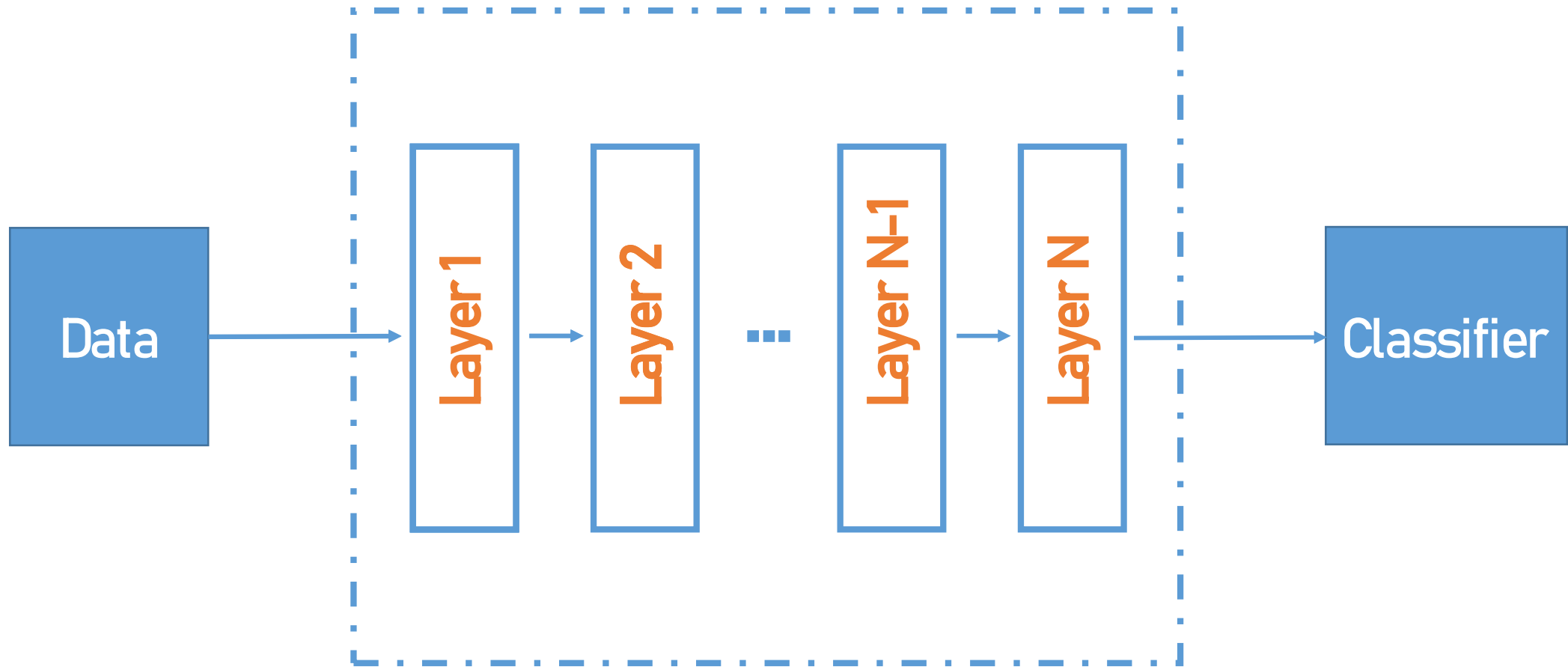# Neural Networks Architecture
