

**EECS 391 Intro. to AI (Fall 2017) Written Homework 2 (Max Points: 100)**

**Due in class Tue Oct 3. Write neat. Show work. Write Name and Case ID. Staple.**

1. Contrast A\* search with simulated annealing. Consider the algorithms, choice of next actions, memory complexity, and optimality. (10 points)
2. Gradient ascent search is prone to local optima just like hill climbing. Describe how you might adapt simulated annealing to gradient ascent search to reduce this problem. Could the gradient be consider a heuristic? Explain. (10 points)
3. Problem 5.7, Russell & Norvig. (10 points) (Prove the following assertion...)
4. Problem 5.8, Russell & Norvig. (20 points) (Consider the two-player game...) but modified to use 5 spaces with the starting position as follows:  
For 5.8d, consider the only possibilities that A starts in either position 1 or 2.

	<b>A</b>			<b>B</b>
1	2	3	4	5

5. Problem 5.19, Russell & Norvig. (10 points) (Consider the following procedure...)
6. Problem 6.3, Russell & Norvig. (10 points) (Consider the problem of constructing...)
7. Problem 6.5, Russell & Norvig. (10 points) (Solve the cryptarithmic problem...)
8. Problem 6.9, Russell & Norvig. (10 points) (Explain why it is a good heuristic...)
9. Problem 6.11, Russell & Norvig. (10 points) (Use the AC-3 algorithm...)