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C951 Introduction to AI

Recovery Bot Lua Script

```
-- STEP 1: Get object handles
proximitySensorHandle = sim.getObject('/NAO/proximitySensor')
visionSensorHandle = sim.getObject('/NAO/visionSensor')
leftMotor = sim.getObject('/NAO/LHipPitch')
rightMotor = sim.getObject('/NAO/RHipPitch')

-- STEP 2: Read proximity sensor data
local result, distance = sim.readProximitySensor(proximitySensorHandle)

-- STEP 3: Read vision sensor image data for flood zone detection
local image = sim.getVisionSensorImg(visionSensorHandle)
local floodDetected = false

for i = 1, #image do
  local pixelValue = tonumber(image[i])
  if pixelValue and pixelValue < 0.2 then  -- Threshold controls brightness detection
    floodDetected = true
    break
  end
end

-- STEP 4: Movement logic based on detection
```

```
if floodDetected then
   sim.setJointTargetVelocity(leftMotor, -2)
   sim.setJointTargetVelocity(rightMotor, 2)
   sim.addStatusbarMessage("NAO rerouting to avoid flood zone.")
elseif result and result > 0 then
   sim.setJointTargetVelocity(leftMotor, -2)
   sim.setJointTargetVelocity(rightMotor, 2)
   sim.addStatusbarMessage("NAO rerouting to avoid obstacle.")
else
   sim.setJointTargetVelocity(leftMotor, 2)
   sim.setJointTargetVelocity(rightMotor, 2)
end
```