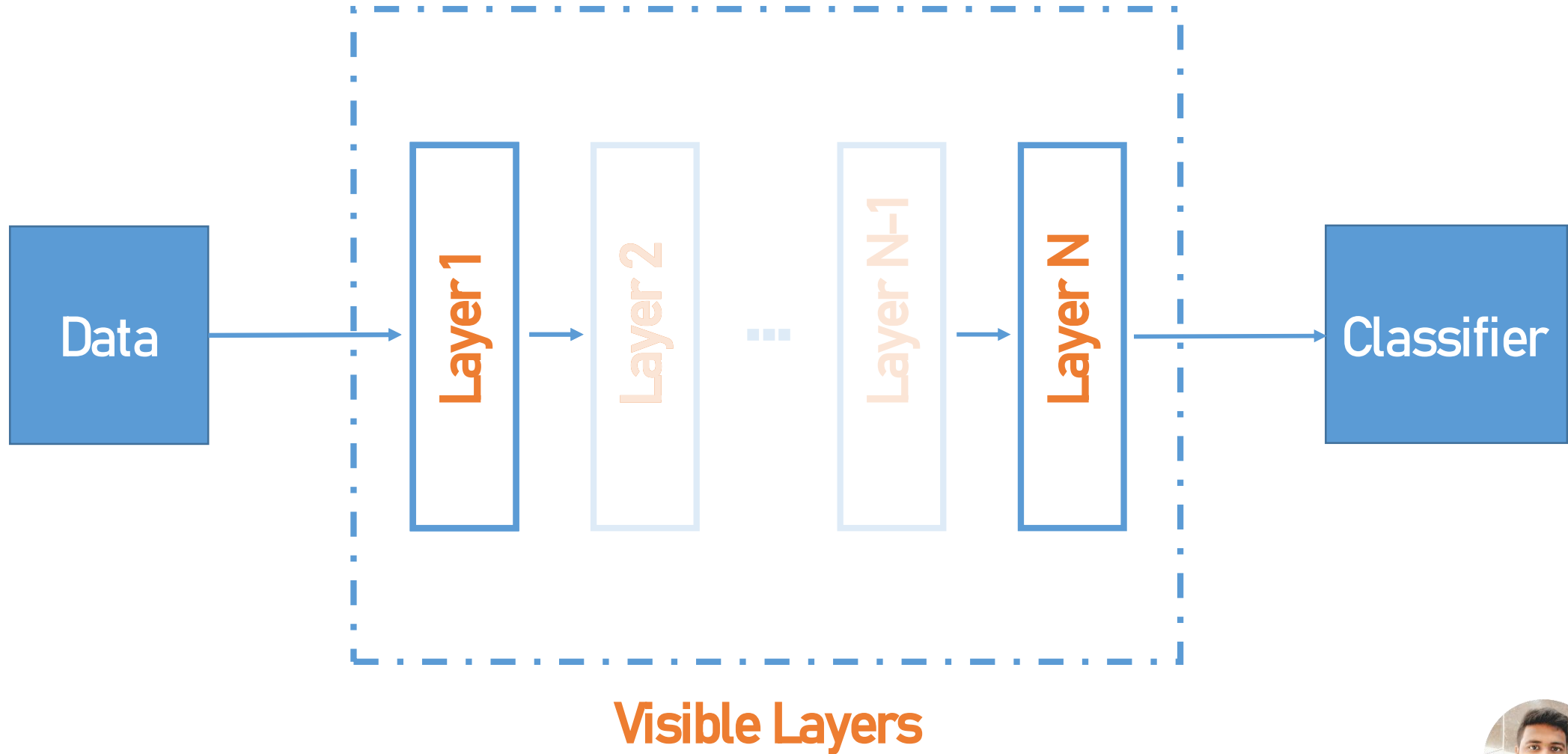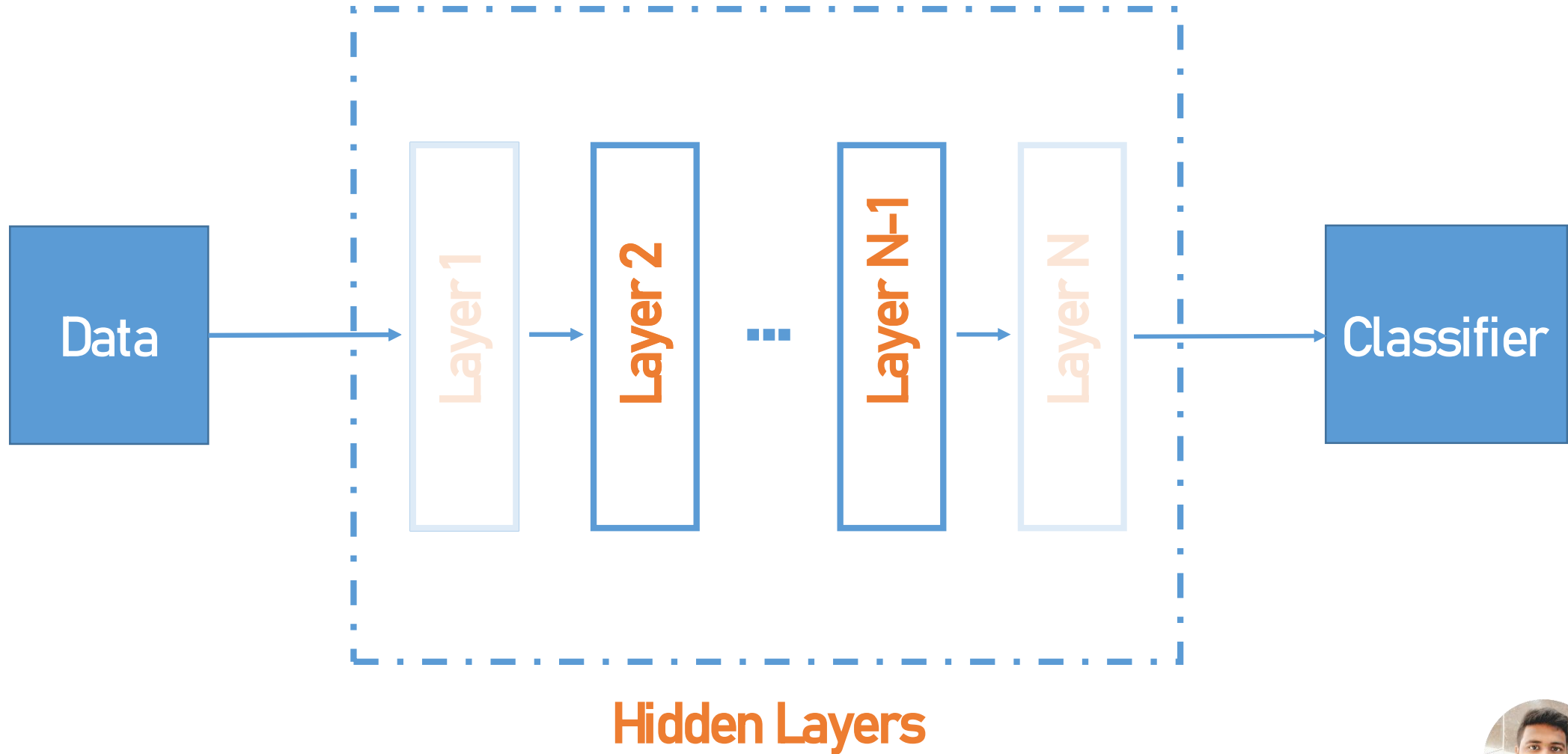