# Collin Zhang

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## EDUCATION

**New York University**
*B.S. Computer Science; B.S., Business.*
Sep 2019 - Jun 2023, New York

## 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 the points produced by users(location and force) to segments of bezier curve 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, and 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
- Train a **EfficientNet** for classification with keras

## INTERNSHIP EXPERIENCE

**Supersymmetry**
*iOS Developer (Jan 2021 - May 2021)*
- Participate in developing a social media app: Project Z
- Technology Stack: Swift, RxSwift, Starscream, Moya
- 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

## SKILLS AND OTHERS

- Courses: Data Structures, Computer System Organization, Intro to Algorithms, Discrete Math
- Swift, Python, Java, C++, Javascript, SQL, HTML/CSS, Tensorflow, Keras
- Contribution to Tensorflow, Keras, and mmdetection on Github