I'd like to pick Fireman Bot, which is kind of now cleaver in functions and definition. Below, I'd give 5 struction where Fireman Bot may might need different abilities. After each situation, I'd explosion some & algorithms that might be of use

Situation 1.

- Consider our fireman Bot works on a flat terrain with blocks that

 the Fireman Bot can't pass through. Also, our fireman Bot knows where

 the the target is. It needs to find a shortest path to save

 the target.
- DFS is to not efficient in finding a shortest path. So a better solution is to use A storr Algorithm. Because the knows where the target is and where it is. We can a generate heuristic using either Eucliclean distance or Manhattan distance in order to implement A-star algorithm.

He used in the bedone we got the its on how Freman

the institut KB: it [13] is catching inc the then the our blocks

minist Situation 2 30 December will about the Intel [18, 18, 18, 18] [18, 18]

- Consider one travelers is trapped on the peak of a mountain. We need to send in Fireman Bot to find this guy. (Our Fireman Bot closs not know the exactly where it is and where the travelers is. It only knows the travelers is on the peak of the mountain.

- With the same limitation: We only have one fireman Bot. So we con not do Beam search. Itowever, the hill-climbing algorithm is easily trapped in a local maximum (sunthe peak of some convex terrain). So we are supposed to use simulated - annealing algo.

With the probility of picking a lower neighbor, it fireman Bot has the ability to avoid local minimum to some extend.

Sixuation 3 as a boat of elegent I is deport at a all

- Consider there is a one-floor house catching fire, and humans can not get in. We need to send not Fire man Bot in to detect if there is still someone inside. The Fire man Bot need to keep away from fire in order to stay functional the tremontate

The French Sot an't fast through Also, our Freman Bot to our where

Snow the County whole it is and where the frame es is . It and shows

M Some

- Because the Fireman Bot does not have the prior knowlege of where is catching fire. So it needs to have the ability to \$\int \text{make inference}\$ from the current situation and its alutabase. He like what we discussed in the lecture. We can give the our brave Fireman Bot the initial KB: if [i,j] is catching fire, then the four blocks [i-1,j], [i+1,j], [i,j+1], [i,j+1] gets high temperature. Each time Froman Bot detects high temperature, it queries its \$\int B\$, finds one way to move on, and update its \$\int B\$.

the travelories to an the send reak of the maintain

Situation 4. 1 Normal ashlut of losteler 28 contract 2 - the same as situation 3, now we have a camera on firmun Bot that takes & grayscale photos. And we want to get to color photoses in order to get better understanding of the situation. It This situation is the same as our project: colorization. It related to neural networks. First we should bisself a neural network (may be CNN is a good choice). Then based on the dataset of photos of taken In place catching fire, we troin our model and and continually modify the weight of neurons (which are filters in CNN). Finally we feed the network to with the photos taken by Fireman Bot and get the colorized photos situation 5 Consider the following situation, We have a place full of 3 sizes of rooms: large / medium / small room, Turget is in one of the noms and is not known. The so fireman Bot is able to search every room However, the bigger the house is, the hard the target can be forded found. & This situation is like what we meet in Project 3 Wo can set a similar fulse negate rates: p (Target found in room; | Tranget in room;) = f 0.1 small room medlum room

targe room

	- This situation is related to Hidden Markow Model. The point is
	to generate model the knowledge probabilistically. And then use this
	Knowledge to make generate future action. This specific problem
	is a filter; $f_{+n}(x) = \beta \Sigma f_{+}(x') p(x x')$. If we add observation in
	to as extra info, we can also fit in observation model to the
It relate	a Filter formula so od wie as a man and it mail some and
	to const network first we should hidded a neural network
	Finally, thanks to our brave Fireman Bot!
	In place catching live we will our antil med ont continue
	As for Bonus, is your clog Luna Rose dressed in a Superman Costume
	I'm not sure. And unfortunately, I'm not a good ferenter.
	ettoda Lachard
	and African States as a second of the second
A 253	- Consider the following a tooke we have a place that of a
5 1207	there manys longs I mediant found norm Tweet is in me of
DOST	raise from The softman Bot is able to hardiness
***	I will not be you for how as the house as The hard with tength in
Pasol	see found & The Africkian & the whot we next in potent 3
	A service can sof a diator while higher reference in the service of
	of Tornet friend i round i transer in round of facil a sorall conserve
	Lunder Districture & C.
	more along 2.0.3