The History of Neural Networks

- The 1940s: The Beginning of Neural Networks
- The 1950s and 1960s: The First Golden Age of Neural Networks
- The 1970s: The Quiet Years
- The 1980s: Renewed Enthusiasm

- **The 1940s: The Beginning of Neural Networks**

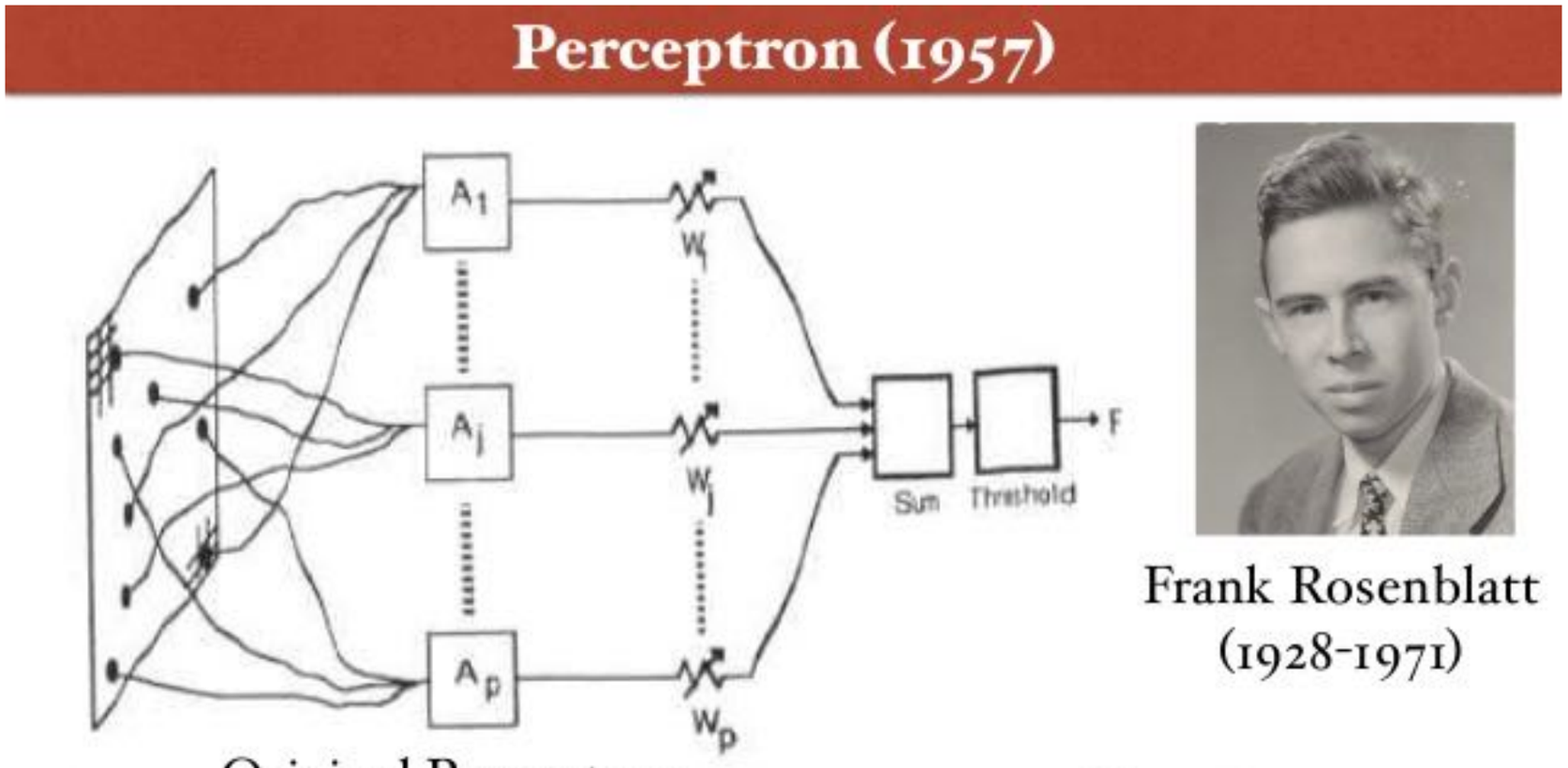
- McCulloch and Pitts, 1943
  - Employed logic and mathematical notion of computation to explain how neural mechanism might realize mental functions.
  - Commonly regarded as the inception of artificial neural networks.

- **The 1940s: The Beginning of Neural Networks**

- Hebb's Learning Rule
  - Connectionism
  - A method of determining how to alter the weights between model neurons.

- **The 1950s and 1960s: The First Golden Age of Neural Networks**

- Perceptron (Rosenblatt's perceptron), 1957

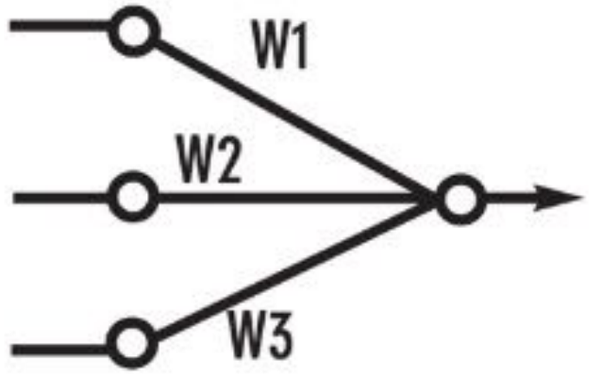


Original Perceptron

(From Perceptrons by M. L Minsky and S. Papert, 1969, Cambridge, MA: MIT Press. Copyright 1969 by MIT Press.

Frank Rosenblatt
(1928-1971)

Simplified model:



- **The 1970s: The Quiet Years**

- Marvin Minsky
  - *“Perceptron”, 1969.*
  - *“Fatal flaw” of the perceptron; inability to solve non-linear problems.*

- **The 1970s: The Quiet Years**

- Kunihiko Fukishima
  - Neocognitron
- Teuvo Kohonen
  - Self-Organizing Map (SOM) algorithm

- **The 1980s: Renewed Enthusiasm**

- John Hopfield, 1982
  - Hopfield Neural Network
- Geoffrey Hinton, etc.
  - Blotzmann Machine
  - Back-propagation (BP) algorithm