Jiakang (Jack) **Liang**

BSc of Simon Fraser University · BSc of Zhejiang University

7161 Gibson Street, Burnaby, British Columbia, Canada

(+1) 778-881-8629 | jiakangl@sfu.ca | JackLLLLL | jiakang-liang-0044b1125

"Stay Hungry. Stay Foolish."

Technical Skills

- **JavaScript** as language for rapid development, used in several websites during full-stack intern, and familiar with React, Koa, Eggjs and some other frameworks
- **C/C++** as first-learned programming language, have rich experiences and deep understanding about basic principles of C, such as pointer and list, and have experience with shell and graphics functions implementation
- **Python** as frequently-used language, have many projects implemented in Python, such as using Machine Learning libraries like sklearn for clustering and classification, numpy and Pandas for data analysis and matplotlib for image processing
- **Solidity** experience writing and deploying smart contracts in Ethereum, including ERC20 and ERC721, and also smart contract audit experience
- **Matlab** experience in many computer vision projects, such as face recognition, object tracking in video and photo processing in frequency domain
- **Spark** experience in big data analysis and **R** experience in data mining
- **Go** and **Haskell** experience, learned and used them in comparative programming language courses

Internship Projects

Online Lottery on POA Private Blockchain

Richmond, B.C, Canada

Coinchain Capital Inc. *Sep. 2018 - Dec. 2018*

- Built a private blockchain in company servers, and used POA instead of POW to avoid unnecessary energy cost and improve system performance. Optimized block size and expected block time, which allows purchase and other user operations on blockchain can be done within 2 seconds
- Designed whole lottery management system including ticket issue and token circulation, which were all implemented in smart contracts and can be run automatically, decentrally
- Constructed a website as interface and entrance of this blockchain lottery system, using React, Eggjs and Mysql. Website address: http://lottery.cocc.io. It is mainly designed for mobiles and support for PC is not good enough. Android app also created using React Native

Public Blockchain Research

Richmond, B.C, Canada

Coinchain Capital Inc. *May. 2018 - Jul. 2018*

- Study and compare several public chains about their architecture, consensus protocol and developer support, including Ethereum, Ontology, NEO, Nebulas, Elastos, Hyperleger Fabric, Hyperleger Sawtooth. Read their white and yellow papers and understand their ideas
- Study and compare different consensus protocol and gave a presentation to colleagues, including POW, POS, DPOS, VBFT, dBFT and Merged Mining.

Beer Provenance Platform based on Blockchain

Richmond, B.C, Canada

Coinchain Capital Inc. *Apr. 2018 - Jun. 2018*

- Built a permissioned blockchain based on Hyperledger Fabric of IBM, and used it like a distributed storage system to store all data, e.g. origin and batch number of ingredients, shipment details of beers, which are not modifiable on chain.
- Wrote a website by JavaScript for farmers, manufacturers and retailers to log in and register their products, and fancy page for customers to display all related provenance information of bought beer. Website address: http://supplychain.cocc.io
- Linked to Ethereum with smart contract, and then all payment, e.g. when manufacturer buys ingredients from farmers or retailer buys beers from manufacturers, can be processed on Ethereum and all balances are stored on Ethereum to increase security.

Automated Test for Mobile Application

Richmond, B.C, Canada

Coinchain Capital Inc. *Jun. 2018 - Aug. 2018*

- Wrote scripts for performance of test modules of a mobile application - 153 We Are One, including sign-up & sign-in modules, chat modules and etc, and estimate performance of app.
- Loaded test on Jmeter for this app, and found the bottleneck of application and server by monitoring system resources, such as CPU usage, memory usage, I/O.
- Simulated network attack, such as DDos and SQL injection attack, and found out security vulnerabilities.

Courses Projects

Object Tracking in Video

SFU, Canada

CMPT 412: Computational Vision *Oct. 2017 - Nov. 2017*

- Implemented a object tracking program in Matlab based on Swain and Ballard's color indexing histogram algorithm, where select the area of object at the first frame then the object selected will be tracked and tagged in the following frames
- Got the color histogram of object area at first, then back propagated histogram back to the whole frame image to locate the object centered at one pixel, and applied Mean Shift method to ensure that it will not locate to some pixels that far away from the object pixel of previous frame
- Had good performance on tracking objects that move not so fast, however, if the object moves very fast between frames and rotates a lot, then the program is hard to track the object correctly
- Click this to view demo on YouTube

Webcams, Predictions, and Weather

SFU, Canada

CMPT 318: Computational Data Science *Nov. 2017 - Dec. 2017*

- Wrote a program in Python to pre-process and clean original data then train a machine learning model to predict weather according real-time images got from web-cams
- Collected weather data from GHCN(Global Historical Climatology Network), it's a national center for environmental information, and images of sky from Kat Kam, along with manual weather description
- Cleaned weather data by detecting and removing outliers, handling with NaN values, selecting daytime and matching weather data with image data
- Trained several models including SVM, Gaussian Naive Bayes, KNeighbors and Neural Network models, and compared their accuracy and selected the best one

Graphics Kit

SFU, Canada

CMPT 361: Introduction to Computer Graphics *Jan. 2017 - Apr. 2017*

- Wrote basic graphics drawing functions independently in C language without using existing libraries, including line drawing, polygon drawing and polygon renderer, with the coordinates of points and the color of surface as input
- Based on basic functions, implemented perspective of 3-D objects by using z-buffering and the camera position can be changed to show different views of object from every direction
- Implemented three different kinds of shading model, including phong shading, gouraud shading and flat shading, where the way of showing highlight are different
- Set point light source of different colors in the environment and the surface color of objects are calculated by both ambient light and specular reflection rate

Neural Network Face Recognition

SFU, Canada

CMPT 412: Computational Vision *Nov. 2017 - Dec. 2017*

- Used neural network to trained a machine learning model in Matlab for face recognition
- Collected the face data from databases in Face Recognition Homepage and partitioned the data into training set and test set by cross-validation method
- Tuned the parameters to get the best recognition rate and finally reached 87% accuracy
- Click this to view demo on YouTube

Education

Simon Fraser University(SFU)

Vancouver, Canada

B.Sc in Computer Science and in Dual Degree Program(DDP) of Zhejiang University *Sep. 2016 - PRESENT*

- Got a Dual-Degree Program Scholarship which is given to promising students in Applied Science Dept.

Zhejiang University(ZJU)

Zhejiang, China

B.Sc in Computer Science *Sep. 2014 - Jun. 2016*