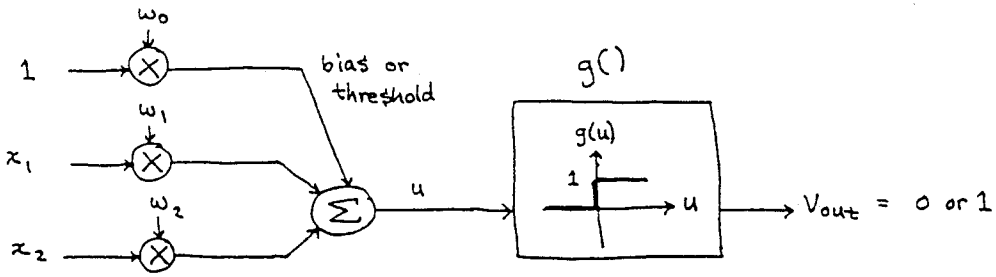
24 April 1988
Neil E Cotter

Perceptrons — Example

• Binary neurons that compute with hyperplanes

ex: 2-input perceptron

• Can have as many inputs as desired



sharp threshold function, g() ←

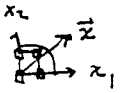
$$u = 1\cdot\omega_0 + x_1\cdot\omega_1 + x_2\cdot\omega_2$$
$$= (1, x_1, x_2)\circ(\omega_0, \omega_1, \omega_2)$$

$$V_{out} \equiv g(u) = \begin{cases} 0 & u<0 \\ 1 & u\geq 0 \end{cases}$$

$$V_{out} = \begin{cases} 0 & \text{if } 1\cdot\omega_0 + x_1\cdot\omega_1 + x_2\omega_2 < 0 \\ 1 & \text{" } \quad\quad \text{" } \quad\quad \geq 0 \end{cases}$$

ex: $V_{out} = \begin{cases} 0 & \text{if Fly ball to Center Field} \\ 1 & \text{" " " " Right " } \end{cases}$

where Fly ball hit to $\vec{x} \equiv (x_1, x_2)$



Perceptron determines which side of hyperplane $\vec{x}$ is on.