

# Project Ideas

## Sports Bets(Over/Under)

**Data:** Could be any sport but basketball has a lot of data to work with

[Basketball Stats API](#)

**API:** Enter in player/team and the scoreline and the API will return weather to pick the over or the under

**Business Pitch:** We could build out the product to predict multiple sports and different types of bets. Then we could sell subscriptions or charge per prediction for our API to receive revenue. We could also sell ads on the page and open up the API for free as an alternative revenue method.

## Mobile RangeFinder for Golf

**Data:** Images of different lies at golf courses labeled with how far away they are.

(Data may be hard to find or has to be made)

(As time goes on we can use customer uploaded images to perform unsupervised learning)

**API:** Take and upload an image standing at your ball, with the pin in view and the API will return the distance to the pin.

**Business Pitch:** Golfers would have to carry one less tool in their bag and save them from buying a approx. \$200 device. Could make rangefinders more accessible to the average golfer. The product could be free with ads or a type of paid model.

## Automatic Room Lights(Thermal Cameras)

**Data:** Thermal Image Data set with various objects that have heat signatures. Labeled as human and not human.

<https://www.flir.com/oem/adas/adas-dataset-form/>

<https://www.kaggle.com/datasets/deepnewbie/flir-thermal-images-dataset>

<https://data.mendeley.com/datasets/btmrycjbj/1>

<https://ieeexplore.ieee.org/document/8757208>

**API:** Camera will submit feed to API and if the API identifies a human in the image it will return true. The device would leave the lights on for an allotted time until it rechecks the room by requesting the API again.

**Business Pitch:** For automated homes it could be better than camera detection because it can see at night and it would be better than motion detection because it could be built into the ceiling and only go off when it identifies a human.

# Area of Focus

## Modeling and Architecture

- Modeling- Taken Deep learning class and am familiar with CNNs and Linear Models in Pytorch
- Architecture- Work with web applications in react and spring-boot. Would be able to spin up a web application quickly.

# Project Complexity

## Initial model complexity small

- Only train the model using a single player at first
- Limit which data points we input and what years
- Have web app just predict how many points the player will score in their next game

## Increase Model and Web application complexity

- Increase kinds of input data and how many seasons
- Have model work with multiple players. Train on multiple players or have a model for each player?
- Have web predict how many points a probability distribution
- Have the web app take in multiple players and their over/unders and output which ones to take in a parlee.

Step no.	What you will do	Unit(s) no. & name of deliverable	Estimated time
1	Start Planning for Your Capstone	Unit 2	0.5 -1 Hours
2	Collect Your Data	Unit 3	2-4 Hours
3	Benchmark Your Model	Unit 8	2-4 Hours

4	Project Proposal	Unit 8	2-4 Hours
5	Data Wrangling & Exploration	Unit 12	15-20 Hours
6	Survey Existing Research and Reproduce Available Solutions	Unit 13	5-20 Hours
7	Try Various Models	Unit 14	3-4 Hours
8	Build Your Machine Learning (or Deep Learning) Prototype	Unit 20	25-30 Hours
9	Scale Your Prototype with Large-Scale Data	Unit 20	10-15 Hours
10	<i>Study Optional units (Advanced Capstone only)</i>	<i>Unit 30~33</i>	<i>20-25 Hours</i>
11	Pick your deployment method	Unit 21	0.5-1 Hours
12	Design Your Deployment Solution Architecture	Unit 23	2-4 Hours
13	Run Your Code End-to-End with Logging and Testing	Unit 24	5-10 Hours
14	Deployment Implementation	Unit 24	12-15 Hours
15	Share your project with the world	Unit 27	2-4 Hours
16	Final Submission	Unit 34	

1. X
2. [Data Spread Sheet](#)
- 3.