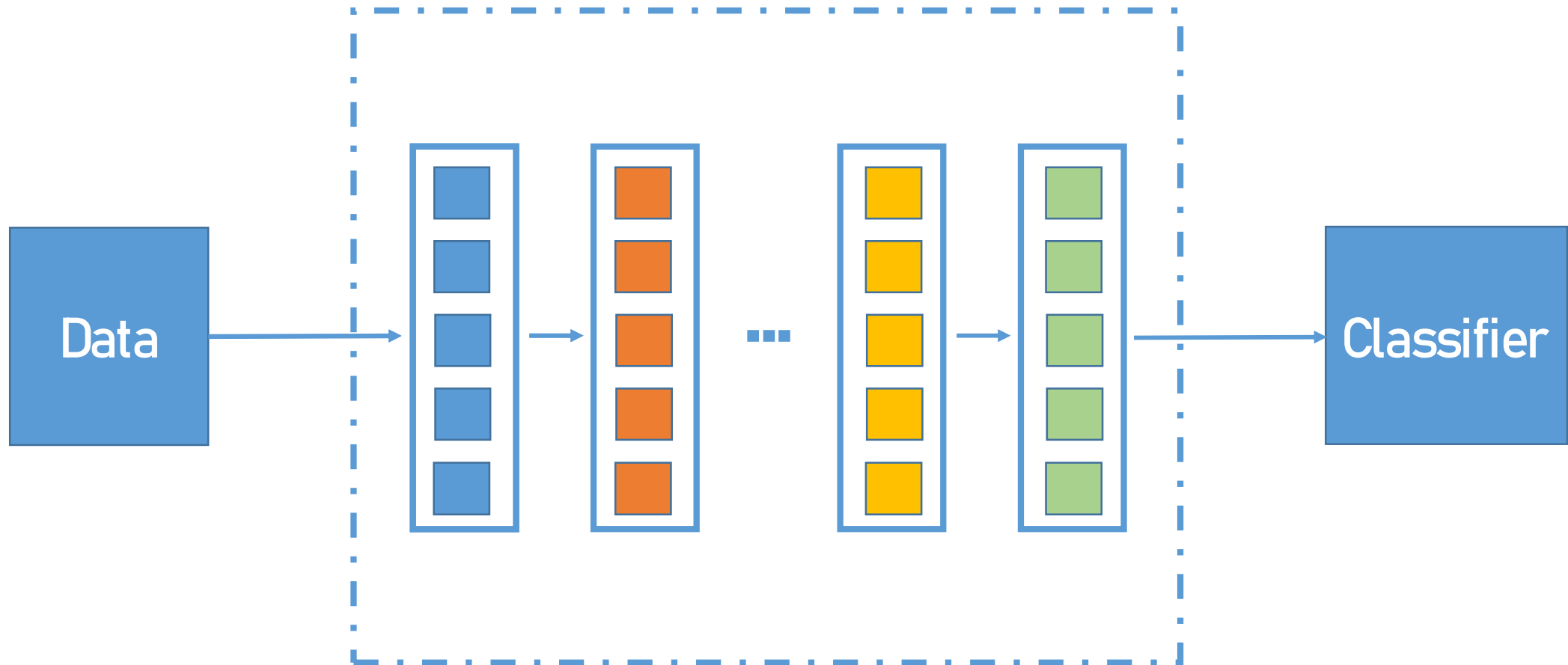
Neural Networks Architecture

