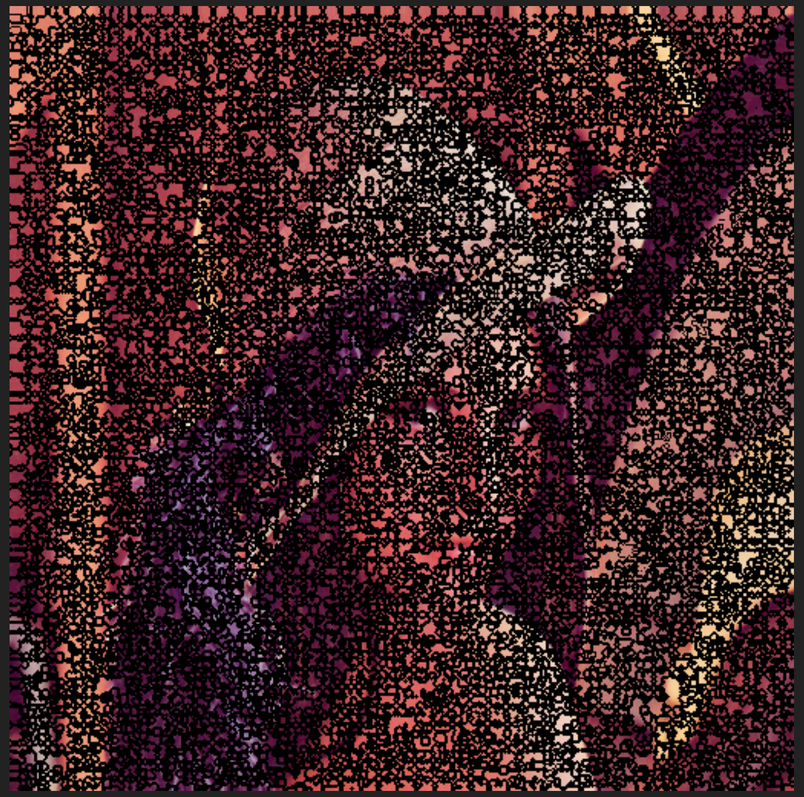
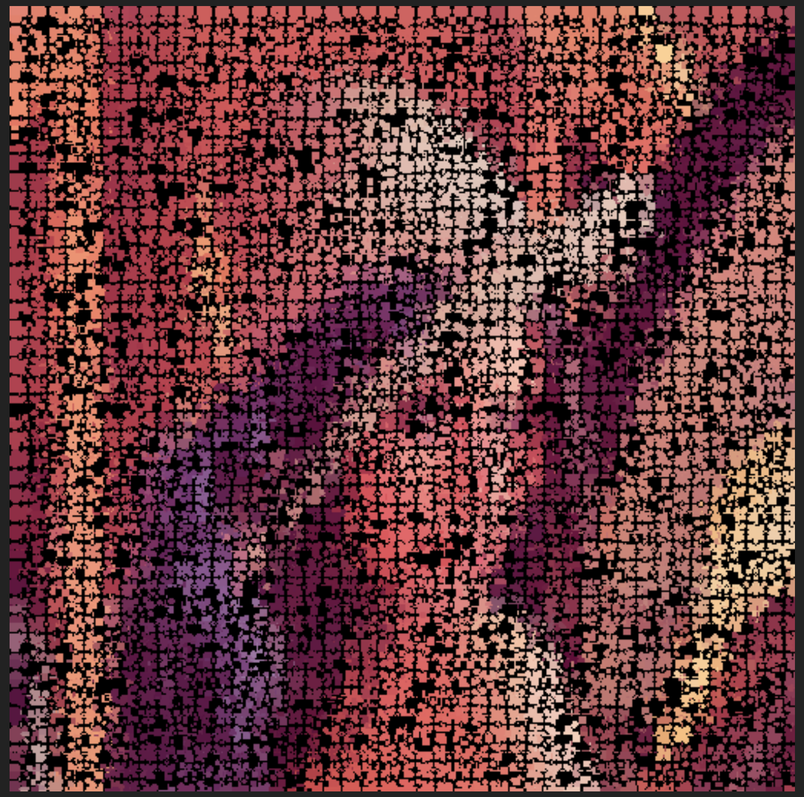
- SUMANTH TANGIRALA - 201601105
- JALANSH MUNSHI - 201601042
- AVINASH AREKATLA - 201601100
- PONAKA PRAYAG REDDY - 201601007

