**Research – Week 6**

* Need to work out whether implementing tensorflow lite into the native ios, android vs tensorflow.js wrapped in ionic capacitor
* Incorporating into faims a take photo button which uses ml learning to identify the image and provide a certainty response
* Training the model in python or can it be done in Tensorflow.js
* Academic Readings
  + Image classification - specifically on mobile devices how much training data to get/ will need

**Resources:**

* <https://stackoverflow.com/questions/59860397/tensorflow-js-vs-tensorflow-lite#:~:text=main%20difference%20of%20tensorflow%2Dlite,js%20you%20can>.
* <https://stackshare.io/stackups/tensorflow-js-vs-tensorflow-lite>

**Academic Resources:**

**Tensorflow lite vs Tensorflow.js**

Graphical user interface, text, application, table

Description automatically generated

* Tensorflow lite
  + You can’t train new or existing model
  + Create your model convert it to tensorflow lite and deploy it to firebase > then can use the model on ios and android natively
  + Since its focus is on native code > gets benefit of mobile device hardware
* Tensorflow.js
  + You can train new or existing model
  + Node.js powered
  + Open source
  + Can allow for a deploying of python ml model directly into JavaScript
  + Cost
    - No server needed for inference
  + Privacy
    - No data is sent to the server
  + Runs on the client side
  + Flexible
    - Can run on backend, frontend, mobile devices, react, react native, IOT devices
  + Easy to use
  + Don’t train the model on the device
    - Train somewhere else i.e. tensorflow then import model into device?
  + Better for web applications
  + Uses webGl
    - Don’t think it would work with wrapping it in ionic capacitor as it wouldn’t make use of devices GPU, only the webGL or other web API’s to render components.
  + Tensorflow.js for React Native
    - Does use devices GPU – but still not as effective as I THINK as Tesnorflow lite

**Inference**

* Epochs
  + Iterations
  + The more epochs/iterations, the more accurate the results will be

**Image Classification – Specifically on mobile devices how much training data to get/ will need**

* **CNN**
* **Training an existing model**
  + transfer learning
* **Image Classification on Mobile Devices**