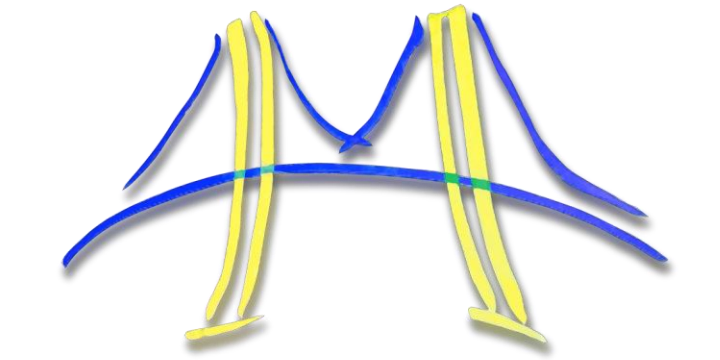




PAMAS

Architecture Aware Design for a Parallel Object Recognition System

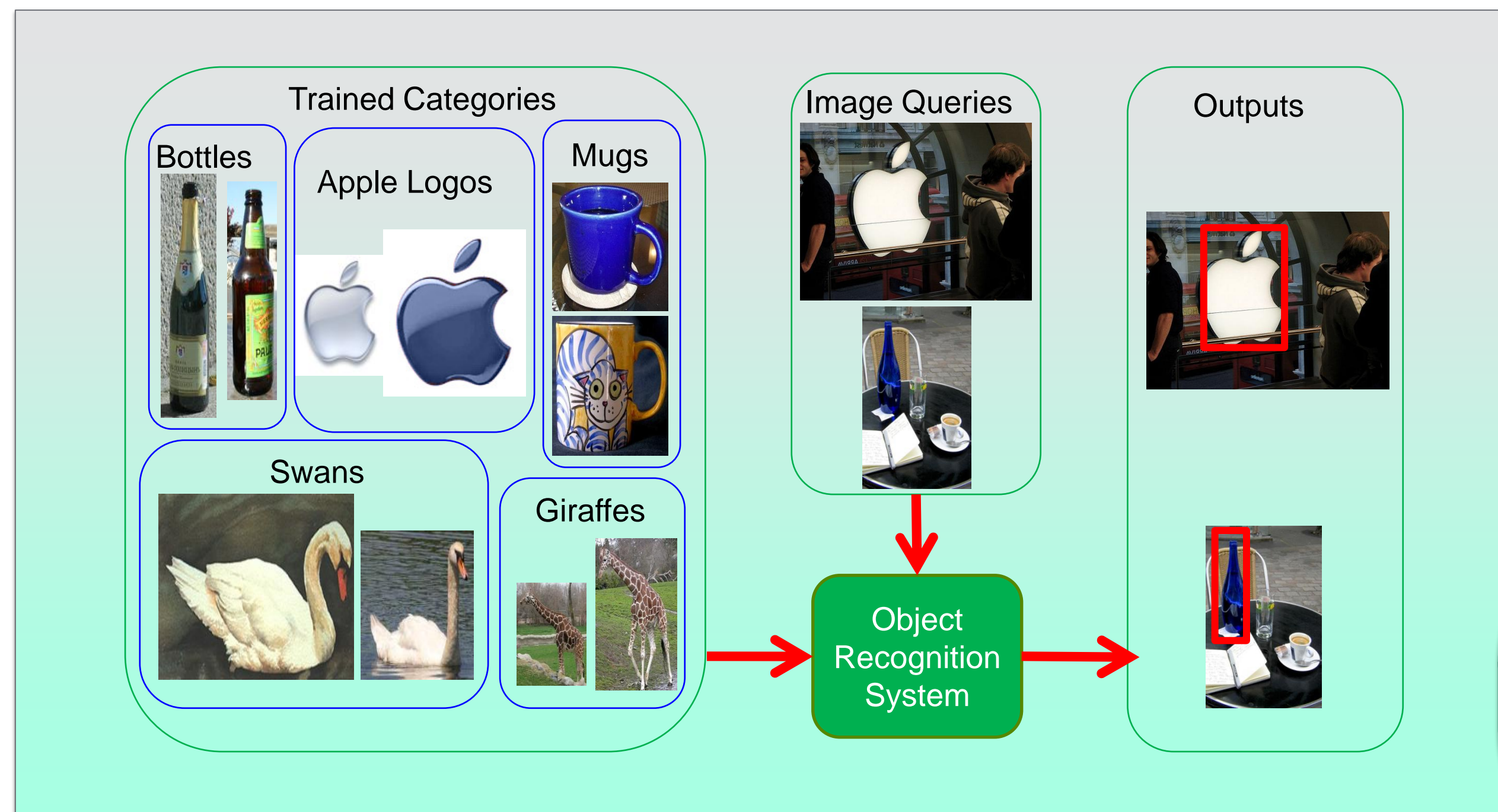
Bor-Yiing Su, Bryan Catanzaro, Tasneem Brutch, Kurt Keutzer



