

1. Genie - Generates sentence descriptions for images [\[web\]](#) [\[demo\]](#)
Python + Caffe + Numpy project to teach multimodal RNNs to generate sentences to describe images. Project ported to Google Cloud. Android app developed to demonstrate API functionality. Gallery app for phone image currently under development.
2. Sensei - Wearable to track swings in swing based sports [\[web\]](#) [\[demo\]](#)
Used an RFDuino to design a wrist-mounted wearable housed in a 3D printed box, fastened with velcro. Used a 6-axis IMU to gauge the movement of the wrist while in motion for sports like golf, that require high levels of consistency. The device, Sensei, paired up with an Android app.
3. Robotank - Smart robot tank concept [\[doc\]](#)
Used an LM3S8962 Stellaris board combo to control a motorized robot tank setup. Distance sensors were mounted that allowed the vehicle to go from point A to point B by finding it's way around obstacles, by use of a basic machine learning algorithm with a feedback loop.
4. Object recognition in video [\[source\]](#)
YouTube videos were downloaded, and split into frames. The frames with blurry images signifying motion were removed by using a high pass frequency filter. The 'good' frames were analyzed by Genie.
5. SnapR - A more public SnapChat concept [\[under development\]](#) [\[source\]](#)
SnapChat allows private sharing of photos. Facebook has a concept of networks, but once the content is online, it stays in its raw form forever. Twitter has a concept of short messages but the permanence of content is still prevalent. SnapR is a concept that takes the temporariness of SnapChat and puts it with the functionality of Twitter/Facebook. The image only service stores photos exactly as long as the user wants the photos to be stored. The raw files are never saved. Instead, features are kept, so as to allow for a revenue stream (use of Genie).
6. Craigslist scrape to see if proximity to I-5 affects rent [\[source\]](#)
Used a tool called Scrapy to scrape the Seattle data from Craigslist. The rents were then correlated with the proximity to an Interstate-5 exit by use of the Google Maps API. (no significant correlation was found, further study needed).
7. Maintain list of problems with optimum solutions based on constraints. [\[link\]](#)
Collated list of problems that is constantly updated for use by coders looking to practice.