

Preliminary Results

Synthetic data

1) 100*100 grid:

- Shape = 100*100
- Number of labels = 20
- Coupling strength = 0.5
- Unary potential = `numpy.random.rand(shape[0],shape[1],numLabels)`
- Spatial Regularizers =
 - (i) Potts
 - (ii) Squared difference
 - (iii) Truncated Absolute difference,
 - (iv) Truncated Square difference
- Threshold for truncated functions = 10
- Inference: TRWS
- Iterations: 1
- Runtime and Min energy

Spatial Regularizers	TRWS (secs)	TRWS (min energy)
Potts	149.13 secs	5207.08
Squared Diff	96.86 secs	4927.33
Truncated Absolute Diff	106.11 secs	4927.33
Truncated Squared Diff	93.97 secs	4927.33

2) 40*40 grid

- Shape = 40*40
- Number of labels = 2
- Coupling strength = 0.5
- Unary potential = `numpy.random.rand(shape[0],shape[1],numLabels)`
- Spatial Regularizers = Potts
- Inference:
 - (1) TRWS
 - (2) TRBP
 - (3) Belief Propagation

(4) Graphcut

- **Iterations: 1**
- **Runtime and Min energy**

Inference algorithm	Function	# iterations	Runtime (secs)	Minimum Energy
Belief propagation(damping= default)	Potts	1	0.98	1021.16
Belief propagation(damping= 0.05)	Potts	1	1.06	901.17
TRWS	Potts	1	0.037	901.17
TRBP (damping= default)	Potts	1	1.23	1009.522
TRBP (damping= 0.05)	Potts	1	1.41	899.04
GraphCut	Potts	1	0.7	789.05

Intraoperative Data

- **Shape** = 480*640
- **Number of labels** = 2
- **Coupling strength** = 0.3
- **Unary potential** = Potts
- **Spatial Regularizers** = Potts
- **Inference:**
 - (a) TRWS
 - (b) TRBP
 - (c) Belief Propagation
 - (d) Graphcut
- **Iterations: 1**
- **Runtime and Min energy**

Inference algorithm	Function	# iterations	Runtime (secs)	Minimum Energy
Belief propagation(damping= default)	Potts	1	256.37	104611.7653
Belief propagation(damping= 0.05)	Potts	1	257.96	105130.8536
TRWS	Potts	1	66.37	104574.4006
TRBP (damping= default)	Potts	1	280.83	104611.7653
TRBP (damping= 0.05)	Potts	1	284.66	105131.1732
GraphCut	Potts	1	0.82	104574.4006