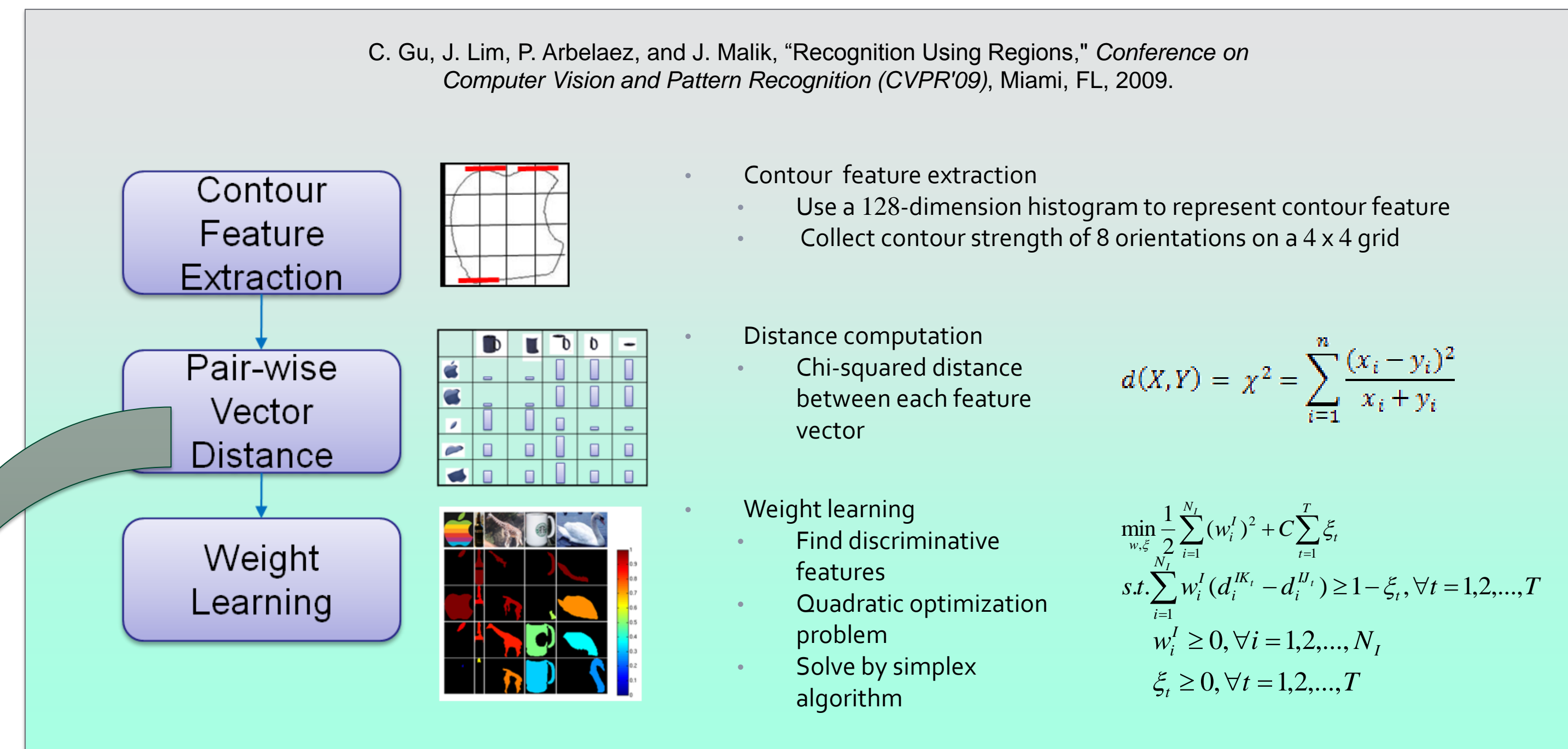
Parallel Computing Lab

