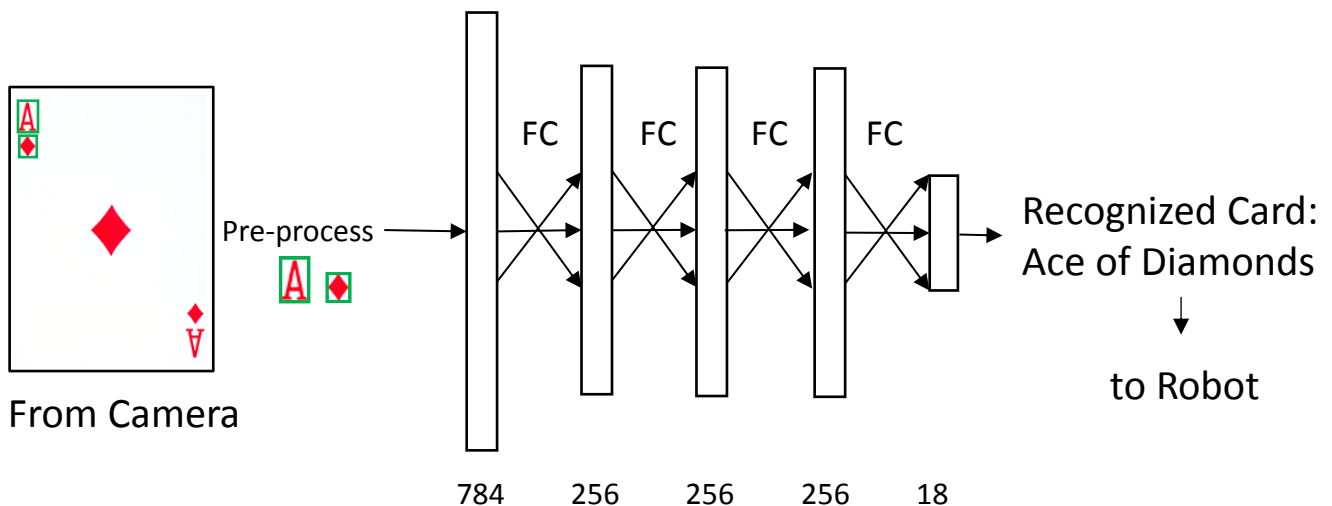# Binarized Neural Network Application on Zynq MPSoC ZU9, Driving a Solitaire Playing Robot System

Measured speedup of neural network in programmable logic over neural network on the ARM A53 processor:
11,320x (over eleven thousand)

- Input images: 28x28 pixels, binarized MNIST
- 3 Fully Connected layers, 256 neurons each
- Neural network implementation:
  19.5kLUTs (7% of device), 64 BRAMs (7% of device)
- Neural network and trained weights generated by Finn* of Xilinx Research
- Solitaire play and robot integration by MLE

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* Finn: A framework for Fast, Scalable Binarized Neural Network Inference, FPGA conference 2017

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