PARALLELISING FUZZY SLIC

FUZZY SUPER-PIXELS

- Segmentation to get pure super pixels
- Determines some pixels to fuzzy or noisy pixels and does not include such pixels in clusters
- Applications: Computer Vision and Deep Learning

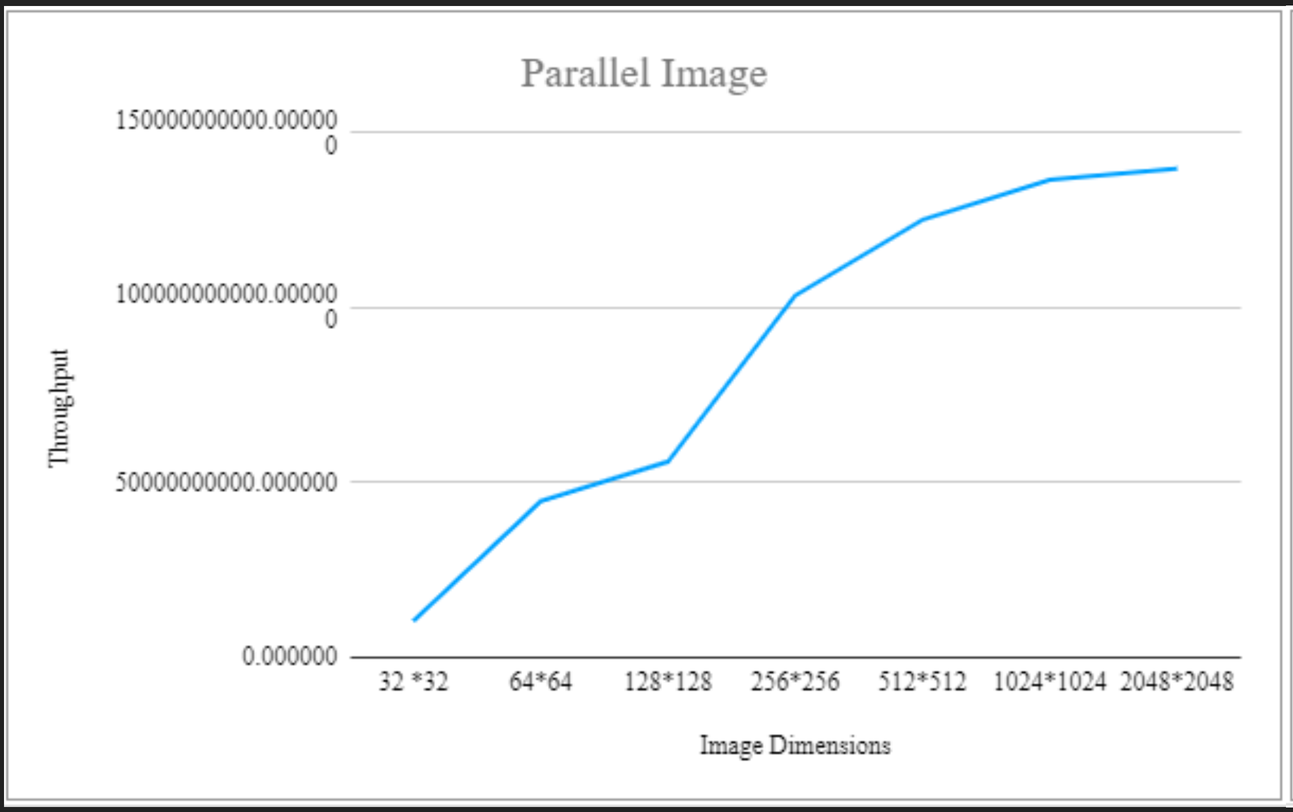
SERIAL ALGORITHM

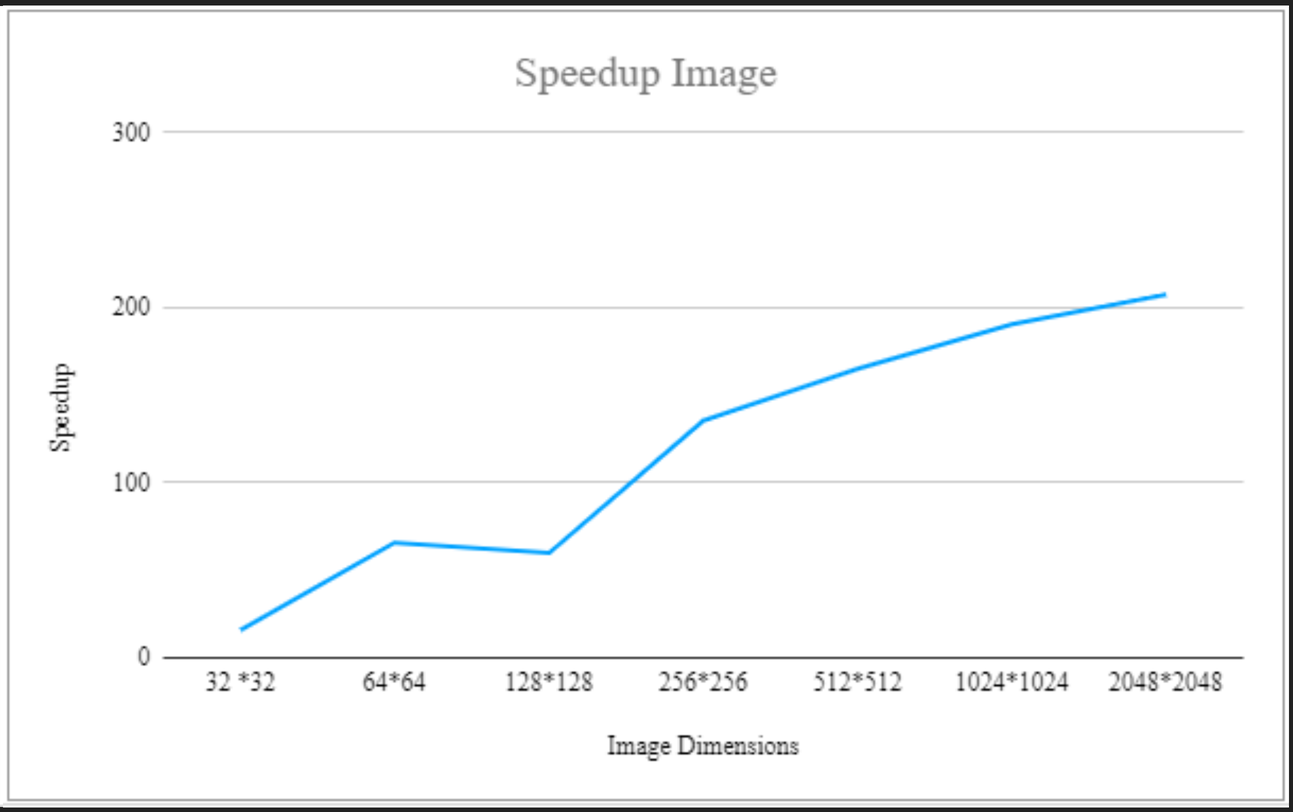
- Cluster Initialisation: Iterates over each cluster and perturbs them to lowest gradient position
- Finding overlapping regions, computing degree of membership of each pixel in each region w.r.t each overlapping cluster
- Determining if the pixel is determined or undetermined on the basis of Degree of Membership

