

# **From the Real-Time Operating System to the Neural Turing Machine**

A Neural Turing Machine (NTM) is a recurrent neural network model. NTMs combine the fuzzy pattern matching capabilities of neural networks with the algorithmic power of programmable computers. A NTM has a neural network controller coupled to external memory resources, which it interacts with through attentional mechanisms. The memory interactions are differentiable end-to-end, making it possible to optimize them using gradient descent.

## **1. INTRODUCTION**

## **2. PROJECTS**

### **2.1. Real Time Operating System**

#### **2.1.1. GNU Mach Kernel RTOS**

#### **2.1.2. GNU Hurd Operating System RTOS**

#### **2.1.3. GNU Debian Distribution RTOS**

### **2.2. Neural Turing Machine**

#### **2.2.1. PU-NTM**

#### **2.2.2. SoC-NTM**

#### **2.2.3. MPSoC-NTM**

## **3. WORKFLOW**

## **4. CONCLUSION**