Summer 2010 projects and goals
July 19th
Rina Dechter
Overview

Update on evaluation
Summer projects
M-best in search
Group meetings during the summer
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Overview on summer projects

Main projects
Haplotype online: Lars
SampleLink: Andrew, Natasha
M-best: Natasha,… Emma
Empirical evaluation of linkage systems: Natasha, Andrew2
Using external memory: Kalev, Andrew
Approximate inference: Emma, everyone
Overview on summer projects

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Lars: HaplotypeOnline

Goal: Have our system working with thousands of machines like Superlink-online (by August 31)

Issues:

Move from dynamic dispatching of jobs to static:

- **Instance-based search space estimation:**
  - pre-processing. No learning.
  - Learning based (improve and expand on current approaches)

- Anytime AND/OR

Run many more experiments (superlink, others), look for parallel environments (San-Diego)?

Dealing with snips (need to check if the Technion work is implemented)

Compute orderings in parallel? (hemetis? Min-fill?)
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Andrew/Vibhav: SampleLink

Goal: Have sampleLink advance and working competitively (testing by August 3)

Issues:

Test and study current SampleLink: system is available and will be tested by Andrew2 and Natasha (also vec, beem and Morgan) on instances from Superlink. Should also be tested on instances from Elizabeth Thompson

Is uai conversion good: should we work with the uai conversion removing determinism or should we remove them ourselves?

Improving SampleSearch for linkage: should we use and/or sample graph? Samplesearch?

The use of w-cutset (sample-vec).

Note: July 5th a dry run of AAAI tutorial in the pm. Be here July 5-6 for 2 days of potential tutorials/dry-runs/meetings
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Natasha (Emma?) M-best in search

Goal: Have an implemented AOBB for haplotype that computes the m-best haplotypes (by end of August?)

Issues:

Elim-m-opt, a BE algorithm for finding m-best solution is available.

Develop BB for m-best. Version 1, straightforward but needs to deal with searching graphs.

Apply it all to AND/OR graph search

Question: Can we Improve BB or best-first using multiple lower-bound heuristics? Specifically, if we have a lower bound on second best solution, does it help in finding second-best solution?
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- Just continue

Using external memory: Kalev, Andrew
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- Use ideas we discussed: relational representation
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● Extend mini-bucket to weighted mini-bucket (Qiang's work, see related slides)
● Improve ijgp increasing i-bounds, use analogy of i-consistency on our group blog.
See my earlier slides on ijgp as a csp formulation

Timeline:
Meetings during the summer: starting
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