Neural Networks Architecture

Neural Networks Architecture

Data → **Layer 1** → **Layer 2** → ... → **Layer N-1** → **Layer N** → **Classifier**

Visible Layers

Neural Networks Architecture

Data → [Layer1 | Layer 2 | ... | Layer N-1 | Layer N] → Classifier
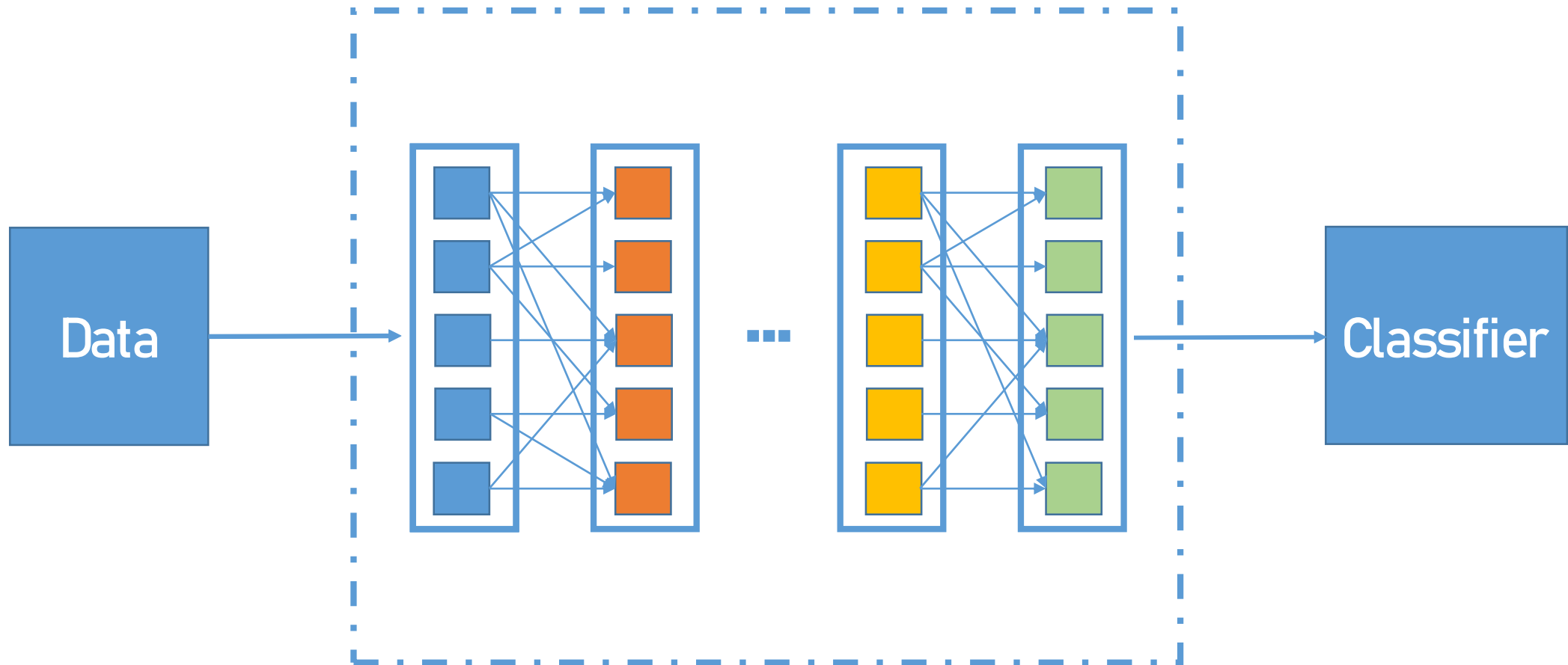
Hidden Layers

