

Ayrton San Joaquin

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Education

Yale-NUS College

BACHELOR OF SCIENCE (HONORS) IN DATA SCIENCE, MINOR IN PHILOSOPHY

Awarded Scholarship to attend Full-time

Singapore

August 2018 – May 2022

Coursera

CERTIFICATE IN MACHINE LEARNING (CREDENTIAL ID: WFK75DQC9N5Q)

July 2019

Experience

NeXT++

DEEPPFAKE DETECTION RESEARCH INTERN

- 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)

Singapore

May 2020 – August 2020

Arterys (Freelance)

DEEP LEARNING ENGINEER (VOLUNTEER)

- 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.

San Francisco, United States

March 2020 – June 2020

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.

Explaining Neural Networks with Meaningful Perturbations

Pytorch, NumPy

- Implemented the algorithm described in *Explanations of Black Boxes by Meaningful Perturbation* (Fong, et. al., 2018), which perturbs a given image by masking the regions essential for an Image classifier to make a prediction.

ScobraPy Plant Metabolic Modelling

- Packager and Primary maintainer on [PyPI](#). Contributed bug fixes, developed the tutorial, and updated documentation.

Pytorch

- Previously implemented fixes for the parallelization and graph modules. Currently working on minor bug fixes.

Publications

February
2021

[Let's Keep Explainable Methods Practical and Relevant](#), *Towards Data Science*

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*