# Tusimple

Qs to do:

1. 685
2. 721
3. 711
4. 425
5. 1192
6. 1776
7. 856
8. 1081
9. 1190
10. 1249
11. 126

Deep Learning

Perceptron - CV

Mentor providing training

Trained by team

#### Which project do you have interest in?

ML platform.

1. Tusimple is an autonomous driving corporation. And I know its core technology is concerned with CV, ML

(2)

I have great interest in DL, CV and ML and some experiences dealing with ML in my courses

In this term, I have courses called CV and DL. I got A in CV and finished a project using Pytorch.

So I believe that I can catch up with projects if I go to ML platform.

(3)

But general SDE is also OK for me

#### When to start

I think I can start internship from end of May to September

I expect general salary of software enginner intern is ok

#### Question:

Do I still have technical interview in next step?

One more interview ---> pass -- > team matching

What’s percentage of returning and salary of SDE internship

80%

### Projects:

#### CV Course:

1. Motivation

Final project in that course and we want to replement a cool project. I like manga very much so choose to transfer style of images and videos

1. Method:

We use CycleGAN and implement it with pytorch.

The hardest part of this project is to build neural networks. We need to understand the parameters of each blocks

And we also need to enable model to save and load weight of neural network and optimizers to accelerate training process

1. Result:

The project outputs very good result. I succesfully transfer style of movie Justice League into manga style. I can give you Google Link of it.

In this project, we do not have accuracy. The only evaluation is loss per pixel which is also trival without being compared with other algorithms

#### Winner Software Co.ltd Intern

1. Motivation:

School organized program. The project on my resume is quite like a homework.

FInally the project is an app which users can use on Android phone to study Chinese words

The language of this project is java

1. Methods:

The overall architecture, Websocket and Redis has been given. We just fill in blanks to write service, control and bean

The database is Springboot because it is simpler for us to build back-end architecture

At first we save the website with Fiddler.

Then We use seleum to break limits of saved websites and crawl the data.

At last store data with autojs.

##### UESTC AI LAB

1. Motivation: Undergraduate thesis.

During that time, I have great interest in ML and want to study something about it.

But it’s hard to improve efficiency of classical ML since its a quite mature technology

So my tutor advised me to combine ML with quantum computing

(2)Method:

Based on one paper of advancing ML algorithm by kernel method,

I advance a non-linear algorithm with similar computing method

(3)Results:

TC complexity will decrease from n square to log n

#### UV MIT

1. Motivation:

A winter break program. I study some basics of Deep Learning and Computer Vision

1. Method:

To understand the working process, MNIST, Hybrid Image and Local Feature Matching are all constructed by numpy tricks. To accelerate algorithm, we only use matrix dot multiplication instead of pytorch and tensorflow.

(3)Result:

I also publish a paper concerning recycling of products with other researchers in that Team

#### Mathematical Modeling Competition:

1. Motivation:

At that time, I get high score in calculus and algebra. 97 in calculus and 94 in algebra. So I want to participate in a mathematical competition and win a prize. But I did not at last

1. Method:

We use matlab. Actually the question is to solve an equation Ax = b. A is a matrix representing shared bicycles and b is their final state. X means how to distribute the shared bicycles.

1. Result:

The result is not great because one of my teammate crawl the data of bicycles from website. But it is not accomplished since the company block our requests.

#### Big Media Computation Center in UESTC

1. Motivation:

My first lab in when I was undergraduate student.

And this lab is accompanied with a course called Spatial DataBase

And I get in touch with py for the first time.

1. Method:

I use DataLoader in pytorch to read images in bacthes, resize it, changes its color.

1. Result:

I got 95 points in that course

Tusimple is lead in autonomous trucking based on Computer Vision, Deep Learning and other advanced Comptuer technology.

Nowadays the number of truck driver has become less and less due to the decreasing population.