Neural Networks Architecture

Each layer consists of
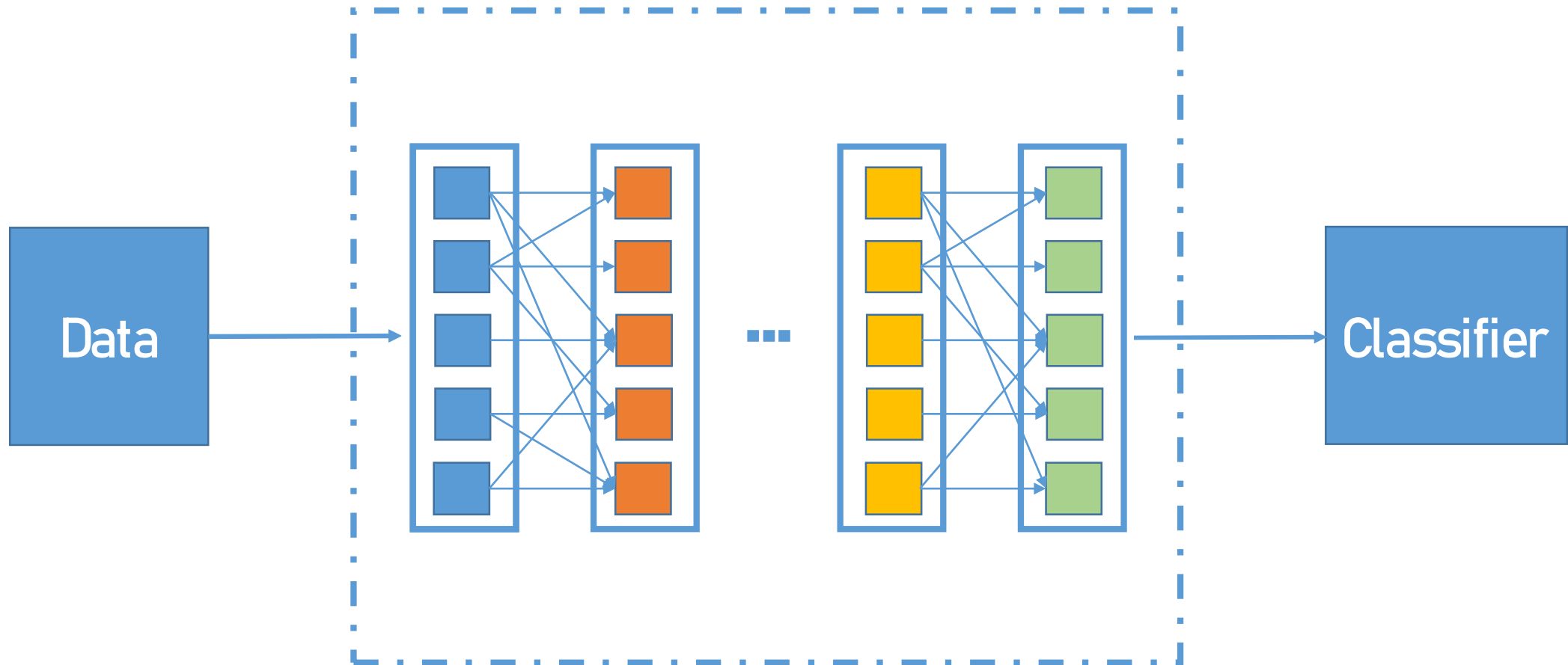interconnected neurons

Neural Networks Architecture

Each layer consists of
interconnected neurons

Neural Networks Architecture

Neurons of **Layer N–1** will be connected
to neurons of **Layer N**