PARALLELISATION STRATEGY

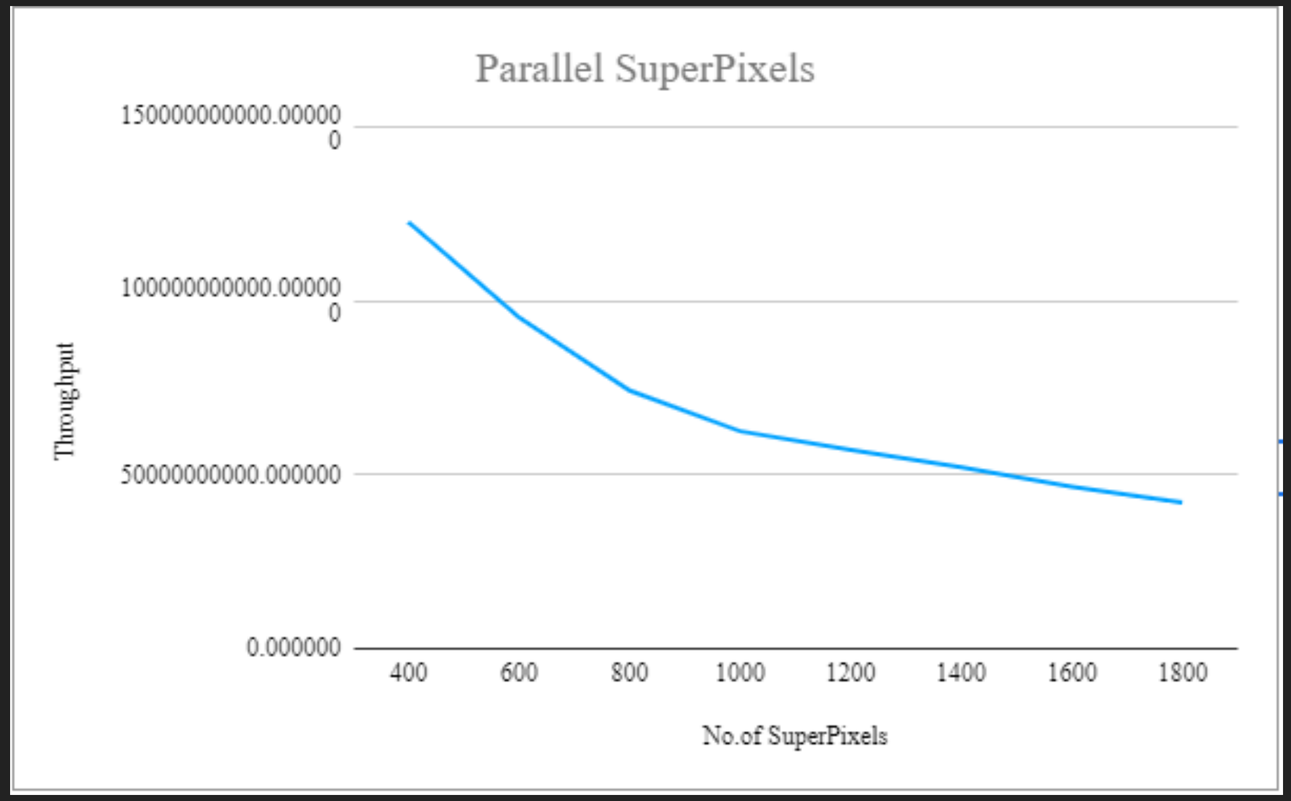
- Cluster Initialisation: One thread per Superpixel
- Recognising overlapping clusters: Private search region per each superpixel and combination of all such regions to find out overlapping regions
- Computation of Degree of Membership can be done by assigning each block to a region and each thread of a block to a pixel of the region
- Remaining parts involving determining membership of pixel can be done by assigning one thread per pixel

