

# 智慧型影像插補器



## Developing a intelligent Image Interpolator:

- Smoothing Interpolation
- Edge reserving

## For applications of:

- Digital Zooming
- Video Resizing
- Resolution Adjustable Image Visualization

## Edge Characterization:

Edge feature extraction

## Particle Swarm Optimization:

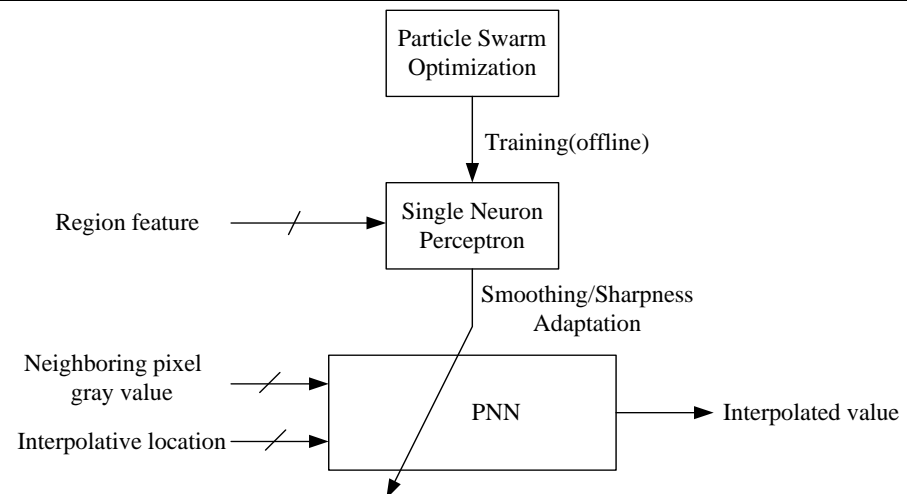
Optimize PNN interpolation parameter

## Single Neuron Modeling:

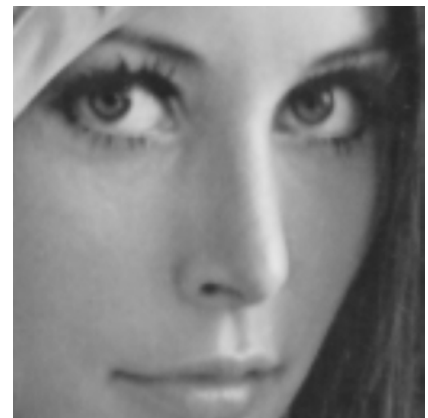
Modeling of edge adaptation

## Probabilistic Neural Network:

Kernel function-based interpolation



Bi-cubic



Proposed

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## Advantages of Proposed Interpolator:

- Stepless(continuous) digital zooming;
- High speed interpolation;
- Low MSE(mean square error);
- Smoothing/Shapeness Adaptation.

## Performance Evaluation:

- Functionalities verified in FPGA
- 80K gates count
- 1 interpolated pixel/3 clocks
- 20 fps at 20Mhz in XGA(1024x768) format