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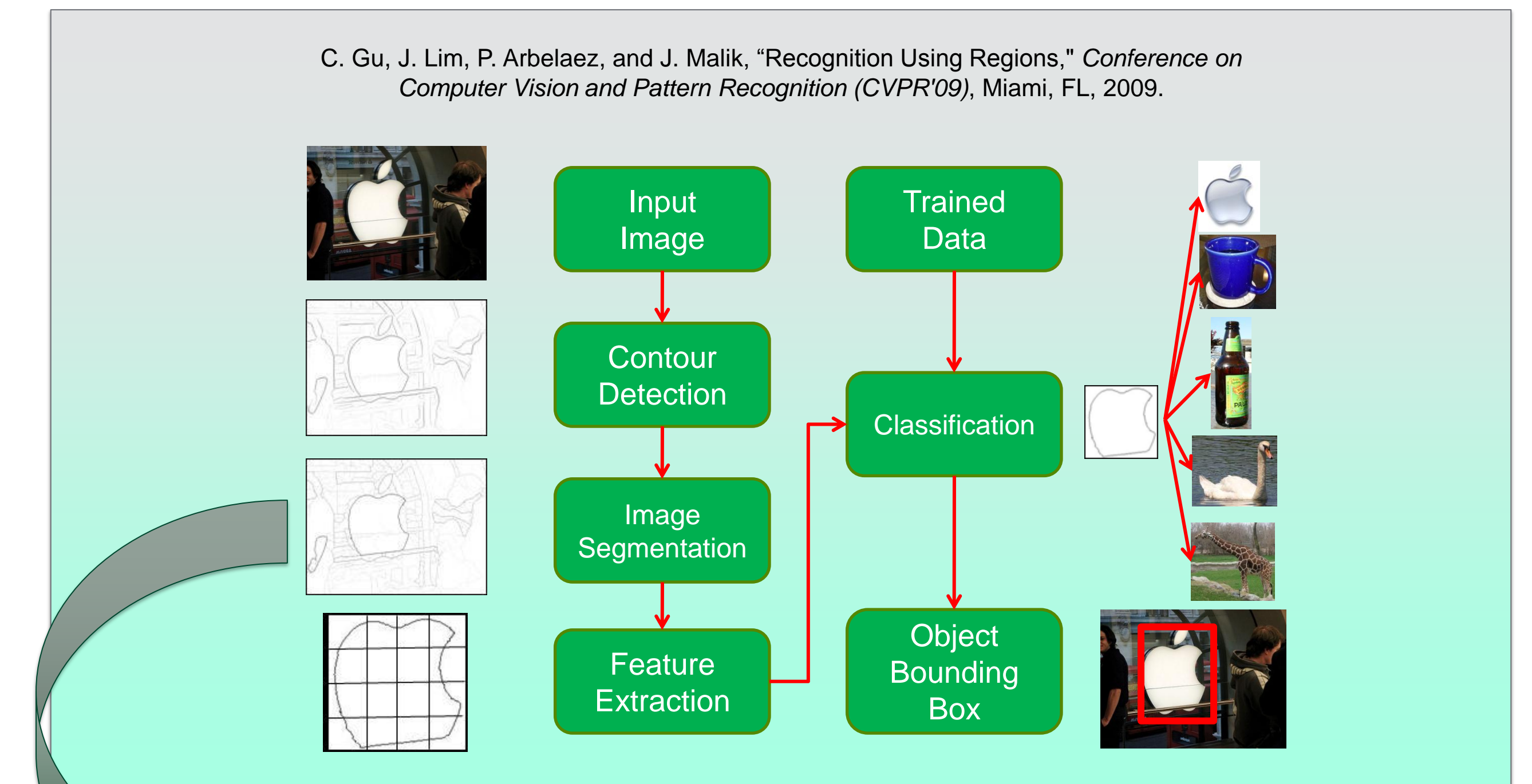
Object Recognition



