Ayrton San Joaquin

RESEARCH ASSISTANT, COMPUTATIONAL BIOLOGY & NEUROSCIENCE @YALE-NUS COLLEGE

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Education

Bachelor of Science (Honors)
Data Science
Yale-NUS College 2018 – 2022

•Awarded Scholarship to attend Full-time.

Projects

ScobraPy Packaging and Maintenance
Sep 2018 – Present Research
https://pypi.org/project/scobra/

I packaged and currently maintain a stable version on the Python Package Index (PyPI).

COVID-19 Pneumonia Classifier
March 2020
Computer Vision
https://github.com/ajsanjoaquin/COVID-19-Scanner

I used transfer learning on a Resnet 50 Convolutional Neural Network (CNN) to detect Pneumonia caused by COVID-19 on x-ray scans. Latest model was trained on 26,000 images, and initial accuracy for true positives on the test set was at 99%.

Neuontobotrys Tarapacana (NTARA) Model
Jun 2019 – Aug 2019 Plant Metabolic Modelling
https://github.com/ajsanjoaquin/ntara

I used Flux Balance Analysis (FBA) to test the integrity of added reactions to the NTARA model. I created reusable functions for future research, while providing docstrings for documentation.

Pneumothorax Classifier
Jul 2019 Computer Vision
https://github.com/ajsanjoaquin/Pneumothorax

I made an image classifier pre-trained on a Resnet 50 Convolutional Neural Network (CNN) to detect Pneumothorax (collapsed lung) on x-ray scans. This was built in two days for the NUS-MIT Datathon. I fine-tuned the parameters using approximately 11,000 x-ray images.

Volunteering

Freelance Deep Learning Engineer Fighting COVID-19
March 2020-Present
•Created a Convolutional Neural Network (CNN) trained on 26,000 images to detect Pneumonia caused by COVID-19 from Chest X-ray (CXR) scans as a proof-of-concept.

•Collaborating with A.I. Singapore to further train the model and receive additional Chest X-ray images from hospitals in China.

•Contacted and collaborating with Arterys and Beat Corona to integrate the model into their platform. Model will be deployed to U.S. hospitals and in Africa once the model improves.

•Collaborating with Actipulse Neuroscience to get CXR data from COVID-19 patients in Mexico.

Experience

Student Associate - Computational Biology
Yale-NUS College
Sep 2018 – Present Singapore
• Upgrade and maintain scobraPy, a modified version of the cobraPy module for plant metabolic modelling, from Python 2.7 to Python 3. Write documentation and perform functional testing and unit testing.

Student Associate - Neuroscience
Yale-NUS College
Jan 2020 – Present Singapore
• Create an application for speech analysis samples using Dynamic Time Warping.

Chief Executive Officer
Applica Data Services Inc.
Jun 2017 – Apr 2018
NCR - National Capital Region, Philippines

• Led a team to manage Applica, a centralized platform that allows people to apply to universities online in the Philippines. It is designated as a Harvard Social Innovation Collaborative Global Trailblazer.

• Cold called colleges and universities across the country and promptly underwent contract negotiations with 2 schools.

• Oversaw about 200 unique applications for the 2017-2018 Admissions Cycle, approximately a 400% increase from last year's cycle

Certification

Machine Learning
Jul 2019 Coursera
Credential ID: WFK75DQC9N5Q
Verification Link

Publications

"**Using Deep Learning to Detect Pneumonia caused by COVID-19**", *Towards Data Science* (Mar 2020) . Link

"**Three Things I learned from Creating Fake Faces using A.I.**",*The Startup* (Jan 2020) *Link*

"**Creating A Radiologist from Scratch**", *Towards Data Science* (Jul 2019) *Link*

Skills

Programming in Python (NumPy, Pandas, Pytorch, ScobraPy),
Data Handling (MS Excel, SQL),
Application Development (Git, Docker, Google Cloud),
Project Management (Trello, Slack),
Pitching (Cold-emailing, Streak),
Technical Writing (LaTeX)

Languages

English **Native**

Filipino **Native**