Although salary of truck driver has reached one hundred and fifty K one years, companies cannot hire enough drives.

Tusimple can solve this problem with AI and improve safety and effiency.

It has a very bright future.

I am a Computer Science student with great intreset in CV, ML, namely the core technology in Tusimple.

I believe that I can match your company very well.

I hope my salary can reach one hundred and thirty K dollars per year and my dream salary is to have one hundred and forty K dollars per year.

My passport has F- one

Brown University can help me to get CPT

I think I can work from May 2022 to Sept 2022

System Design

Twitter

音乐播放列表

请问你“数据量特别大怎么办”follow up怎么答的？

是将list分成很多段，对每段中的userId进行hash到不同的文件（例如对userId hash到10个文件），然后合并对应的统计结果，

例如：将list分成10段，L1... L10, 对每个L中的userId进行hash%10，hash成L1\_1 ... L1\_10; L2\_1... L2\_10, ... L10\_1, L10\_10, 然后对每个hash段分别做统计，再将L1\_1到L10\_1合并（因为有相同的Id范围），类似对L2\_1到L2\_10合并。

还是

直接对整个list中的userId hash到不同的Id段，将每个Id段在不同的机器上做统计，（这样有可能有些id段数据量比较大），然后将不同的Id段做合并？

谢谢。

40 Get set on

221 Product defects

#239 Disk Space Analysis 求segment最小值的最大值

256

453 array game

532

547

647 Sub Palindrome

739 Final discounted price

780

921 Make Parentheses Valid

945 Unique Twitter User Id Set

1326 Activate fountain

1353 conference schedule

How many sentences

<https://leetcode.com/discuss/interview-question/373110/Twitter-or-OA-2019-or-New-Office-Design>

Even subarray

<https://leetcode.com/discuss/interview-question/278341/Uber-phone-interview-Number-of-distinct-subarrays-with-at-most-k-odd-elements/265140>

Game Event 解析字符串

<https://leetcode.com/discuss/interview-question/375258/Twitter-or-OA-2019-or-Game-Events>

Partitioning Array

<https://leetcode.com/discuss/interview-question/375262/twitter-oa-2019-partitioning-array>

Authentication Token

<https://leetcode.com/discuss/interview-question/378237/Twitter-or-OA-2019-or-Authentication-Tokens>

Twitter new office design

<https://leetcode.com/discuss/interview-question/373110/Twitter-or-OA-2019-or-New-Office-Design>

Efficient job processing

<https://leetcode.com/discuss/interview-question/374446/Twitter-or-OA-2019-or-Efficient-Job-Processing-Service>

Unique Twitter User Id Set

<https://leetcode.com/discuss/interview-question/376581/Twitter-or-OA-2019-or-Unique-Twitter-User-Id-Set>

Partitioning Array

<https://leetcode.com/discuss/interview-question/375262/Twitter-or-OA-2019-or-Partitioning-array>

university career fair

<https://leetcode.com/discuss/interview-question/374846/Twitter-or-OA-2019-or-University-Career-Fair>

Anagram Difference

<https://www.hackerrank.com/challenges/anagram/problem>

Weird Faculty

<https://leetcode.com/discuss/interview-question/374440/Twitter-or-OA-2019-or-Weird-Faculty>

Final Discounted Price

<https://leetcode.com/discuss/interview-question/378221/Twitter-or-OA-2019-or-Final-Discounted-Price>

parking dilemma

<https://leetcode.com/discuss/interview-question/379066/Twitter-or-OA-2019-or-Parking-Dilemma>

Activate Fountain

<https://leetcode.com/discuss/interview-question/363036/Twitter-or-OA-2019-or-Activate-Fountain>

buying show tickets

<https://stackoverflow.com/questions/43950000/hackerrank-buying-show-tickets-optimization>

New Office Design

<https://leetcode.com/discuss/interview-question/373110/Twitter-or-OA-2019-or-New-Office-Design>