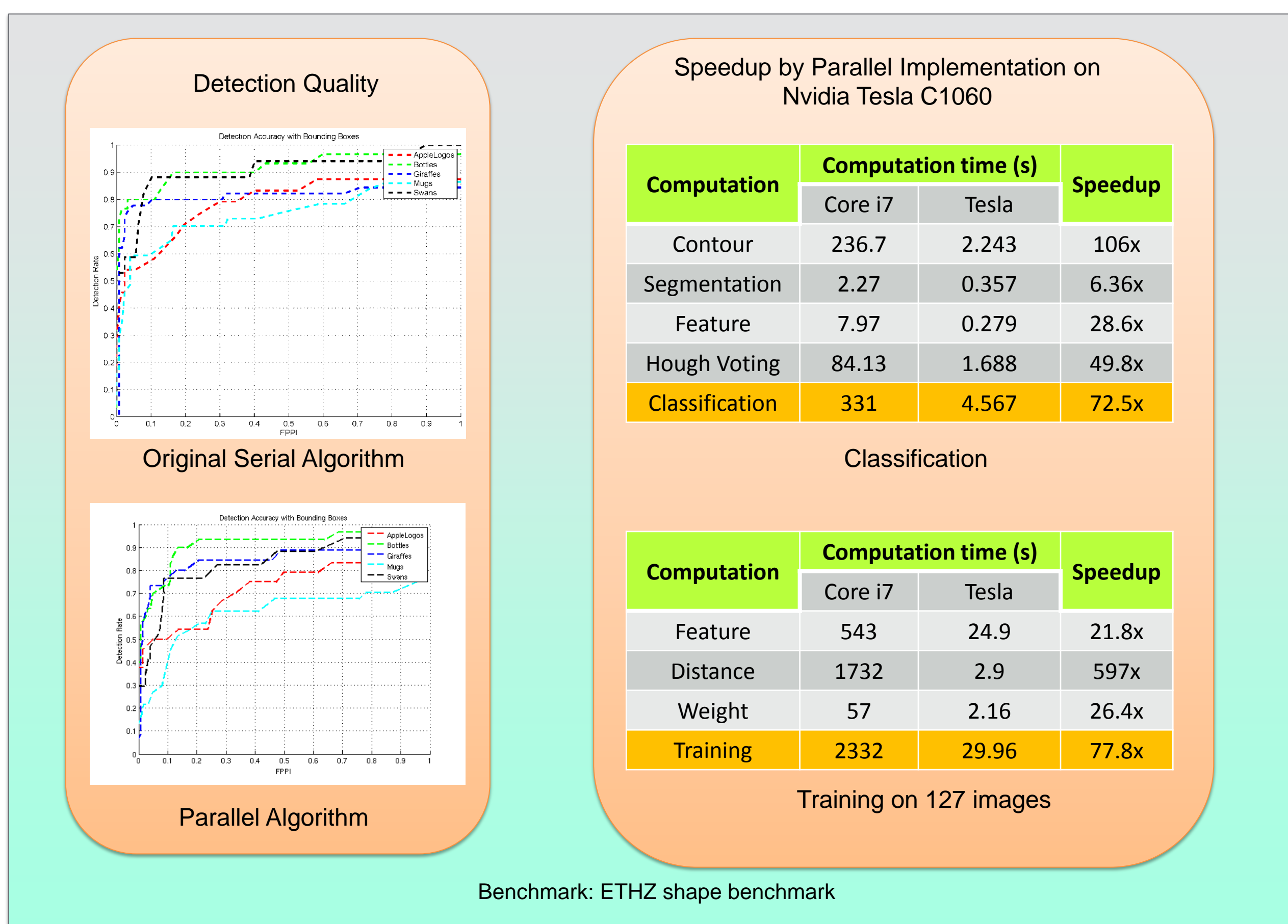
Training



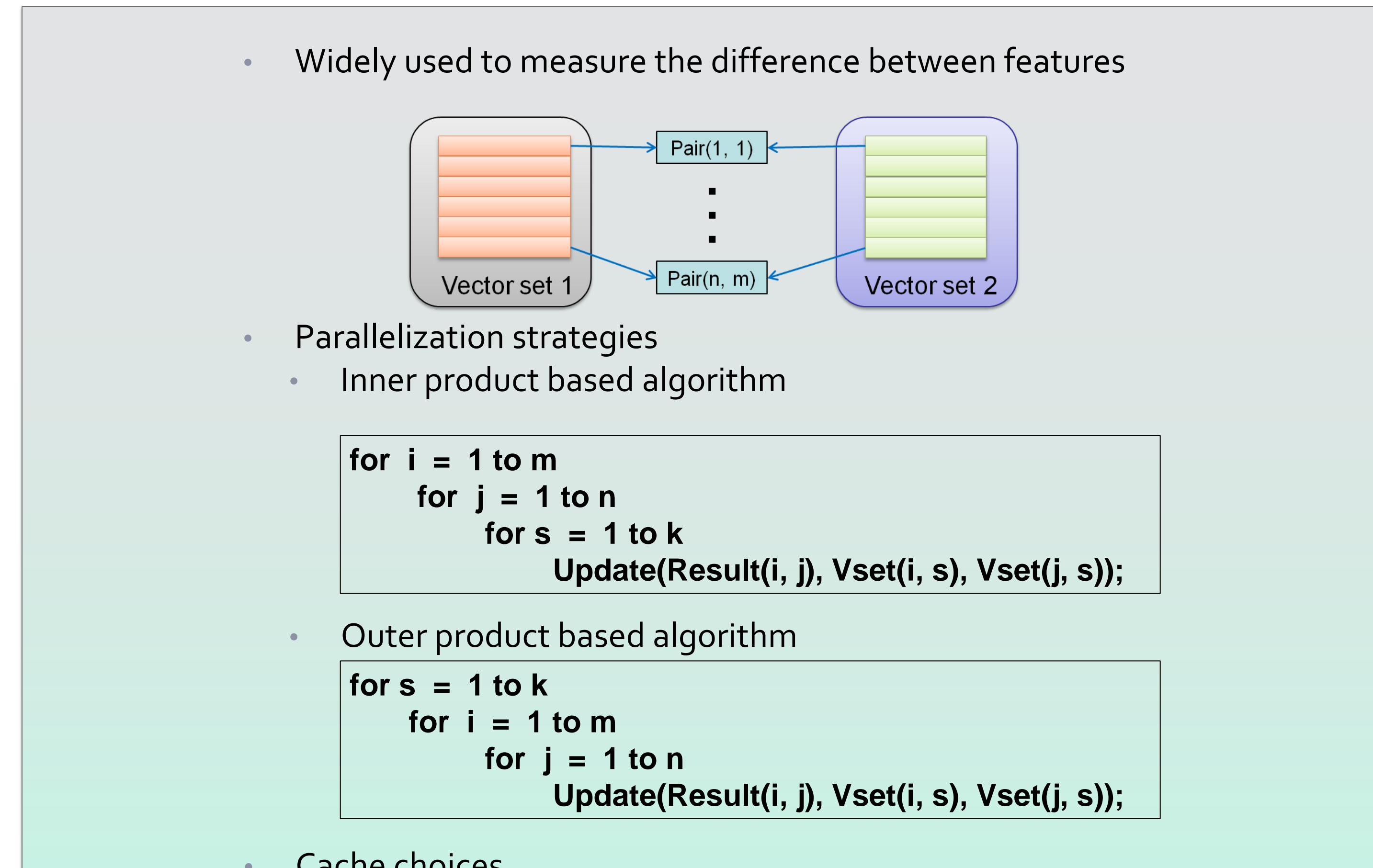
Classification



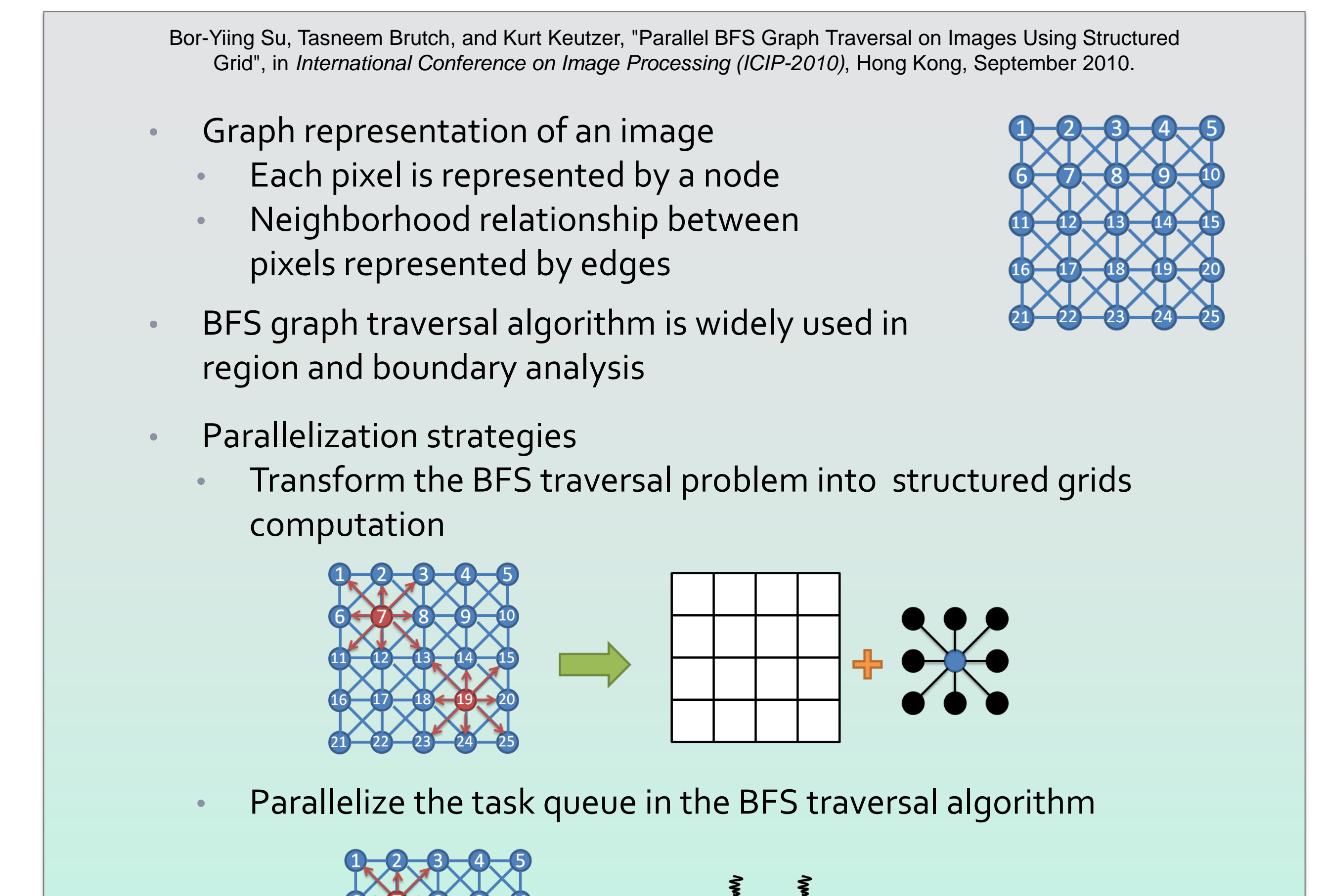
System Performance



Parallel Pair-wise Distance

