Damascene: Highly Parallel Image Contour Detection
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**Image Contour Detection**
- Image contour detection is fundamental to image segmentation and many other computer vision problems

**Program Flow**
- Convert Color Space
- Textons: K-means
- Local Cues
- Combine
- Non-max Suppression
- Intervening Contour
- Generaized Eigen Solver
- Oriented Energy Combination
- Combine, Normalize
- Global Pb

**Overall Performance**
- Image Size: 481 by 321, 154401 pixels in total
- CPU/GPU Runtime: 236.7s/2.081s
- Speedup: 113x

**Platform: Nvidia GTX200 Series**

**gPb Algorithm: Current Leader**
- Global Probability of boundary [Maire, Arbelaez, Fowlkes, Malik, CVPR 2008]
- Currently, the most accurate image contour detector
- 5.8 mins per small image (481 by 321) limits its applicability
- Too slow for interactive photo editing
- Too slow even for image Retrieval

**Conclusion**
- Damascene provides highest quality image contour detection at user acceptable rates
- It demonstrates the transformational speedup potential of manycore architectures
- Damascene was enabled by the collaborative environment at the Berkeley UPCRC
- Future work will generalize Damascene into a case study for application and programming frameworks (stay tuned)