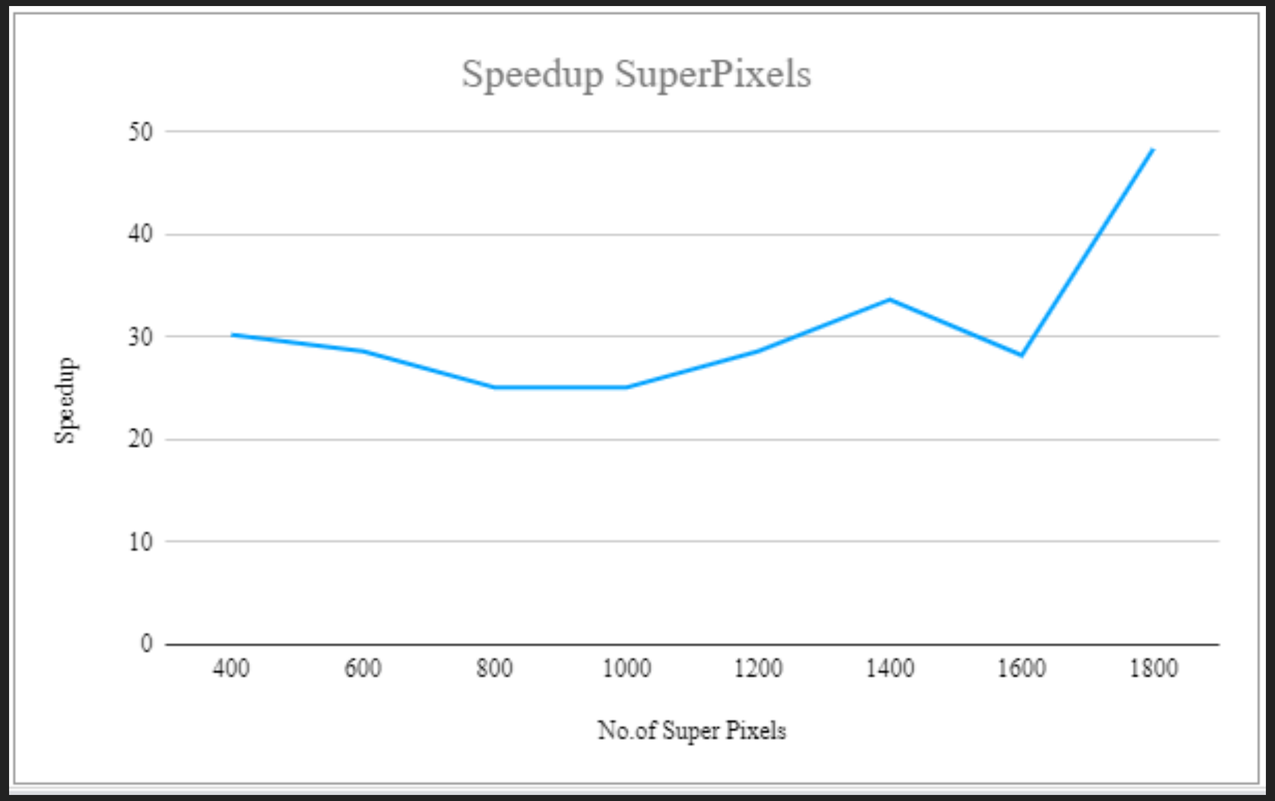
Throughput Curves - Varying Image Size



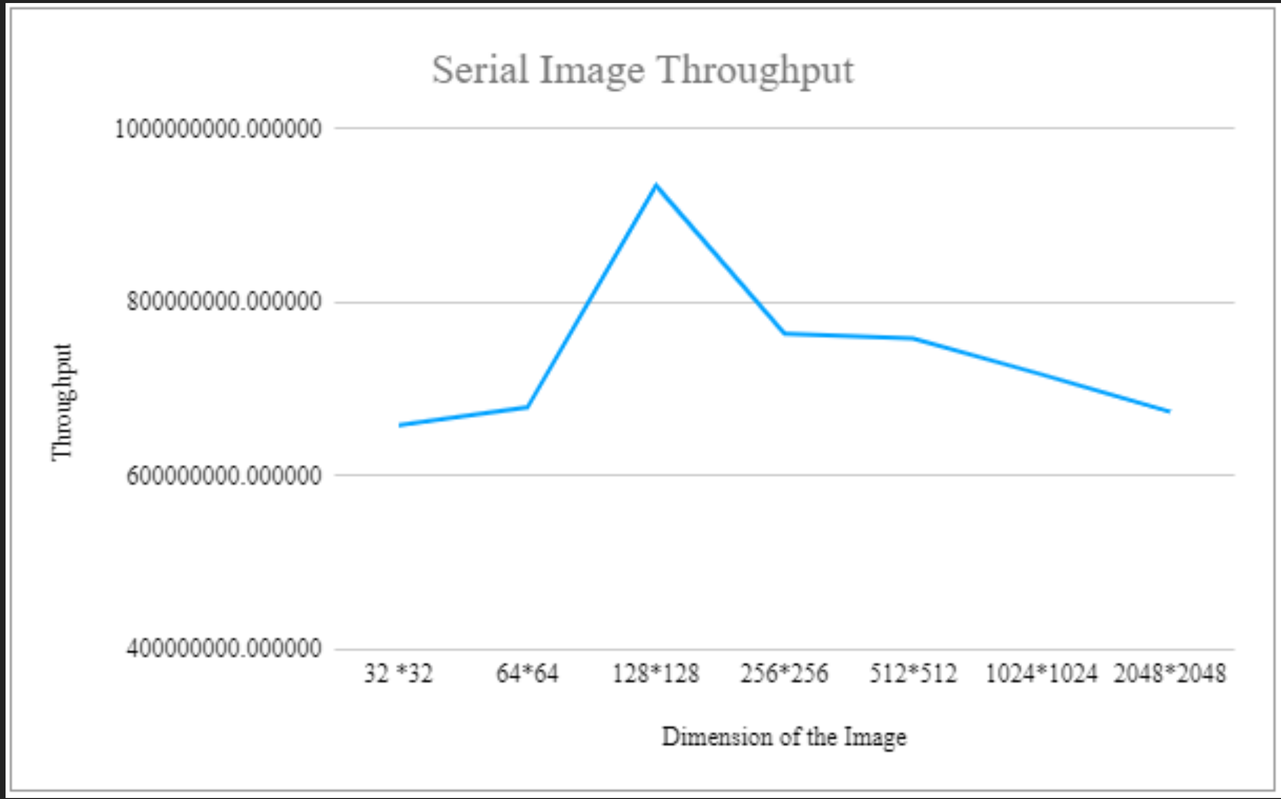


