Ayrton San Joaquin

ayrton@u.yale-nus.edu.sg | +65 881475 88 | Singapore | ajsanjoaquin| ajsanjoaquin.github.io

Education

Yale-NUS College *Singapore*

Bachelor of Science (Honors) in Data Science, Minor in Philosophy *August 2018 – May 2022*

Awarded Scholarship to attend Full-time

Coursera

Certificate in Machine Learning (Credential ID: WFK75DQC9N5Q) *July 2019*

Experience

NeXT++ *Singapore*

Deepfake Detection Research Intern *May 2020 – August 2020*

- Preprocessed 200,000 images from FaceForensics++ Dataset and trained various detector models (Based on EfficientNet and Xception Net) using a High Performance Computing Cluster
- Read and adapted various robustness strategies against adversarial noises (e.g. Adversarial Training, Randomized Smoothing)

Arterys (Freelance) *San Francisco, United States*

Deep Learning Engineer (Volunteer) *March 2020 – June 2020*

- Created a COVID-19 Pneumonia classifier four days after pandemic declaration, and developed it on an IBM Power9 System provided by A.I. Singapore.
- Contacted by Arterys, and Deployed model in the Arterys platform for use by American hospitals and researchers.

Skills

Programming Languages: Python, Java, R, Ocaml
Machine Learning in Python: Pytorch, Pytorch Lightning, NumPy, Sickit-Learn, Fastai
Data Management: Pandas, SQL, MS Excel
Application Deployment & Version Control: Docker, Google Cloud, Git, Singularity

Open-Source Projects & Contributions

COVID-19 Pneumonia Classifier for Diagnosis Triage *Fastai, Pytorch, Pandas, Docker*

• Trained a Resnet-34 Convolutional Neural Network (CNN) on ~ 26,000 images with Resampling to detect Pneumonia caused by COVID-19 on xray scans ultimately to triage patients for urgent diagnosis. AUROC for labels "covid", "opacity", "nofinding" were at 99.97%, 92.64%, and 92.73%, respectively.

Image Colorizer via Semi-Supervised Learning *Pytorch Lightning, Pytorch, NumPy*

• Trained a Generative Adversarial Network with a Resnet-18 Generator backbone to colorize grayscale images on 8,000 images from COCO Dataset. Generator was pretrained via self-supervised learning and the entire network was trained in 70 epochs from scratch.

ScobraPy Plant Metabolic Modelling

• Packager and Primary maintainer on PyPI. Contributed bug fixes, developed the tutorial, and updated documentation.

Pytorch

• Currently working on minor bug fixes and feature add-ons. Aiming to further my experience in contributing to large open-source projects.

Publications

March 2020 **Using Deep Learning to Detect Pneumonia caused by COVID-19**, *Towards Data Science*

January 2020 **Three Things I learned from Creating Fake Faces Using A.I.**, *The Startup*

July 2019 **Creating a Radiologist from Scratch**, *Towards Data Science*