Collin Zhang

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EDUCATION

New York University Stern School of Business

B.S. Computer Science; B.S., Econometrics.

PROJECT EXPERIENCE

CoCreate

Team Leader (Oct 2019 - June 2021)

- An iOS app integrating real-time collaboration with hand-writing drawing board based on Apple Pencil

- Use of **Flask** and **Socket.IO** with python to build a backend that supports real-time collaboration of drawing

- On the frontend, design an algorithm with **Swift** that converts **CGPoint** with location and force produced by users to segments of **UIBezierCurve** that produce a smooth hand-writing curve

- To achieve lasso on a drawing of thousands of curves, design a map that divides the drawing to 10*10 sqaures, **indexing** segments of curves to each sqaure, create an algorithm that determines squares covered by an arbitrary self-intersecting polygon, an algorithm using **ray casting** algorithm to determine whether a segment is in it, achieve 100 times speed up

- Abstracing a drawing module **FastDraw** for modularity, providing a DrawBoardView for drawing, delegation is used to signal operation like drawing, erasing and lasso, so operation can be sent to server for collaboration

- 9.59k downloads on App Store, 9400+ boards created by users

- https://apps.apple.com/tt/app/cocreate-draw-together/id1548911886?ign-mpt=uo%3D2

Covid-19 abnormalities detection on chest radiographs

July 2021 - August 2021

- Build a model to detect abnormal area and determine if the patient has Covid-19

- Preprocess data with **pandas**, visualize the radiographs with **matplotlib** and pydicom, performing EDA

- Train a **Cascade R-CNN** for bounding box regression with **mmdetection**, a **EfficientNet** for classification with **keras**

- https://www.kaggle.com/collinzrj/siim-collin

INTERNSHIP EXPERIENCE

Supersymmetry

iOS Developer (Jan 2021 - May 2021)

- Participate in the development of iOS client of the social media app: Project Z with **Swift** and **RxSwift**

- Write reusable UI components with **SnapKit**, Use of **Moya** to abstract the api call for understandable code

- Discuss with colleagues from backends for implementation of business logic which is efficient, easier to implement and supports backward compatibility

- https://apps.apple.com/app/project-z-meet-online-friends/id1528320292

SKILLS AND OTHERS

- Courses: Data Structures, Computer System Organization, Intro to Algorithms, Discrete Math

- Haskell, Swift, Python, Java, C++, Javascript, Matlab, SQL, HTML/CSS, Tensorflow, Keras

- Contribution to Tensorflow, Keras, and mmdetection on Github

- https://github.com/collinzrj