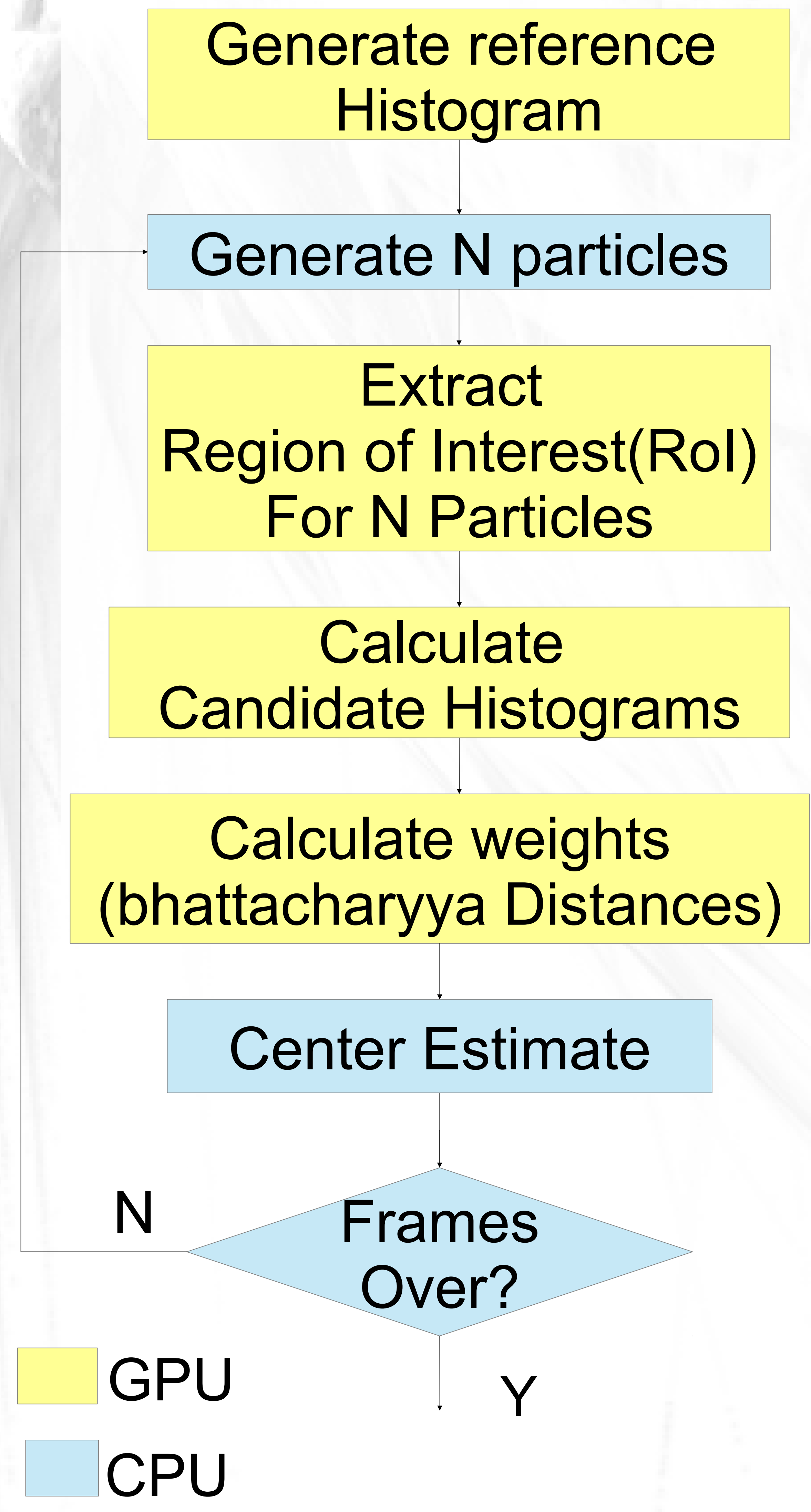


GPU implementation of Particle Filter based Object Tracking

Pinalkumar J. Engineer, Ayan Mishra, Rajbabu Velmurugan, Sachin Patkar

Algorithm



Important features:

- 3D RGB histograms for 8 x 8 x 8 bins
- Resampling is not required due to 3D RGB histograms (found in pure Matlab implementation)

Implementations:

- Matlab-CUDA
- OpenCV-CUDA

Speedup:

- OpenCV-CUDA(Object size: 65x65)

Particle size	Speedup	Frame Rate (GPU)
256	15X	257
512	20X	132
1024	24X	66

- Matlab-CUDA (Object size: 65x65)

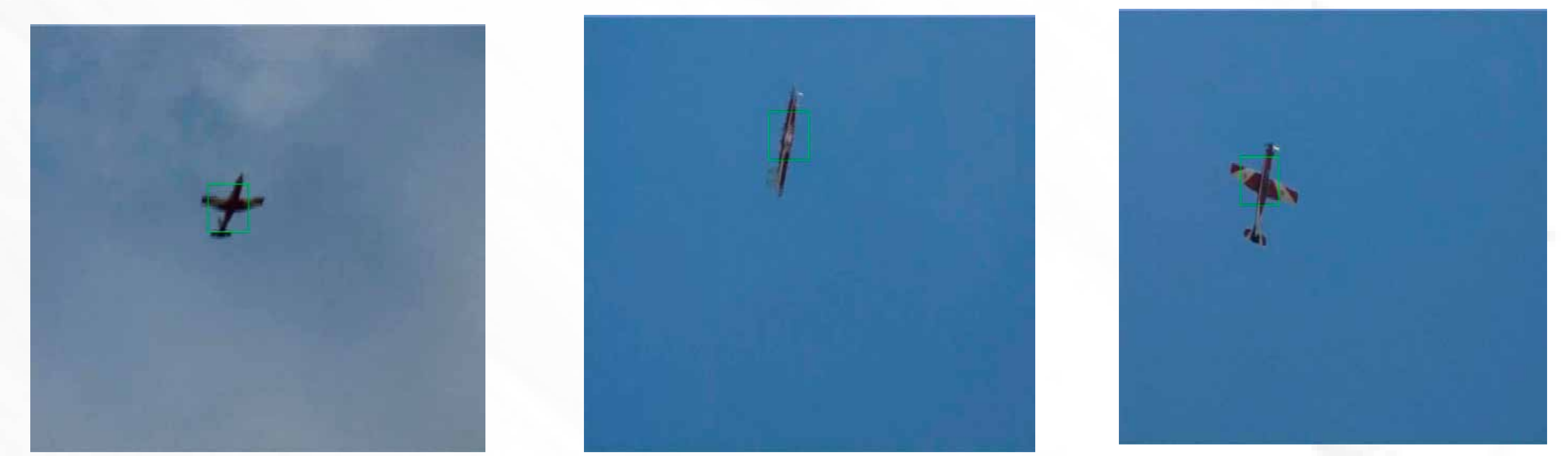
Particle size	Speedup	Frame Rate (GPU)
256	69X	208
512	81X	109
1024	117X	56

Results:

Heli Sequence



Aero-001 Sequence



Aero-003 Sequence



Acknowledgement:

- CUDA Center of Excellence, IIT Bombay
- HPC Lab, IIT Bombay
- Mandar for his kind help