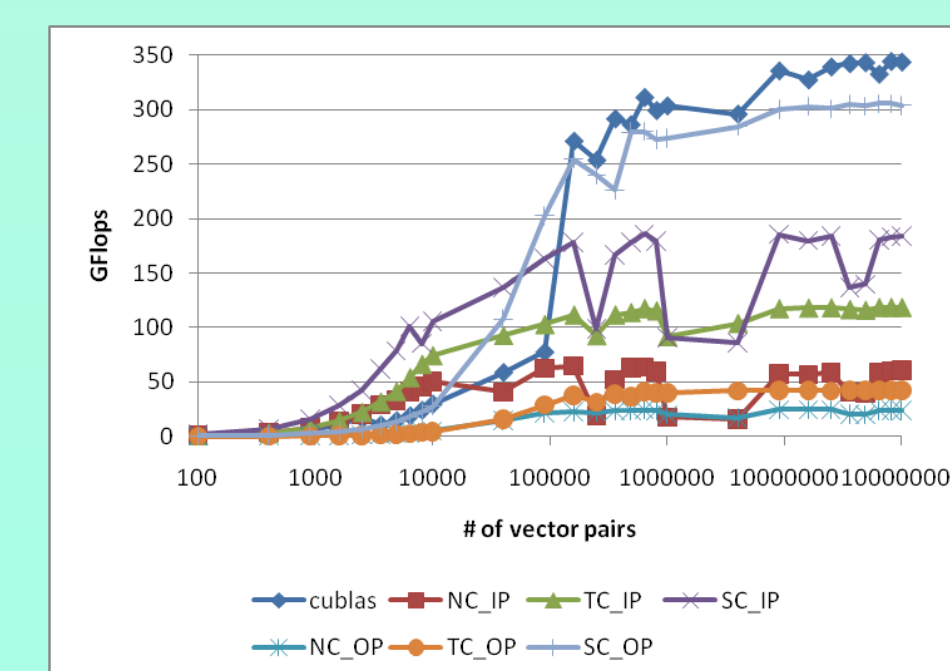
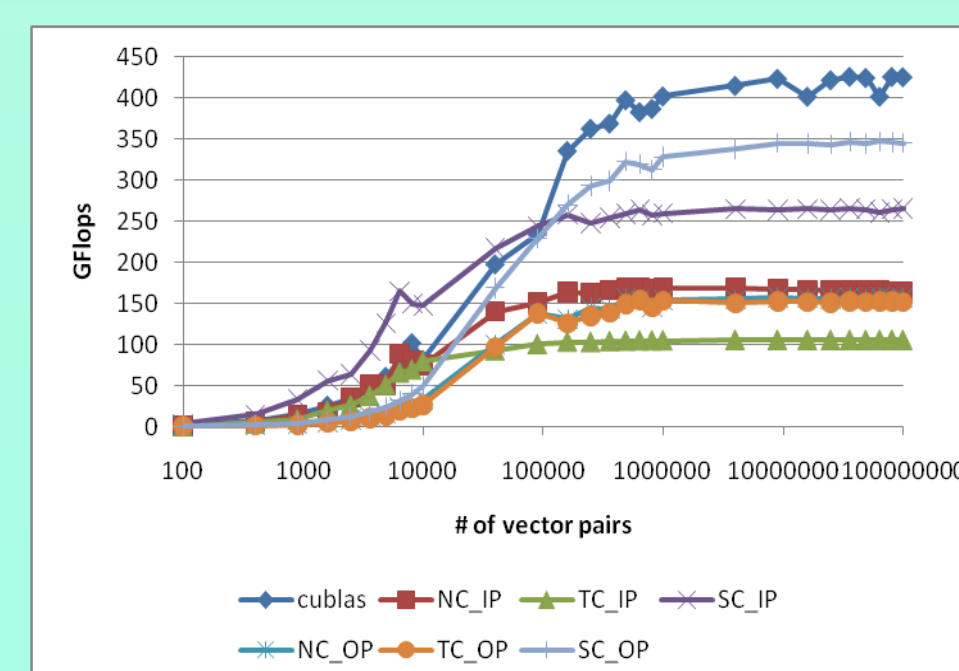


Parallel Graph Traversal on Images



Conclusion

- The performance of parallelizing a computation will be influenced by
 - Parallelization strategy
 - Underlying hardware architecture
 - Input data properties
- We need to understand the trade-offs between different parallelization implementations to optimize the computation
- Ideally, we should dynamically adjust the parallelization strategy according to the input data properties at runtime



Experimental Results

- If the image is complicated, apply the structured grid method on GPU
- If the image is simple, apply the graph partition method on CPU

