**Website Content Pages**

**HP Inc.**

* **Image Classifier App**
* **Document Scanner**

**BLK J**

**National Team**

**Judging**

**Imperial College London**

* **C Project Extension – Capacitive Control Speaker**
* **Parkour Soc**

**Google Get Ahead Program**

**Raffles Institution / RGS**

**Dog Pictures + SPCA**

**Good Movies/TV Shows to watch + autographs**

**Internship at HP Inc.**

**July 2018 – August 2018**

I recently completed a two-month internship at HP Inc. Singapore. I was with the Home Printing Solutions R&D team, which controls worldwide R&D for HP printers. During my time there, I worked on two software projects – an Image Recognition Android App, and a Document Scanner.

On top of working on my projects, I also got involved in the organizing and running of HP PrintHack Asia 2018. This hackathon brought people from various departments in HP together to work on solving printing problems faced by HP consumers in China. This experience…

Also, I got the chance to tour some of HP’s ~~leading tech offices,~~ namely the HP Graphics Solutions Centre of Excellence, HP Indigo Press facility, and the SMARC office. They gave me a glimpse into how tech is rapidly evolving and how HP fnadjskfjnqeoi

What this internship really taught me was how to teach myself. Prior to this internship, I did not know anything about machine learning, image processing or android app development. However, throughout this internship, I had to pick up these skills on my own, by watching tutorials on YouTube or by vehemently using Stack Overflow to diagnose any problems I run into. In addition, I also found time to pick up some web development skills (which is how I made this website).

I aim to ….

**Image Classifier Android App**

For my internship project, I was tasked to build an image classification android app. I had no prior knowledge about image recognition, machine learning or how to build an android app, so I searched the web on what would be the best way to build my image classifier.

I settled on using Google’s TensorFlow machine learning framework, as it had some pretty comprehensive documentation. I followed the [TensorFlow For Poets](https://codelabs.developers.google.com/codelabs/tensorflow-for-poets/#0) tutorial, using my own dataset of images. My dataset was collated by mass downloading relevant images from Google Image Search using a python script.

Once I trained the TensorFlow model, I proceeded to write a python script to test its accuracy. I collated a folder of test images, and my python script would go through each of the pictures in the folder, classify it and compare the results with the actual label. It would then calculate the accuracy for each label, as well as the overall accuracy.

With my trained TensorFlow model, I optimized it for mobile use and then integrated it into my simple mobile application. It being my first time using Android Studio to make an android app, I struggled at first, trying to get the hang of how to create new Activities, edit Manifests and such. I eventually made a simple UI, where users could either take a new picture using the phone camera or select an image from the gallery. Once selected, the app would use the trained TensorFlow model to classify the image and display the results on the page.

It was quite tough figuring out how to invoke the trained TensorFlow model from my Java program. I initially tried adapting the TensorFlow demo app on GitHub, but I soon realised that there were too many unnecessary files in that project. So instead I started a new project, wrote out the app framework, and then cloned TensorFlowImageClassifier.java and ImagePreprocessor.java to my project files. I then used the methods in those classes to invoke my classifier model.

Here is a demo of my app:

Further Improvements

As I just wanted to show a proof of concept, I only trained my TensorFlow model till it had an accuracy of about 87%. Further refinement to the training could be done by:

* Increasing the number of training steps
* Changing learning\_rate from 0.01 to 0.005
* Using a larger dataset (I currently only have about 200 images per category)
* Distorting the images by passing –random\_crop, --random\_scale, --random\_brightness to the training script

**Document Scanner**

When I first started my internship, my

**BLK J Internship**

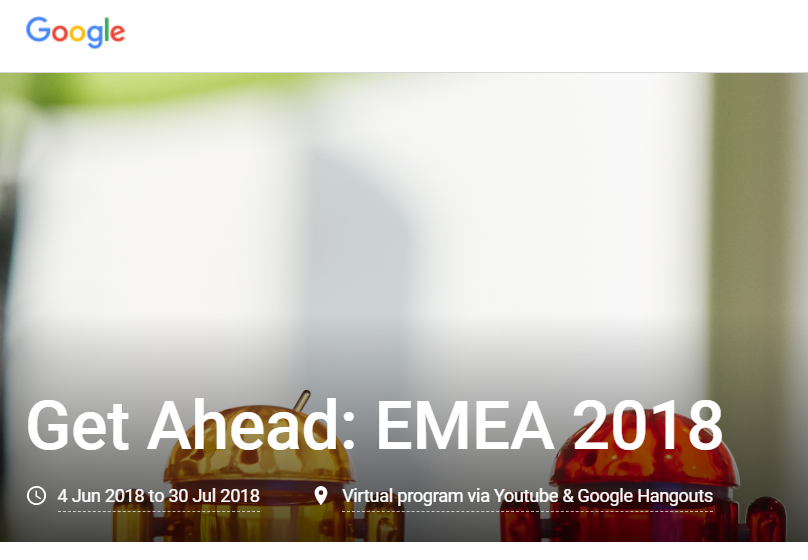
I've had experience interning for 3 months at a marketing company DDB, as an accounts executive intern. During this internship, I worked with a team to manage client accounts and projects, and assisted with the formulation of marketing strategies. This internship helped develop my communication and presentation skills, each being essential for swift and effective completion of projects.

**Gymnastics**

Gymnastics has been an integral part of my life for almost a whole decade, and it has been a very memorable chapter indeed. Unlike most, I started gymnastics pretty late. I was eight when I decided to join recreational gymnastics classes, twice a week, at Bishan Sports Hall. Starting off at level 2, I slowly built up my skills and eventually had the chance to train with the National Team.  
  
Throughout my gymnastics career, I was privileged to have many opportunities to represent Singapore, which I would not have been able to do so without the guidance of our coaches and support from my family, Singapore Gymnastics, and the SNOC.

Here are some competitions I took part in:

* World Champs
* SEA Games
* Commonwealth
* Doha

**Google Get Ahead Program**

**Studying in London**

Computing – Grades, courses, languages, toughness

C Project Extension

Parkour soc – Events office

Singsoc – OGL for Sojourn Camp, Acad Rep for Computing/Math, ME 2018

**Tertiary Education**

* RI – grades, subjects
* RGS – grades, subjects, projects
* Gymnastics training & balancing school work

**Dog Pictures**

Hi, here are some pictures of my dog. He’s slightly derpy

* Mention spca volunteering

**Some good TV shows and movies to watch**

* List of shows
* Autograph collection

**Cool stuff I’ve done**

* Concerts
* Red carpet events
* Photos w ppl
* James corden