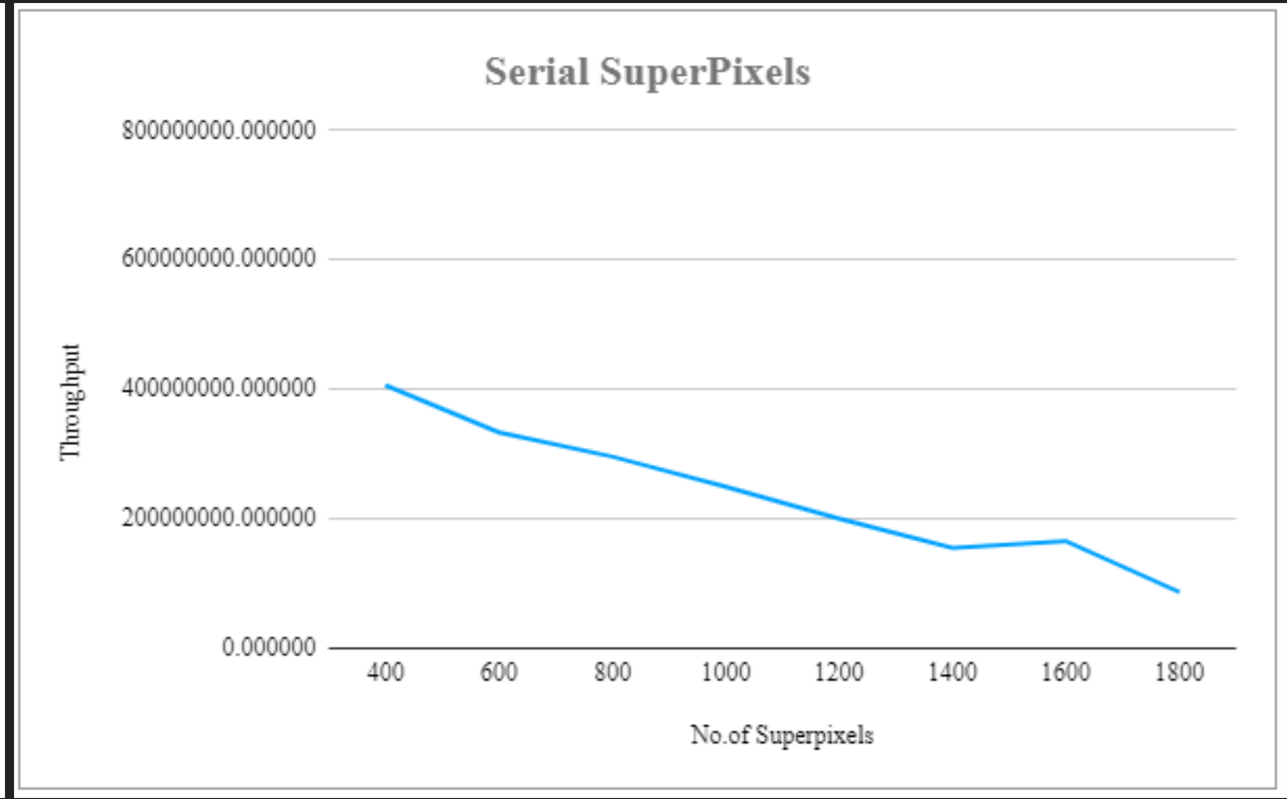
Throughput Curves - Varying Number of Superpixels





Speedup Curves





THANK YOU