IW 07---

Office Hours 3-5pm

Each Week---

1. What you said you would do
2. What you did
3. What you plan to do next week?
4. Anything you would like to discuss?

Assignment 1 Due Next Week:

Pitch--- Slides

1. A problem
2. Motivation
3. Related Work

Cryptography? Game theory?

General Strategies to Solve Intractable Problems

1. Heuristic Search
   1. Smart choosing the problem
   2. Ex. Automated planning…
2. Relaxation
   1. Solve an easier problem
   2. Ex. integer programming -> relax to linear.
3. Approximation
   1. Ex. TSP
4. Randomization
   1. Ex. Waxact???

Previous Student’s Project

1. NLP. Used TSP solver—Aunt Caully solver randomization.
2. Type system.
3. Theorem prover. 1st order logic.
4. Multi Agent Robo Motion Planning

Combinatorial Design Theory

Monte Carlo Tree Search – game tree for two player games

**Dynamic Programming – Learning based on sub problems—use for Algorithm**

Anytime algorithm

CSP—generalization of SAT

CSP—set of variable associated with a finite domain and a set of constraints ex. All different (x1,x2,x3)… or (all same). ---- Minizinc… common language for something

**Proposals Next Friday Feb 25. If get to him before it’s due then he will get feedback?**

1. Requirements for Project Proposal
   1. Motivation/Goal
      1. Why you wanna solve the problem? What you’re gonna accomplish/build?
   2. Related Work
      1. Check google scholar and Google
      2. Guy made a
   3. Approach
      1. Strategy going to take to solve the algorithmic problem
         1. Possible Strategies…
            1. Randomization
            2. Heuristic Search
            3. Relaxation (prob not)
            4. Approximation (prob not)
            5. Reduction (to SAT, CSP, other)
      2. Why I think I can build a better solver… make it tractable? Change the constraints? Change what mean solvability so I can actually solve it efficiently?
   4. Plan
      1. Milestones + Dates… when to finish things and what I will have built by the end.
      2. Ex. Writing milestones, implementation milestones, pseudo code in write-up, collection of data benchmarks,
   5. Problem Definition
      1. Formal defn. Describe very clearly.
   6. Evaluation
      1. How to test whether my algorithm works. Randomly generated data… how do.
      2. Compare against what? (code up sat solver/k-dimensional)