

# OpenSHMEM: Overview of Exercises

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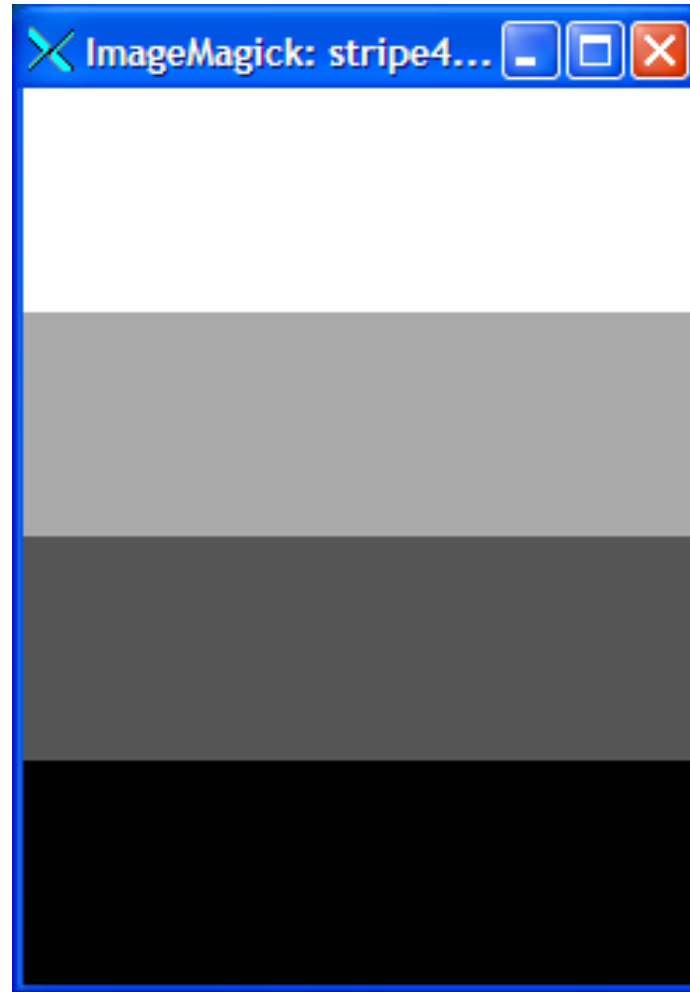
MSc in HPC

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# Exercise 1

- Hello world example
  - check you can log on, compile, submit and run
- Writing arrays as pictures
  - declare symmetric arrays and use basic OpenSHMEM
  - write out arrays in PGM picture format
  - view them using **display** from ImageMagick
  - use both remote reads and remote writes

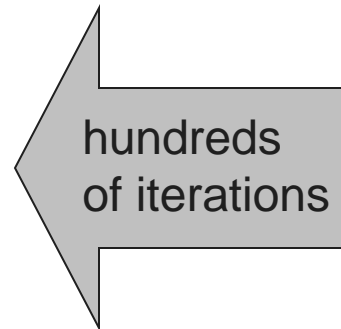
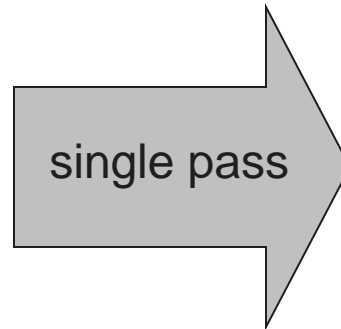
# Sample output on 4 PEs



## Exercise 2

- Perform simple edge detection of features in a picture
  - halo communication between 1D grid of images
- Reconstruct picture from supplied edges
  - an iterative algorithm
  - computationally intensive so worth parallelising
- Terminate based on some stopping criterion
  - requires global sums
- Use global or point-to-point synchronisation
- Look at scalability

# Edge detection and picture reconstruction



# Documentation

- Full instructions in exercise notes
  - PDF copy in doc/ subdirectory
- **Go at your own pace**
  - no direct dependencies between practicals & lectures
  - each exercise follows on from the last
- If you're not sure what to do or if you have any other questions then please ask us!