Muthu Palaniappan Alagappan

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EDUCATION:

University of Southern California Master of Science**,** Computer Science **May 2020**
College of Engineering, Guindy Bachelor of Technology**,** Information Technology GPA: 8.96/10 **May 2018**

AREAS OF INTEREST: AI (Machine Learning, Reinforcement Learning), Game Theory, Behavioural Economics, Robotics

SKILLS:

Programming Languages: Python, C, C++
ML Frameworks: Tensorflow, PyTorch, Scikit-Learn
Web Development: HTML5, CSS3, JavaScript, PHP, MySQL
Embedded Systems: Arduino, Raspberry Pi, Intel Galileo
Tools: git, LaTex, Docker

WORK EXPERIENCE:

University of Southern California **September 2018 - Present**
Video Researcher Los Angeles, CA, USA

- Researching in a group of 3 to track fruit-flies using synchronised cameras under Dr. John Tower, dept. of molecular biology
- Developing a program to map the ability of fruit-flies against their age using OpenCV, C++, R

University of Winnipeg, Canada **May 2017 - July 2017**
Research Assistant Winnipeg, Canada

- Adopted semantic segmentation algorithm to classify satellite images into 18 categories (forest, marshland, agricultural etc.)
- Implemented Neural Network architecture based on VGG and FCN using Python, Tensorflow and, Matlab
- Achieved an accuracy of 88% for land use and land cover classification
- Accepted at **International Journal of Remote Sensing**, paper entitled "Automated LULC Map Production using Deep Neural Networks", under supervision of Dr. Christopher Henry

PROJECTS:

Transformation of Facial Expression **July 2017 - May 2018**

- Developed Neural Network architecture inspired from CycleGAN to transform emotion of face in an image. e.g smiling to crying
- Transformed Images with 70% pixel-to-pixel accuracy using Python, OpenCV and Tensorflow

Sketches to Pokemon Faces **Dec 2016 - Apr 2017**

- Developed a Neural Network to generate images of pokemon faces from its rough sketches
- Engineered Conditional Generative Adversarial Network (cGAN) with Tensorflow, Python
- Awarded 3rd prize at Technology and Innovative Project (TIP) day among 100+ projects

Geo spatial Analysis **July 2016 - Nov 2016**

- Created web-app to gather, analyze crowd sourced geographical data – street lights, crime, potholes, garbage dump, etc.
- Designed an algorithm to provide recommendations like safe routes, hygiene or disease outbreak employing Geographic Information System (GIS)
- Utilized qGIS, OpenStreetMaps(OSM), MapBox, Python, Leaflet JS

SatComm Assisted Intelligent Flood Management System **May 2016 - July 2016**

- Proposed a Flood management system operating UAV's equipped with LIDAR to patrol the flooded regions in real-time
- Developed an algorithm for measuring flood levels, depth and height of the water channel, using LIDAR
- Presented a paper (goo.gl/DyqCZq) at LAMSYS, Indian Space Research Organization(ISRO)

Airlock **Aug 2015 - Jan 2016**

- Created a electronic pattern lock that unlocks when patterns are drawn in air
- Leveraged Ultraviolet sensors coupled with Arduino to sense finger movements with 95% accuracy
- Achieved funding from Kurukshetra Project Management, a International techno-management fest with UNESCO Patronage

VOLUNTEERING:

- Led the Student chapter of **Association of Computer Machinery (ACM)** as **Chairperson** from **July 2017 - Apr 2018**
- Organized events on computational thinking for school kids called as Prodigy with 60+ participants and hackathon exclusively for girls called Codher with participants from 5+ colleges
- Managed technical operations of student run magazine Guindy Times (https://guindytimes.com/) as **Technical Head**
- Collaborated on open source projects with **College of Engineering, Guindy GNU/Linux Users Group (CEGLUG)**, a group of GNU/Linux Enthusiasts
- Active member of **GPU Club** in University of Winnipeg, Manitoba, Canada.